USACERL Special Report 95/10, Vol II

Final
Environmental Impact Statement
Volume II

Military Training Use of National Forest Lands
Camp Shelby, Mississippi
Appendices

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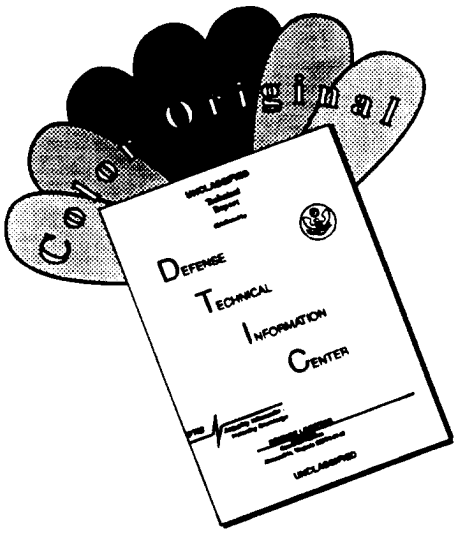
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Department of the Army

National Guard Bureau
and
Mississippi Army National Guard

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Harold E. Balbach, David L. Price, William R. Whitworth, Manroop K. Chawla, and Eric R. Schreiber

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Camp Shelby Training Site
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1001 Lee Avenue
Camp Shelby, MS 39407

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13. ABSTRACT (Maximum 200 words)
The Department of the Army, National Guard Bureau, proposes to continue Special Permit use of approximately 117,000 acres of National Forest land as an integral part of Camp Shelby, MS. This Environmental Impact Statement (EIS) discusses six alternatives, concentrating on threatened and endangered species, biodiversity, forest fragmentation, soil loss, timber supply, recreation opportunities, and the quality of life for local residents. The conclusion was that no alternative, with one exception, will jeopardize the continued existence of the gopher tortoise; that proposed erosion control measures will be adequate to control the most serious effects of soil movement; that the Forest Service would be able to integrate the proposed timber removal into their existing sales program if this removal were spread over several years; and that the military presence can coexist with civilian recreational use. The Army's preferred alternative will allow both tank gunnery and battalion tracked vehicle maneuvers to take place simultaneously.

This Final EIS was filed with the Environmental Protection Agency in August 1994 and a Record of Decision issued in December 1994 selected an action combining aspects of several alternatives. This document does not represent a pending action, and the public response period expired in October 1994.

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Military Training Use of National Forest Lands Camp Shelby, Mississippi

by
Harold E. Balbach
David L. Price
William R. Whitworth
Manroop K. Chawla
Eric R. Schreiber

The Department of the Army, National Guard Bureau, proposes to continue Special Permit use of approximately 117,000 acres of National Forest land as an integral part of Camp Shelby, MS. This Environmental Impact Statement (EIS) discusses six alternatives, concentrating on threatened and endangered species, biodiversity, forest fragmentation, soil loss, timber supply, recreation opportunities, and the quality of life for local residents. The conclusion was that no alternative, with one exception, will jeopardize the continued existence of the gopher tortoise; that proposed erosion control measures will be adequate to control the most serious effects of soil movement; that the Forest Service would be able to integrate the proposed timber removal into their existing sales program if this removal were spread over several years; and that the military presence can coexist with civilian recreational use. The Army's preferred alternative will allow both tank gunnery and battalion tracked vehicle maneuver to take place at the same time. A decision that combines aspects of more than one alternative may be selected to allow the agencies to balance environmental impacts with achieving the Army's training needs.

This Final EIS was filed with the Environmental Protection Agency in August 1994, and a Record of Decision was issued in December 1994, selected an action combining aspects of several alternatives. The present document does not represent a pending action, and the public response period for this document expired in October 1994.

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Foreword

This report was prepared for the Mississippi Army National Guard, the National Guard Bureau, and the Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health) with funding through the Mississippi National Guard under military interdepartmental purchase requests NGMS-CF-MIPR-92-10, dated 28 May 92; NGMS-CF-MIPR-92-11, dated 28 August 1992; NGMS-CF-MIPR-93-02, dated 23 February 1993; and ONGMS MOE 94008, dated 11 March 1994, "Preparation of Camp Shelby Final Environmental Impact Statement." The Mississippi National Guard technical monitor was LTC Robert Lee, NGMS-FMO-E.

The work was performed by the Environmental Resources (ENR) team of the Environmental Division (EN), U.S. Army Construction Engineering Research Laboratories (USACERL). The principal investigator was Dr. Harold E. Balbach who is now assigned to the Planning and Mission Impact Division (LL-P) of the Land Management Laboratory (LL). Robert M. Lacey is Acting Chief (LL-P), and Dr. William D. Severinghaus, Operations Chief (LL) and William D. Goran is Chief, CECER-LL.

LTC David J. Rehbein is Commander and Acting Director, USACERL, and Dr. Michael J. O'Connor is Technical Director.

The authors wish to acknowledge the significant contributions made to the Draft EIS by Jo Culbertson and R. Marvin Marlatt of USACERL; the development of Geographic Information System analyses and figures by Bob Lozar, Ed Delisio, and Bob Feeney of USACERL; the preparation of the cultural resources surveys and analyses by Charles Moorehead and Neil Robison of the Mobile, AL, District Office of the Corps of Engineers; and extensive support in reading, revising, and supplementing the Draft and Final EIS by LTC Bob Lee, COL Leland Redmond, COL Woodrow Lyon, LTC G.E. Davis, LTC Lonnie Rayburn, and numerous other officers, enlisted personnel, and civilian employees of the Army National Guard Bureau, Mississippi Army National Guard, and Camp Shelby. John White, formerly of the U.S. Forest Service, provided invaluable assistance in hundreds of instances where National Forest policy, programs, procedures, and plans are discussed. Thomas Craven, of the Mobile District, Corps of Engineers, was also a critical participant in the process from its initiation until his retirement, during the last stages of document finalization. Mike Eubanks assumed this important role for the last months of document assembly, printing, and distribution. In Chapter 7 of the EIS, the names and contributions of many of the scores of participants in the EIS data collection, research, and writing process are described in slightly more detail. Without the assistance of these persons, and others unnamed, successful completion of the project would not have been possible.

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Final
Environmental Impact Statement

Military Training Use of National Forest Lands Camp Shelby, Mississippi

Appendix A

Text of Special Use Permit

1. A-1 Current Permit
   (includes letters extending SUP)
2. A-2 Proposed Permit

Master Agreement (1988)

APPENDIX A

SPECIAL USE PERMIT TEXT

1. Current Special Use Permit

ates
ent of
ulture

Forest
Service

National Forests
in Mississippi

100 W. Capitol St.
Suite 1141
Jackson, MS 39269
601 965-4391

Reply to: 2720

Date: December 24, 1990

Charlie D. Brackeen
Brigadier General, MSNG
Special Adviser for Military Affairs
State of Mississippi Military Department
P. O. Box 5027
Jackson, Mississippi 39296-5027

Dear General Brackeen:

This is in response to your December 19, 1990, letter requesting an extension of the existing special use permit for Camp Shelby. When the Camp Shelby Special Use Permit (SUP) Environmental Impact Statement (EIS) is completed, a new permit can be issued for a longer period of time.

During this period of extension, I hope we can work closely in administering this permit and mitigate the significant impacts of military use.

This letter authorizes the extension of your special use permit through December 31, 1991.

Sincerely,

Kenneth R. Johnson

KENNETH R. JOHNSON
Forest Supervisor

cc:
Black Creek Ranger District

United States Department of Agriculture
Forest Service
National Forests in Mississippi
W. Capitol St.
Suite 1141
Jackson, MS 39269
601 965-4391

Reply to: 2720

Date: December 28, 1989

Major General Arthur J. Farmer
The Adjutant General
State of Mississippi
Military Department
P. O. Box 5027
Jackson, MS 39296-5027

Dear General Farmer:

This is in response to your letter concerning your continuing need for a special use permit for Camp Shelby. In view of our Land and Resource Management Plan and the Notice of Intent to do an Environmental Impact Statement (EIS) on the total Camp Shelby operation that was recently published in the Federal Register, it is appropriate to extend the current special use permit for one year. Once the EIS is completed, we should be able to issue a new permit for a longer period of time.

This letter, therefore, authorizes the extension of your special use permit through December 31, 1990.

Sincerely,

KENNETH R. JOHNSON

KENNETH R. JOHNSON
Forest Supervisor

United States Department of Agriculture Forest Service	a. Record no. (1-2)	b. Region (3-4)	c. Forest (5-6)
AMENDMENT FOR SPECIAL USE PERMIT Ref: FSM 2714	70	08	07
	d. District (7-8)	e. User number (9-12)	f. Kind of use (13-15)
	03	1035	431
THIS AMENDMENT IS ATTACHED TO AND MADE A PART OF THE ☐ TERM ☒ ANNUAL PERMIT	g. State (16-17)	h. County (18-20)	k. Card no. (21)
	28	039 035 111	1

For training area, Camp Shelby (KIND OF PERMIT) issued to Mississippi National Guard, Box 5027, Jackson, MS 39216 (NAME OF PERMITTEE), on 8/20/84 (DATE OF PERMIT)

which is hereby amended as follows: AMENDMENT 2

DELETE: Clauses No. 18 and 39.

ADD: Clause No. ~~49~~ 53

Unless sooner terminated or revoked by the authorized officer, in accordance with the provisions of the authorization, this authorization shall expire and become void on 12/31/89, but a new special-use authorization to occupy and use the same National Forest System land may be granted provided the holder will comply with the then-existing laws and regulations governing the occupancy and use of National Forest lands and shall have notified the authorized officer not less than 3 months prior to said date that such new authorization is desired.

ADD: Clause No. ~~50~~ 54

Prior to approval to construct major improvements, the NEPA process will be followed to evaluate impacts of the proposal. Based on the environmental analysis a decision document will be signed by the Forest Supervisor with adequate lead time to notify interested or affected publics. Construction may not begin until after the Decision Notice has been signed.

This Amendment is accepted subject to the conditions set forth herein, and to conditions -- to -- attached hereto and made a part of this Amendment.

	NAME OF PERMITTEE	SIGNATURE OF AUTHORIZED OFFICER	DATE
PERMITTEE	MISSISSIPPI NATIONAL GUARD	TITLE Adjutant General	15 Jan 89
	NAME AND SIGNATURE	TITLE	DATE
ISSUING OFFICER	L. W. BRADDOCK	Forest Supervisor	1/31/89

GPO 928-202

2700-23 (3/72)

United States Department of Agriculture Forest Service	a. Record no. (1-2)	b. Region (3-4)	c. Forest (5-6)
AMENDMENT FOR SPECIAL USE PERMIT Ref: FSM 2714	70	08	07
	d. District (7-8)	e. User number (9-12)	f. Kind of use (13-15)
	03	1035	431
THIS AMENDMENT IS ATTACHED TO AND MADE A PART OF THE ☒ TERM ☐ ANNUAL PERMIT	g. State (16-17)	h. County (18-20)	k. Card no. (21)
	28	035 039 Also 111	1

For gunnery training for M60A3 tank (KIND OF PERMIT) issued to

Mississippi National Guard, Box 5027, Jackson, MS 39216 (NAME OF PERMITTEE), on 8-20-84 (DATE OF PERMIT)

which is hereby amended as follows: AMENDMENT 1

In order to implement the accelerated M60A3 tank Displaced Equipment Training (DET), the following will be accomplished:

1. The National Guard may use the area designated on Exhibit I on a year-round basis according to a schedule given to and coordinated with the Forest Service for tank firing.

2. On days when barricade positions are not closed, the area designated on Exhibit I normally open to the public may be used for multiple use activities.

3. This amendment does not include tracked vehicle maneuvering. Vehicle movement from the contonement area to ranges, or between ranges will be confined to roads.

4. The change in maneuver areas envisioned in clause 48 will be delayed until the end of the intensified M60A3 tank Displaced Equipment Training. This delay is the result of not being able to make timber sales in the areas shown on Exhibit I. As existing timber sales are completed, as much of the proposed maneuver areas will be exchanged as is possible.

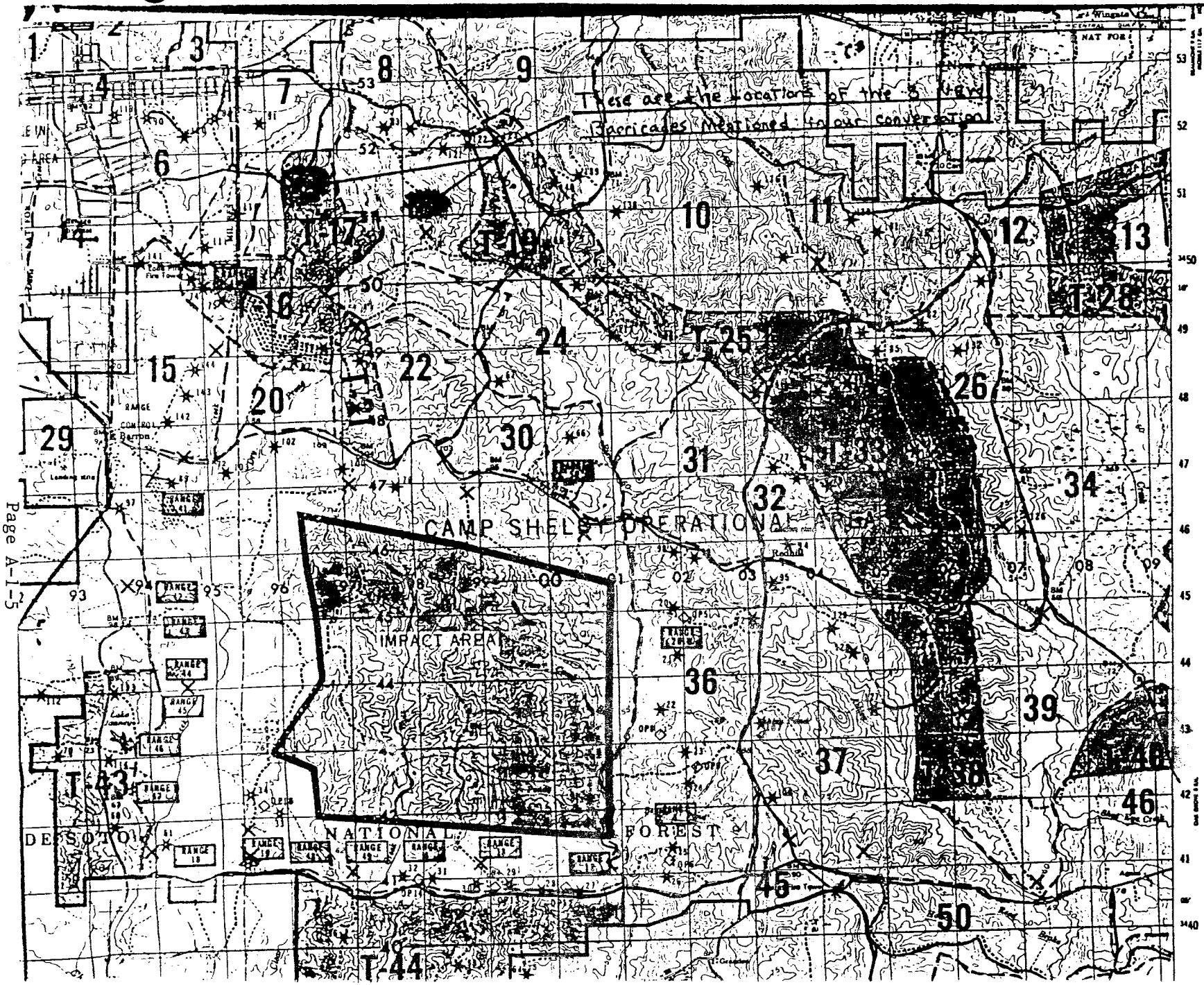
5. A monitoring plan to be developed cooperatively will become a part of this amendment. This plan will cover erosion, water quality, the deer herd, red cockaded woodpecker colonies, and gopher tortoise colonies.

This Amendment is accepted subject to the conditions set forth herein, and to conditions ____ to ____ attached hereto and made a part of this Amendment.

	NAME OF PERMITTEE	SIGNATURE OF AUTHORIZED OFFICER	DATE
PERMITTEE	MISSISSIPPI NATIONAL GUARD	TITLE Adjutant General	10/10/86
ISSUING OFFICER	NAME AND SIGNATURE L. W. BRADDOCK	TITLE Forest Supervisor	DATE 10/10/86

GPO 928-202

2700-23 (3/72)



× LOCATION OF TANK FAN BARRICADE POSITIONS.

LOCATION OF BARRICADE POSITION FOR FIRING BRADLEY FIGHTING VEHICLE

United States Department of Agriculture Forest Service	a. Record no. (1-2)	b. Region (3-4)	c. Forest (5-6)
	70	08	07
SPECIAL USE PERMIT	d. District (7-8)	e. User number (9-12)	f. Kind of use (13-15)
	03	1035	621
Act of June 4, 1897 This permit is revocable and nontransferable (Ref. FSM 2710)	g. State (16-17)	h. County (18-20)	k. Card no. (21)
36 CFR 251.50, et. seq.	28	035 Also 111 039	1

Permission is hereby granted to Adjutant General, State of Mississippi, for and on behalf of Mississippi National Guard, Box 5027, Jackson, MS 39216, hereinafter called the permittee, to use subject to the conditions set out below, the following described lands or improvements:

Within the DeSoto National Forest, Black Creek Ranger District, as shown on Exhibits A-H, attached hereto and made a part of this permit.

This permit covers 116,639 acres and/or _____ miles and is issued for the purpose of:

Training Areas - Camp Shelby.

1. Construction or occupancy and use under this permit shall begin within -- months, and construction, if any, shall be completed within -- months, from the date of the permit. This use shall be actually exercised at least 365 days each year, unless otherwise authorized in writing.

2. In consideration for this use, the permittee shall pay to the Forest Service, U.S. Department of Agriculture, the sum of ---------- Dollars ($ ----------) for the period from ---------- 19-- , to ----------; 19-- , and thereafter annually ~~xx~~ RENTAL FEE WAIVED 36 CFR 251.57(b)(1) Dollars ($ ----------): *Provided, however,* Charges for this use may be made or readjusted whenever necessary to place the charges on a basis commensurate with the value of use authorized by this permit.

3. This permit is accepted subject to the conditions set forth herein, and to conditions 18 to 52 attached hereto and made a part of this permit.

	NAME OF PERMITTEE	SIGNATURE OF AUTHORIZED OFFICER	DATE
PERMITTEE	MISSISSIPPI NATIONAL GUARD	Adjutant General TITLE State of Mississippi	9 AUGUST 84
	NAME AND SIGNATURE	TITLE	DATE
ISSUING OFFICER	B. F. FINISON	Forest Supervisor	8/20/84

(CONTINUED ON REVERSE)

2700-4 (7-71)

4. Development plans: lay .ns; construction, reconstruction, o. ion of improvements; or revision of layout or construction plans for this area must be approved i.. ance and in writing by the forest supervisor. Trees or shrubbery on the permitted area may be remove.. or destroyed only after the forest officer in charge has approved, and has marked or otherwise designated that which may be removed or destroyed. Timber cut or destroyed will be paid for by the permittee as follows: Merchantable timber at appraised value; young-growth timber below merchantable size at current damage appraisal value; *provided* that the Forest Service reserves the right to dispose of the merchantable timber to others than the permittee at no stumpage cost to the permittee. Trees, shrubs, and other plants may be planted in such manner and in such places about the premises as may be approved by the forest officer in charge.

5. The permittee shall maintain the improvements and premises to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the forest officer in charge.

6. This permit is subject to all valid claims.

7. The permittee, in exercising the privileges granted by this permit, shall comply with the regulations of the Department of Agriculture and all Federal, State, county, and municipal laws, ordinances, or regulations which are applicable to the area or operations covered by this permit.

8. The permittee shall take all reasonable precautions to prevent and suppress forest fires. No material shall be disposed of by burning in open fires during the closed season established by law or regulation without a written permit from the forest officer in charge or his authorized agent.

9. The permittee shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with this permit, and shall pay the United States for any damage resulting from negligence or from the violation of the terms of this permit or of any law or regulation applicable to the National Forests by the permittee, or by any agents or employees of the permittee acting within the scope of their agency or employment.

10. The permittee shall fully repair all damage, other than ordinary wear and tear, to national forest roads and trails caused by the permittee in the exercise of the privilege granted by this permit.

11. No Member of or Delegate to Congress or Resident Commissioner shall be admitted to any share or part of this agreement or to any benefit that may arise herefrom unless it is made with a corporation for its general benefit.

12. Upon abandonment, termination, revocation, or cancellation of this permit, the permittee shall remove within a reasonable time all structures and improvements except those owned by the United States, and shall restore the site, unless otherwise agreed upon in writing or in this permit. If the permittee fails to remove all such structures or improvements within a reasonable period, they shall become the property of the United States, but that will not relieve the permittee of liability for the cost of their removal and restoration of the site.

13. This permit is not transferable. If the permittee through voluntary sale or transfer, or through enforcement of contract, foreclosure, tax sale, or other valid legal proceeding shall cease to be the owner of the physical improvements other than those owned by the United States situated on the land described in this permit and is unable to furnish adequate proof of ability to redeem or otherwise reestablish title to said improvements, this permit shall be subject to cancellation. But if the person to whom title to said improvements shall have been transferred in either manner provided is qualified as a permittee and is willing that his future occupancy of the premises shall be subject to such new conditions and stipulations as existing or prospective circumstances may warrant, his continued occupancy of the premises may be authorized by permit to him if, in the opinion of the issuing officer or his successor, issuance of a permit is desirable and in the public interest.

14. In case of change of address, the permittee shall immediately notify the forest supervisor.

15. The temporary use and occupancy of the premises and improvements herein described may be sublet by the permittee to third parties only with the prior written approval of the forest supervisor but the permittee shall continue to be responsible for compliance with all conditions of this permit by persons to whom such premises may be sublet.

16 This permit may be terminated upon breach of any of the conditions herein or at the discretion of the regional forester or the Chief, Forest Service.

17. In the event of any conflict between any of the preceding printed clauses or any provisions thereof and any of the following clauses or any provisions thereof the following clauses will control

GPO 914-673

18. Unless sooner terminated or revoked by the Forest Supervisor in accordance with the provisions of the permit, this permit shall expire and become void on December 31, 1988, but a new permit to occupy and use the same National Forest land may be granted provided the permittee will comply with the then-existing laws and regulations governing the occupancy and use of National Forest lands and shall have notified the Forest Supervisor not less than six (6) months prior to said date that such new permit is desired.

19. This permit is subject to the rights and privileges granted in mineral, oil, or gas leases covering this land which have been issued by an authorized agency of the United States, and this permit does not authorize the prevention or obstruction of the reasonable exercise of the rights and privileges granted by said mineral, oil, or gas leases.

20. This permit is subject to the rights and privileges granted in Special Use Permits to the following permittees and does not authorize the prevention or obstruction of the reasonable exercise of rights and privileges granted in the Special Use Permits (See Exhibit A):

Pearl River Valley Electric Power Association, 10/4/62
Florida Gas Transmission Co., 7/16/57
United Gas Pipeline Co., 11/23/49 (Rev. 12/3/51; 1/28/66)
Hess Pipeline Co., 11/4/50 (Rev. 6/6/61; 4/23/65)
Franklin Telephone Co, 10/30/63
Singing River Electric Power Association, 2/1/54 (Rev. 5/25/64)
Dixie Electric Power Association, 1/18/50

21. The following areas specifically delineated on attached map, Exhibit B, are closed to occupancy and shall be marked and signed by permittee "Off Limit Area" in the field. Permittee may reimburse the Forest Service in lieu of performing work.

Area	Acres
Mississippi Department of Wildlife Conservation Headquarters	10
SFES Genetic Institute Experimental Area	3
SFES Experimental Area	80
High Fence Restoration Area	1600
Slash Pine Seed Production Area	40
Champion Magnolia Tree	40

22. From time to time, after consultation with permittee, it will be in the public interest for the Forest Service to designate particular parts of the permit area as "Off Limits" to military use. These areas will include, but not be limited to the following: Water influence zones along live, free-running streams, newly established plantations, experimental areas, recreation areas, travel influence zones, wildlife food plots, active erosion problem areas or areas in which Forest Service is performing project work. There will be no time limitation on such areas but, rather this will be determined by the nature of the situation on the ground and military need determined in such consultation. Insofar as possible areas to be designated "Off Limits" shall be determined at least one (1) year prior to withdrawal and the permittee so advised at the annual planning meeting. It will be the responsibility of the permittee to sign

Storage facilities for materials capable of causing water pollution, if accidentally discharged, shall be located so as to prevent any spillage into waters, or channels leading into water. All non-biodegrable materials (e.g. metal containers, shell casings, etc.) shall not be buried within the permitted area but shall be removed from these lands for disposal at designated land fill or waste disposal sites.

27. The permittee shall restrict all live firing and explosives to the: Ammunition dump, impact area, small arms ranges, aerial gunnery ranges, crew served weapons ranges, attack courses, artillery and mortar ranges and tank ranges. These areas are delineated on Exhibit D. Advance approval of the Forest Service will be required for adding, relocating, changing direction of fire or type of use on any firing range. Ranges east of Mississippi Highway 29, except Air to Ground Range, will not be activated without notification of the Forest Service. Also shown on Exhibit D:

a. Danger Areas
b. Safety Zone
c. Firing Points

Military clean-up functions, such as de-dudding, to the extent possible and otherwise restoring areas to safety for ordinary National Forest activities, shall be the responsibility of the permittee.

28. The location of maneuver and bivouac areas for tanks and access routes thereto will be restricted to the locations shown on map attachment, Exhibit E. Any location changes or additional areas will require prior approval of the Forest Service.

The tactical maneuvering and bivouac of all tracked vehicles (tanks, APC's, etc.) will be limited to those areas so designated on Exhibit E and areas will be marked and maintained with high visibility orange paint.

Travel routes to firing points for track type artillery equipment, etc., will be limited to gravel roads and woods roads within the permit area.

29. The permittee shall exercise and take necessary safety precautions as required by AR 385-63 and AFR 50-13 in the use of live ammunition, other explosives and incendiary devices at the various firing ranges. On permanent discontinuance or abandonment of impact or target area, de-dud such areas to standards in accordance with current Armed Forces practices and notify the Forest Service of necessary safety precautions when using the area. Permittee will post impact areas used by National Guard since 1955, both abandoned and those currently used, by painting, signing, and delineating on a map. A copy of the map will be furnished to the Forest Service. Permittee may reimburse Forest Service in lieu of performing work.

30. The permittee shall operate its radio-electronic type equipment so that unreasonable interference is not caused to Forest Service radio-electronic type operations or to other United States Government radio communications presently operating on National Forest land on or adjacent to the area coverd by this permit. In the event the operational use authorized under this agreement causes unreasonable interference to the operations of the United States Government stations presently located on the National Forest, discontinue military radio use, correct causes of unreasonable interference, or shift to another frequency which will not cause unreasonable interference.

31. The Forest Service reserves the right of occupancy and use and shall have the right to permit its grantees, permittees, or lessees, use of any part of the area not actually occupied by permittee's facilities or improvements, and not conflicting with previously approved training plan, and to permit free and unrestricted access in through, and across said lands for officers and employees of the United States in the performance of their official duties; for authorized users of National Forest land and for purchasers of National Forest products when not inconsistent with the enjoyment of privileges granted to the permittee and/or when coordinated with their use. National Guard activities will not interfere with Forest Service contractors, timber purchasers, etc., between September 1 and May 14 of each year except for the 13,500 acre impact area, the small area and road affected by existing Davis Range on weekends throughout the year, and the tank fans bounded by South Tank Trail from intersection of Grapevine Road to intersection with Brooklyn-Paret Road thence to Mississippi Highway 29, thence along Highway 29 to north township line of Township 2 North, thence west along township line to intersection with Grapevine Road thence south along Grapevine Road to intersection with South Tank Trail during the weekends (Saturdays and Sundays) of April, May, and September.

32. The permittee recognizes that private ownerships are intermingled with National Forest ownership in these National Forests and that it is not the intent of this special use permit to modify or interfere with the use of such lands nor to authorize in any way the use of such private land except as the United States, through the Forest Service, may have ingress and egress rights over such lands.

33. The use of any and all public utilities shall be through prior arrangements by the representative, permittee, with the proper representatives of utility companies, and shall in all ways hold the Forest Service harmless from such use or damage.

34. The permittee shall indemnify the United States against any judicially adjudicated liability for damage to property arising from the occupancy or use of National Forest lands under this permit.

35. No charge will be made for this use; however, either party may perform reimbursable work for the other party as authorized by 16 U.S.C. 572 and 23 U.S.C., Sections 205a and 205b when covered by an annual plan of work, prepared by the Forest Service. The permittee shall reimburse the Forest Service for the following services:

a. As required, salary, travel expense or other allowances for a designated Forest Service Liaison Officer or other designated Forest Service employee.

b. Total cost of burning the impact area, and such additional areas as required by the permittee or the Forest Service.

c. Treatment of standing live timber and damaged down timber for insect and pest control currently necessitated and caused by activities of the permittee.

d. Maintenance work to prevent erosion or excessive deterioration of roads, trails, tank trails, or any other areas due to use by the permittee when said work is done independently by the Forest Service.

e. Fire detection due to risk associated with National Guard activities.

f. Preparing and administering timber sales which are made for benefit of the National Guard.

g. Wildlife habitat work for mitigation purposes.

h. Reforestation work on National Forest land no longer needed for National Guard training.

i. Perpetuating location of land corners and boundaries of "Dud" areas by burying corners and mapping in "Dud" areas (See Exhibit C).

36. All project proposed by the permittee will require approval of the Forest Service. On construction projects involving soil disturbance, a complete set of construction plans will be furnished with each request. Roads, trails, borrow pits, etc., will be constructed to Forest Service standards. Erosion control is considered a part of the project and a timetable for completion will be approved before beginning the project. Because of highly erodible soils of the permit area, provisions must be incorporated to insure protection of soil and water values.

For this reason, erosion control work will be required on all land, roads and trails constructed and/or used by the permittee. If the permittee chooses a "stage construction" type of operation, then reasonable temporary erosion control measures will be required. These could include, but not be limited to: Water bars, lead-out ditches, seeding, mulching, fertilizing and terraces.

37. Road maintenance responsibilities of the permittee are as follows:

a. Mississippi National Guard has full maintenance responsibility for roads in the following area with the exception of maintenance needs due to Forest Service timber sale activities.

Area is described as follows:

All roads on National Forest land not maintained by the county or state located north of the Brooklyn-Paret Road (302) and the Beaumont Road (303).

Also included in the above category of maintenance is the part of the north and south tank trails outside the above described area and the gravel haul road beginning at north section line of Section 21, Township 1 North, Range 11 West, crossing Black Creek and ending at the Brooklyn-Janice Road.

b. Mississippi National Guard has full maintenance responsibility of Forest Service roads in the following area from the date of the first summer encampment to the date when the maintenance is completed (all damages repaired) after the last summer encampment with the exception of maintenance needs due to Forest Service timber sale activities. The Forest Service has maintenance responsibilities the remainder of the time.

The area lying east of Mississippi #29, south of Beaumont Road (303), west of Mississippi National Guard special use permit boundary and north of McLain Road (385).

Also included in the above category of maintenance are Forest Service roads 319E, 319G, and the section of 319 used.

c. Mississippi National Guard will be responsible for maintenance of Forest Service roads, other than roads in a and b above, in the Special Use areas or which furnish access to Special Use areas when extraordinary maintenance is necessary due to the Guard's use.

Road responsibility areas are shown on Exhibit F.

38. All areas and improvements covered by this permit, such as bivouac sites, roads, borrow pits, roadbanks, tank trails, tank maneuver areas, or firing sites shall be currently maintained by the permittee. Maintenance repair, erosion control (including water barring, seeding, fertilizing, and mulching) clean-up of use areas, and other necessary work shall be accomplished currently, at the end of each field problem, or at the conclusion of the camp period to prevent permanent damage. All repair and maintenance work will be to the written standards of the Forest Service. Forest Service personnel will be provided, as needed, to offer technical advise.

39. Obtain prior approval of the Forest Service in writing before construction of any major improvements such as observation towers, barracks, repair shops, etc., for training or any other purposes, and dismantle, clean-up, and restore area when improvement is no longer needed. If written approval or disapproval is not granted within 30 days after requested in writing, then this permit shall act as granting approval for such major improvements.

40. To facilitate coordination by designation of Liaison Officers to be responsible for maintaining close cooperation in carrying out the provisions of this permit--

--For the permittee:

Name: _____

Title: Colonel, Training Site Supervisor

Address: Camp Shelby, McLaurin, MS 39401

--For the Forest Service:

Name: _____

Title: District Ranger

Address: Box 248, Wiggins, MS 39577

Changes in designated Liaison Officers may be accomplished by letter without formal amendment of this permit.

41. The permittee shall furnish the Forest Service at the beginning of each fiscal year, and update monthly, a schedule including a map showing areas affected of planned uses of all or part of the permit area such as impact area, small arms ranges outside the normal encampment period, May 15 through August 31 and tank fan area closure on weekends in April, May and September. Any use which has any effect on areas outside of the impact area or the weekends referred to will be granted at the discretion of the Forest Service. This is necessary due to 2-3 year timber sales and other project contracts which provide for coordination with Guard activities during May 15 through August 31, but not during the remainder of the year. Permission to use the areas will not be unreasonably withheld.

42. All questions concerning the provisions of this permit or the use of Forest lands covered herein which cannot be resolved between the Training Site Supervisor and the District Ranger in charge of the area, will be referred for resolution to the Adjutant General, Mississippi National Guard, Jackson, Mississippi, and the Forest Supervisor, National Forests in Mississippi, Jackson, Mississippi.

43. The requirements of all clauses indicated above shall in no case obligate the permittee beyond the statutory limitations or legal authorizations of the State and Federal laws. Should permittee's funds be inadequate to cover the needed obligations set forth above, then, except in case of extreme emergency, use will be limited to those activities which will not create additional damage or erosion problem areas.

44. If the permittee ceases to have personal need for, or to make personal use of, the site for the purpose for which the permit is issued, this permit will terminate and the structures on the area shall be disposed of as provided in clause 12.

45. Pesticides may not be used to control undesirable woody and herbaceous vegetation aquatic plants, insects, rodents, trash fish, etc., without the prior written approval of the Forest Service. A report of planned use of pesticides will be submitted annually by the permittee on the due date established by the Forest Supervisor. The report will cover a 12-month period of planned use beginning three months after the reporting date. Information essential for review will be provided in the form specified. Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures which were not anticipated at the time the annual report was submitted.

Only those pesticides approved and registered by the Environmental Protection Agency for the specific purpose planned will be considered for use on these lands. Label instructions will be strictly followed in the preparation and application of pesticides and disposal of excess materials and containers.

46. The permittee does by the acceptance of this document covenant and agree for itself, its assigns, and its successors in interest to the property herein granted or any part thereof, that the covenants set forth below shall attach to and run with the land:

(1) The the described property, and its appurtenant areas and its buildings and facilities, whether or not on the land herein granted, will be operated for defense purposes, in full compliance with Title VI of the Civil Rights Act of 1964 and all requirements imposed by or pursuant to the regulations issued thereunder by the Department of Agriculture and in effect on the date of this document to the end that no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any programs or activities provided thereon; and

(2) That the United States shall have the right to judicial enforcement of these covenants not only as to the permittee, its successors and assigns, but also as to lessees and licensees doing business or extending services under contractual or other arrangements on the land herein granted.

In the event of a judicially adjudicated breach of any of the conditions set forth above, all right, title, and interest in and to the above described property shall, at the option of the Grantor, revert to and become the property of the United States of America, which shall have an immediate right of entry thereon and the permittee, its successors or assigns, shall forfeit all right, title, and interest in and to the above described property and in any and all of the tenements, hereditaments, and appurtenances thereunto belonging; provided, however, that the failure of the Grantor to insist in any one or more instances upon complete performance of any of the said conditions shall not be construed as a waiver or a relinquishment of the future performance of any such conditions but the obligations of the permittee with respect to such future performance shall continue in full force and effect.

47. The permittee will arrange for or perform an archaeological and historical survey and evaluation on permit lands by an archaeologist acceptable to the U.S. Forest Service prior to any new site disturbing construction. Such sites deemed significant may require the permittee to relocate the proposed facilities in order to avoid destruction of archaeological and historical values under criteria of E.O. 11593, 36 CFR 800.1-10 and the National Historic Preservation Act of 1966 (80 Stat. 915). Those sites of lesser value will be salvage excavated if determined necessary to do so by the Archaeologist and the Federal Agencies. The permittee will pay for all such actions. The permittee shall not remove, injure, deface, or alter any object of historic or scientific interest, including Indian ruins, artifacts and other archaeological remains. Where a question exists as to whether or not an object is of scientific or historic interest, the permittee shall immediately bring the matter to the attention of the Forest Officer for final determination.

48. During the next 5 to 8 years there will be a change from individual tank maneuver areas (Exhibit E) to task force level tactical training areas (Exhibit H). The Forest Service will release areas for tactical training as the timber is cut off and the timber sale is closed. The National Guard will release a proportionate acreage of existing individual tank maneuver areas from training at the same time. The National Guard will do rehabilitation work, if needed, on release to the Forest Service. The order in which individual tank maneuver areas will be released are as follows:

Present TMA's In Order to be Released	Portions to be Released	Acres to be Released to Forest Service
T-50	All	1,517
T-54	All	1,842
T-49	All	1,099
T-47	All	1,202
T-28	North & East of new TMA	899
T-27	North of new TMA	348
T-40	West of Highway 29	186
T-38	All	575
T-33	South of new TMA	623
T-25	North of Road 367	382
T-19	North of Road 367	32
T-23	West of Road 369	124
T-17	All	444
T-16	All except for Locust Range	787
T-21	West of Road 369-D and North of Road 304 except for Locust Range	171
T-43	West of Road 310	243
T-44	South of South Tank Trail	1,541
		12,015

49. By execution below, the parties agree that in the interest of National Defense in periods of a National Emergency proclaimed by the President of the United States in accordance with the National Emergency Act (Public Law 94-412; 90 Stat. 1255), and consistent with the Joint Policy Agreement between the Department of the Army and the Department of Agriculture dated July 3, 1951, the responsibilities for the conditions of this Special Use Permit and any ensuing Amendments thereof will be transferred to and assumed by the Department of the Army within statutory limitations or legal authorizations of Federal laws for the duration of the National Emergency.

50. The Adjutant General of the State of Mississippi shall notify the Forest Supervisor in writing as soon as practicable after being notified of the National Emergency Proclamation.

51. In addition to conforming to the conditions of the Special Use Permit and Amendments thereof, the Army will:

a. Obtain prior approval of the Forest Service for exclusive use of certain areas needed for National security purposes.

b. Be responsible for processing claims pertaining to the Government's responsibility under the Federal Tort Claim and Tucker Acts arising from the Army's operation on or the occupancy of National Forest System lands under this Special Use Authorization.

c. Cooperate with the Forest Service in the prevention, detection, and suppression of forest fires on or threatening National Forest System land in accordance with the recommendations of the Deputy Secretary of Defense in his February 2, 1957, "Memorandum for the Secretary of the Army".

d. Provide responsible supervisory personnel with a copy of this Special Use Permit, and take measures as necessary to insure that these personnel are aware of all matters included in these documents, in the interest of affording adequate protection to National Forest System lands, resources, and improvements.

e. Take all reasonable precautions to protect National Forest System land from damage and to repair damages and budget for restoration moneys as prescribed in paragraphs D3 and D5 of the original Joint Policy Statement between the Department of the Army and the Department of Agriculture dated July 3, 1951.

f. Appoint a Liaison Officer with the Forest Service for all Army activities and shall inform the Forest Service of the name of said officer who will then represent the Army in all matters pertaining to said designated use as they relate to this authorization.

52. The temporary use and occupancy of the premises and improvements herein described may be allowed by the Department of the Army to third-parties with approval of the District Ranger providing said Forest Officer is notified at least 90 days prior to the proposed use, but the Department of the Army shall continue to be responsible for compliance with all conditions of this Special Use Permit by persons to whom such premises may be allowed.

Except that the Department of the Army (Corp of Engineers) must secure an agreement from non-Federal third-parties as an ancillary to this Special Use Permit providing for (1) compliance with all provisions of this Special Use Permit; (2) restoration of all damages their use may cause to National Forest System lands; (3) acceptance of liability for personal injury and property damages subject to applicable laws.

United States Department of Agriculture Forest Service	a. Record no. (1-2)	b. Region (3-4)	c. Forest (5-6)
AMENDMENT FOR SPECIAL USE PERMIT Ref: FSM 2714	70	08	07
	d. District (7-8)	e. User number (9-12)	f. Kind of use (13-15)
	03	1035	431
THIS AMENDMENT IS ATTACHED TO AND MADE A PART OF THE ☐ TERM ☒ ANNUAL PERMIT	g. State (16-17)	h. County (18-20)	k. Card no. (21)
	28	039 035 111	1

For training area, Camp Shelby (KIND OF PERMIT) issued to Mississippi National Guard, Box 5027, Jackson, MS 39216 (NAME OF PERMITTEE), on 8/20/84 (DATE OF PERMIT)

which is hereby amended as follows: AMENDMENT 2

DELETE: Clauses No. 18 and 39.

ADD: Clause No. ~~49.~~ 53

Unless sooner terminated or revoked by the authorized officer, in accordance with the provisions of the authorization, this authorization shall expire and become void on 12/31/89, but a new special-use authorization to occupy and use the same National Forest System land may be granted provided the holder will comply with the then-existing laws and regulations governing the occupancy and use of National Forest lands and shall have notified the authorized officer not less than 3 months prior to said date that such new authorization is desired.

ADD: Clause No. ~~50.~~ 54

Prior to approval to construct major improvements, the NEPA process will be followed to evaluate impacts of the proposal. Based on the environmental analysis a decision document will be signed by the Forest Supervisor with adequate lead time to notify interested or affected publics. Construction may not begin until after the Decision Notice has been signed.

This Amendment is accepted subject to the conditions set forth herein, and to conditions -- to -- attached hereto and made a part of this Amendment.

	NAME OF PERMITTEE	SIGNATURE OF AUTHORIZED OFFICER	DATE
PERMITTEE	MISSISSIPPI NATIONAL GUARD	TITLE Adjutant General	18 Jan 89
ISSUING OFFICER	NAME AND SIGNATURE L. W. BRADDOCK	TITLE Forest Supervisor	DATE 1/31/89

828-202

2700-23 (3/72)

United States Department of Agriculture
Forest Service
National Forests in Mississippi
100 W. Capitol St.
Suite 1141
Jackson, MS 39269
601-965-4391

Reply to: 2720

Date: December 10, 1993

General James H. Garner
Major General, MSNG
The Adjutant General
P. O. Box 5027
Jackson, MS 39296-5027

Dear General Garner:

Your December 3, 1993, request for an extension of the Camp Shelby Special Use Permit to December 31, 1994, is hereby authorized.

Sincerely,

KENNETH R. JOHNSON

KENNETH R. JOHNSON
Forest Supevisor

United States Department of Agriculture
Forest Service
National Forests in Mississippi
100 W. Capitol St.
Suite 1141
Jackson, MS 39269
601 965-4391

Reply to: 2720

Date: December 16, 1992

General James H. Garner
Major General (MS), MSNG
The Adjutant General
State of Mississippi Military Department
P. O. Box 5027
Jackson, MS 39296-5027

Dear General Garner:

This is in response to your December 7, 1992 request for an extension of the Camp Shelby Special Use Permit. Hopefully, the Environmental Impact Statement will be completed and the permit reissued by this time next year.

The current Special Use Permit is hereby extended through December 31, 1993.

Sincerely,

/s/Joseph E. Clayton
for KENNETH R. JOHNSON
Forest Supervisor

cc:
Black Creek Ranger District

United States Department of Agriculture | Forest Service | National Forests in Mississippi | 100 W. Capitol St. Suite 1141 Jackson, MS 39269 601 965-4391

Reply to: 2720

Date: November 18, 1991

Charlie D. Brackeen
Major General, MS NG
Special Advisor for Military Affairs
The Adjutant General's Office
P. O. Box 5027
Jackson, MS 39296-5027

Dear General Brackeen:

This is in response to your October 18, 1991 request for an extension of the Camp Shelby Special Use Permit. The current time frame for the EIS should allow for publishing the final EIS and the Record of Decision so that we can implement the decision by June 30, 1992.

This letter, therefore, authorizes the extension of the Camp Shelby Special Use Permit through June 30, 1992.

Sincerely,

KENNETH R. JOHNSON

KENNETH R. JOHNSON
Forest Supervisor

Department of
Agriculture

Jackson, MS 39205
601 965-4391

Reply to: 2720

Date: December 24, 1990

Charlie D. Brackeen
Brigadier General, MSNG
Special Adviser for Military Affairs
State of Mississippi Military Department
P. O. Box 5027
Jackson, Mississippi 39296-5027

Dear General Brackeen:

This is in response to your December 19, 1990, letter requesting an extension of the existing special use permit for Camp Shelby. When the Camp Shelby Special Use Permit (SUP) Environmental Impact Statement (EIS) is completed, a new permit can be issued for a longer period of time.

During this period of extension, I hope we can work closely in administering this permit and mitigate the significant impacts of military use.

This letter authorizes the extension of your special use permit through December 31, 1991.

Sincerely,

Kenneth R. Johnson

KENNETH R. JOHNSON
Forest Supervisor

cc:
Black Creek Ranger District

United States Department of Agriculture
Forest Service
National Forests in Mississippi
W. Capitol St.
Suite 1141
Jackson, MS 39269
601 965-4391

Reply to: 2720

Date: December 28, 1989

Major General Arthur J. Farmer
The Adjutant General
State of Mississippi
Military Department
P. O. Box 5027
Jackson, MS 39296-5027

Dear General Farmer:

This is in response to your letter concerning your continuing need for a special use permit for Camp Shelby. In view of our Land and Resource Management Plan and the Notice of Intent to do an Environmental Impact Statement (EIS) on the total Camp Shelby operation that was recently published in the Federal Register, it is appropriate to extend the current special use permit for one year. Once the EIS is completed, we should be able to issue a new permit for a longer period of time.

This letter, therefore, authorizes the extension of your special use permit through December 31, 1990.

Sincerely,

KENNETH R. JOHNSON

KENNETH R. JOHNSON
Forest Supervisor

APPENDIX A

SPECIAL USE PERMIT TEXT

2. Proposed Special Use Permit

Clauses 1-17 are standard clauses

18. Unless sooner terminated or revoked by the Forest Supervisor in accordance with the provisions of the permit, this permit shall expire and become void on December 31, 2004. A new permit to occupy and use the same National Forest land may be granted provided the permittee will comply with the then-existing laws and regulations governing the occupancy and use of National Forest lands and shall have notified the Forest Supervisor not less than six (6) months prior to said date that such new permit is desired.

19. This permit is subject to the rights and privileges granted in mineral, oil or gas leases covering this land which have been issued by an authorized agency of the United States, and this permit does not authorize the prevention or obstruction of the reasonable exercise of the rights and privileges granted by said mineral, oil or gas leases.

20. This permit is subject to the rights and privileges granted in Special Use Permits to the following permittees and does not authorize the prevention or obstruction of the reasonable exercise of rights and privileges granted in the Special Use Permits (See Exhibit A):

Mississippi Power Company
Pearl River Valley Electric Power Association, 10/4/62
Florida Gas Transmission Company, 7/16/57
United Gas Pipeline Company, 11/23/49 (Rev. 12/3/51; 1/28/66)
Hess Pipeline Company, 11/4/50 (Rev. 6/6/61; 4/23/65)
Franklin Telephone Company, 10/30/63
Singing River Electric Power Association, 2/1/54 (Rev. 6/25/64)
Dixie Electric Power Association, 1/18/50
Perry County Board of Supervisors
Mississippi Highway Department

21. The following areas specifically delineated on attached map, Exhibit B, are closed to occupancy and shall be marked and signed by permittee "Off Limit Area" in the field. Permittee may reimburse the Forest Service in lieu of performing work.

Area	Acres
SFES Genetic Institute Experimental Area	3
SFES Experimental Area	80
Permanent Wildlife Food Plots	60
Parking Lot for Rattlesnake Bay ATV Trail	2
Champion Magnolia Tree	40
Permanent Wildlife Food Plots	60

Upon written request, the Forest Service may authorize use of specified permanent food plots during the annual training period, May 1 - August 31.

Off Limits To Motorized Vehicles Area
(These Areas Will Be Marked By Permittee)

Proposed Ragland Hills Botanical Area (North of Lee Avenue)	285
Proposed Loblolly Bay Botanical Area	40

22. From time to time, after consultation with permittee, it will be in the public interest for the Forest Service to designate particular parts of the permit area as "Off Limits" to specified military use. These areas will include, but not be limited to the following: newly established plantations, experimental areas, recreation areas, designated trails, temporary wildlife food plots, active erosion problem areas or areas in which Forest Service is performing project work. There will be no time limitation on such areas but, rather this will be determined by the nature of the situation on the ground. Insofar as possible areas to be designated "Off Limits" shall be determined at least one (1) year prior to withdrawal and the permittee so advised at the annual planning meeting. It will be the responsibility of the permittee to sign appropriately the area "Military Off Limits Area" or "Off Limits To Military Vehicles" after the Forest Service designates the area on the ground and provides a map to the National Guard. Exhibit B shows present areas which are "Off Limits". The permittee may reimburse the Forest Service in lieu of performing work.

In addition, to meet the Corps of Engineers' watershed protection goal of not increasing downstream sedimentation, the buffer zone of 100' for equipment will be established around all wetlands and streams (intermittent and perennial as defined in the FEIS) within Track Maneuver Areas except in designated and approved wetland crossing sites. The Forest Service and National Guard will designate these areas on the ground. Permanent marking and signing will be the responsibility of the permittee.

23. By September 1 each year, the National Guard will prepare a fire suppression and prescribed burn plan. The effective date of the plan will be October 15. The plan will be submitted to the Forest Service for approval.

24. The permittee shall require members of the Armed Forces to comply with State Game and Fish Laws when Armed Forces personnel are in active duty or training status.

25. The permittee shall comply with Section 7 of the Endangered Species Act of 1973, as amended, to ensure the protection of threatened and endangered species.

Any proposed actions not covered by existing consultations which may have an effect on listed species will require re-entering consultation jointly with the Forest Service and Fish and Wildlife Service.

Exhibit G depicts known threatened and endangered species locations within the National Guard special use areas. Red-cockaded Woodpecker and Gopher Tortoise colonies along with "priority soil areas" for the Gopher Tortoise are off-limits to vehicles unless on an approved roadway.

Red Cockaded Woodpecker colonies are fenced and identified by bands of gray paint at one chain intervals around the colony site boundaries. As additional colonies are identified, they will be added to the off-limit areas.

Gopher tortoise colonies are, or will be prior to the area being used, identified on the ground by intervisible signs on posts. Individual burrows within the tank maneuver areas and firing points are identified by a single post. Priority soil areas within the tank maneuver areas will be identified on the ground by intervisible signs on posts.

Sensitive plant location will be protected from damage by National Guard activities.

26. The permittee shall enforce compliance of Armed Forces units and members with the regulations of the Department of Agriculture governing the use of National Forest land, observance of sanitation laws and regulations applicableto the premises; and with the maintenance or restoration of bivouac sites, roads and actual maneuver portions of the area in a neat and orderly condition. Permittee shall install and maintain sanitary improvements in accordance with State of Mississippi Board of Health requirements. This shall include, but not be limited to trenches, latrines, portable toilets, garbage pits, shower facilities, and other required residue and waste disposal areas. Restrict and require disposal at these sites only, and properly restore, stabilize, or remove them at the conclusion of the field problem requiring such facilities.

27. The permittee shall restrict all live firing and detonation of explosives to the: impact areas, small arms ranges, aerial gunnery ranges, crew served weapons ranges, attack courses, artillery and mortar ranges and tank ranges. These areas are delineated on Exhibit D. Ammunition and explosives will be stored only in approved storage sites. Advanced approval of the Forest Service will be required for adding, relocating, changing direction of fire or type of use on any firing range. Ranges east of Mississippi Highway 29, except Air to Ground Range, will not be activated without approval of the Forest Service. Firing schedule for A/G range will be coordinated with Forest Service. Also shown on Exhibit D:

a. Danger Areas
b. Safety Zone
c. Firing Points

Military clean-up functions, such as de-dudding, to standards in accordance with Armed Forces practices and otherwise restoring areas to safety for ordinary National Forest activities, shall be the responsibility of the permittee.

28. The location of maneuver and bivouac areas for tanks and access routes thereto will be restricted to the locations shown on map attachment, Exhibits E and H. Any location changes or additional areas will require prior approval of the Forest Service.

The tactical maneuvering and bivouac of all tracked vehicles (tanks, APC's, etc.) will be limited to those areas so designated on Exhibit E and areas will be marked and maintained with high visibility orange paint.

Travel routes to firing points for track type artillery equipment, etc., will be limited to gravel roads within the permit areas. Roads not currently graveled will be upgraded by the permittee as resources and funds permit.

29. The permittee shall exercise and take necessary safety precautions as required by current Army Regulations in the use of live ammunition, other explosives, and incendiary devices at the various firing ranges. On permanent discontinuance or abandonment of impact or target areas, de-dud such areas to standards in accordance with current Armed Forces practices and notify the Forest Service of necessary safety precautions when using the area. Permittee will post impact areas used by National Guard since 1955, both abandoned and those currently used, by painting, signing, and delineating on a map. Two copies of the map will be furnished to the Forest Service. Future sign design

will be jointly agreed upon by Forest Service and National Guard. Permittee may reimburse Forest Service in lieu of performing work.

30. The permittee shall operate its radio-electronic type equipment so that unreasonable interference is not caused to Forest Service radio-electronic type operations or to other United States Government radio communications presentlyoperating on National Forest land on or adjacent to the area covered by this permit. In the event the operational use authorized under this agreement causes unreasonable interference to the operations of the United States Government stations presently located on the National Forest, discontinue military radio use, correct causes of unreasonable interference, or shift to another frequency which will not cause unreasonable interference.

31. When not inconsistent with the enjoyment of privileges granted to the permittee and/or when coordinated with their use, the Forest Service reserves the right of occupancy and use and shall have the right:

a. To permit its grantees, permittees, or lessees, use of any part of the area not actually occupied by permittee's facilities or improvements and not conflicting with previously approved training plan.

b. To permit free and unrestricted access in, through and across said lands for:

    1. Officers and employees of the United States in the performance of their official duties.
    2. For authorized users of National Forest land.
    3. For purchasers of National Forest products.

National Guard activities will not interfere with Forest Service contractors, timber purchasers, etc., between September 1 and April 30 of each year except for (Exhibit C):

    a. The 13,500 acre impact area and buffer.
    b. The tank fans on weekends (1300 Friday to 1700 Sunday) and Range 50 (Davis Range) as agreed to in advance by the Forest Service.

The tank fans referenced in b. are those bounded by South Tank Trail from intersection of Grapevine Road to intersection with Brooklyn-Paret Road thence to Mississippi Highway 29, thence along Highway 29 to north township line of Township 2 North, Thence west along township line to intersection with Grapevine Road thence south along Grapevine Road to intersection with South Tank Trail.

The schedule for tank fan and Air/Ground Range fan closures will be provided to the Forest Service for approval on September 1, December 1, March 1 and June 1, each year for the next quarterly training period and updated monthly. Conflicts between east air/ground range useage and National Forest management needs will be negotiated and resolved between the Black Creek Ranger District and Camp Shelby personnel.

West air/ground Range useage is approved for year around firing.

Weekend training (IDT) schedules will be provided to the Forest Service on September 1, December 1, March 1 and June 1, each year and will cover training needs for the next quarter. Periodic meetings will be scheduled between the Forest Service and Camp Shelby personnel (Environmental and Range Control) for an on-the-ground review of planned training. At this time specific Unit needs

will be reviewed and such things as bivouac locations, road closure dirt berm removals, etc. will be field checked and approved. If preferred Training Area appears suitable based on current and expected weather conditions/forecasts, approval will be granted for use. If conditions are undesireable to perform planned training tasks, alternate Training Areas will be field checked until a suitable area is found or training is modified. Camp Shelby Engineering will be notified to remove road closure dirt berms and will put them back upon completion of training tasks. If their equipment is unavailable, the Forest Service will be contacted to remove/reinstall berms. Tank maneuvering in the period December 15 - January 31 will normally not be approved due to extreme soil conditions.

32. The permittee recognizes that private ownerships are intermingled with National Forest ownership in this National Forest and that this special Use permit does not modify or interfere with the use of such lands nor authorize in any way the use of such private land except as the United States, through the Forest Service, may have ingress and egress rights over such lands.

Permittee grants the Forest Service, its contractors and permittees ingress and egress across Corps of Engineers administered lands or leased lands within the permit area. Timing of ingress and egress will be coordinated with the National Guard.

33. The use of any and all public utilities shall be through prior arrangements by the permittee, with the proper representatives of utility companies, and shall in all ways hold the Forest Service harmless from such use or damage.

34. The permittee, as may be permitted or required by applicable law, shall indemnify the United States against any liability for damage to life or property arising from the occupancy and use of National Forest lands under this authorization.

35. The fee is waived as authorized in 36 CFR 251.57(b); however, either party may perform reimburseable work for the other party as authorized by 16 U.S.C. 572 and 23 U.S.C., Section 205a and 205b when covered by an annual plan of work. The rehabilitation portion of the plan of work will be based on "The Erosion Control Plan for Camp Shelby" dated November 1988, as amended. The National Guard will furnish to the Forest Service a plan and schedule to accomplish the backlog of erosion control work on Camp Shelby located on National Forest land. Erosion control required due to National Guard summer training will be accomplished by 12/31 of each year.

Permittee agrees to reimburse the Forest Service for costs directly attributed to military training activities, subject to the availability of funds. This may include, but is not limited to the preparation and processing of applications, preparation of environmental documents, administration of special use authorizations and Forest Service liaison officer's time.

36. The NEPA process will be followed on all projects proposed by the permittee and will require approval of the Forest Service. Road, trails, borrow pits, etc., will be constructed to Forest Service standards. Erosion control is considered a part of the project and a timetable for completion will be approved before beginning the project. Because of highly erodable soils in the permit area, provisions must be incorporated to insure protection of soil and water values. All project plans may be reviewed by the Forest Service.

During initial planning, provide an unclassified description of proposed activities to the Forest Supervisor and cooperate in fulfilling requirements of NEPA and conducting appropriate environmental analysis. All project plans may be reviewed by the Forest Service.

37. Road maintenance responsibilites of the permittee are as follow (See Exhibit F):

a. Mississippi National Guard has full maintenance responsibility for roads in the following area with the exception of maintenance needs due to Forest Service timber sale activities.

   Area is described as follows:

   All roads on National Forest land not maintained by the county or state located north of the Brooklyn-Paret Road (302) and the Beaumont Road (303).

   Also included in the above category of maintenance is the part of the south tank trail outside the permit area.

b. Mississippi National Guard has full maintenance responsibility of all other Forest Service roads in the permit area from the date of the first summer encampment to the date when the maintenance is completed (all damages repaired) after the last summer encampment with the exception of maintenance needs due to Forest Service timber sale activities. The Forest Service has maintenance responsibilities the remainder of the time.

c. Mississippi National Guard will be responsible for maintenance of Forest Service roads, other than roads in a and b above, in the Special Use areas or which furnish access to Special Use areas when extraordinary maintenance is necessary due to the Guard's use.

d. Roads and bridges under the responsibility of the National Guard will be marked in accordance with the "Manual on Uniform Traffic Control Devices", published by the U.S. Department of Transportation.

38. All areas and improvements covered by this permit, such as bivouac sites, roads, borrow pits, roadbanks, tank trails, tank maneuver areas, or firing sites shall be currently maintained by the permittee. Maintenance, repair, erosion control (including water barring, seeding, fertilizing, liming and mulching), clean-up of use areas, and other necessary work shall be accomplished currently at the end of each field problem, or at the conclusion of the active training period to prevent permanent damage. All repair and maintenance work will be to the written standards of the Forest Service and the "Erosion Control Plan for Camp Shelby", dated November 1988, as amended.

Forest Service personnel will be provided, as needed, to offer technical advice.

At the beginning of each fiscal year, the permittee will determine the anticipated needs for restoration work. These funds will be budgeted (and tracked specifically for erosion control treatments and repair).

39. Prior to any approval or additions to the permit, the NEPA process will be followed to evaluate impacts of the proposal. Based on the environmental analysis a decision document will be signed by the Forest Serivce responsible official with required lead time to notify interested publics. As a minimum, implementation may not begin until after the decision document has been signed

and the requirements of the Forest Service administrative appeal procedures have been satisfied.

40. To facilitate coordination, Liaison Officers to be responsible for maintaining close cooperation in carrying out the provisions of this permit are--

--For the Permittee:

Name: _____

Title: Colonel, Training Site Commander

Address: Camp Shelby, MS 39407

--For the Forest Service:

Name: _____

Title: District Ranger

Address: Box 248, Wiggins, MS 39577

Changes in designated Liaison Officers may be accomplished by letter without formal amendment of this permit.

41. The permittee shall furnish the Forest Service at the beginning of each fiscal year and update monthly, a schedule, including a map showing areas affected and description of planned uses of all or part of the permit area. Any use which has any effect on areas outside of the impact areas or the weekends referred to in Clause 31 will be granted at the discretion of the Forest Service. The updated schedule will be provided 30 days prior to the proposed activity. Maintenance repair, erosion control and cleanup of use areas will be evaluated within 5 working days after the weekend field exercise. Corrective work will be accomplished within 14 working days, soil conditions permitting.

42. All questions concerning the provisions of this permit or the use of Forest land covered herein which cannot be resolved between the Training Site Supervisor and the District Ranger in charge of the area, will be referred for resolution to the Adjutant General, Mississippi National Guard, Jackson, Mississippi and the Forest Supervisor, National Forests in Mississippi, Jackson, Mississippi.

43. The requirements of all clauses indicated above shall in no case obligate the permittee beyond the statutory limitations or legal authorizations of the State and Federal laws. When ITAM mitigation procedures cannot be followed, then except in cases of extreme emergency, use will be limited to those activities which will not create additional damage or erosion problem areas. Emergency cessation of military activity will take place when necessary to protect public health, safety or the environment after consultation between the District Ranger and the Camp Shelby Training Site Supervisor.

44. If the permittee ceases to have need for, or make use of, the site for the purpose for which the permit is issued, this permit will terminate and the structures on the area shall be disposed of as provided in clause 12.

45. Pesticides may not be used to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, trash fish, etc., without the prior written approval of the Forest Service. A request for approval of planned uses of pesticides will be submitted annually by the permittee on the

due date established by the authorized officer. The report will cover a 12 - month

period of planned use beginning 3 months after the reporting date. Information essential for review will be provided in the form specified. Exceptions to this schedule may be allowed, subject to emergency request and approval, only when unexpected outbreaks of pests require control measures which were not anticipated at the time an annual report was submitted.

Only those materials registered by the U.S. Environmental Protection Agency for the specific purpose planned will be considered for use on National Forest System lands. Label instructions will be strictly followed in the application of pesticides and disposal of excess materials and containers.

46. The permittee does, by the acceptance of this document, covenant and agree for itself, its assigns, and its successors in interest to the property herein granted of any part thereof, that the covenants set forth below shall attach to and run with the land;

a. The described property, and its appurtenant areas and its buildings and facilities, whether or not on the land herein granted, will be operated for defense purposes, in full compliance with Title VI of the Civil Rights Act of 1964 and all requirements imposed by or pursuant to the regulations issued thereunder by the Department of Agriculture and in effect on the date of this document to the end that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any programs or activities provided theron; and

b. The United States shall have the right to judicial enforcement of these covenants not only as to the permittee, its successors and assigns, but also as to lessees and licensees doing business or extending services under contractual or other arrangements on the land herein granted.

In the event of a judicially adjudicated breach of any of the conditions set forth above, all right, title, and interest in and to the above described property shall, at the option of the Grantor, revert to and become the property of the United States of America, which shall have an immediate right of entry thereon and the permittee, its successors or assigns, shall forfeit all right, title, and interest in and to the above described property and in any and all of the tenements, hereditaments, and appurtenances thereunto belonging; provided, however, that the failure of the Grantor to insist in any one or more instances upon complete performance of any of the said conditions shall not be construed as a waiver or a relinquishment of the future performance of any such conditions but the obligations of the permittee with respect to such future performance shall continue in full force and effect.

47. The permittee shall comply with the National Historic Preservation Act, as amended and E. O. 11593, 36 CFR 800.1-10. The permittee shall arrange for and fund or perform an archaeological and historical survey and evaluation on permit lands by professional archaeologists prior to any new site disturbing construction or track vehicle activity. The permittee shall notify the State Historic Preservation Officer (SHPO) and the District Ranger, U.S. Forest Service, if new cultural resources are discovered. The SHPO, U.S. Forest Service, and the permittee will make a final determination on newly discovered cultural resources.

48. Appeal of any provisions of this authorization or any requirements thereof shall be subject to the appeal requlations at 36 CFR 251, Subpart C (54 FR 3362, January 23, 1989), or revisions thereto.

49. The Adjutant General of the State of Mississippi shall notify the Forest Supervisor in writing as soon as practical after being notified of a National Emergency Proclamation.

50. The land herein described is subject to certain rights reserved by or outstanding in parties other than the United States, and nothing herein shall abridge said rights or authorize prevention or obstruction of the reasonable exercise thereof.

51. No signs or advertising devices shall be erected on the area covered by this permit, or highways leading thereto, without prior approval by the Forest Service as to location, design, size, color, and message. Erected signs shall be maintained or renewed as necessary to neat and presentable standards.

52. Mitigation measures included in "Environmental Impact Statement for Military Training Use of National Forest Lands, Camp Shelby, Mississippi", are incorporated herein by reference.

Increase in artillery and tank firing will be limited to no more than a 5% increase from that analyzed in the FEIS, Appendix C.

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APPENDIX A

Master Agreement (1988)

MASTER AGREEMENT
BETWEEN
- DEPARTMENT OF DEFENSE
AND
DEPARTMENT OF AGRICULTURE

CONCERNING

THE USE OF NATIONAL FOREST SYSTEM LANDS FOR MILITARY ACTIVITY

I. PREFACE

A. National Forest System lands provide for the use and enjoyment of the public and are managed under multiple use and sustained yield concepts. The use of these lands for military training activities is within the statutory authority of the Act of June 4, 1897.

B. The availability of National Forest System lands to the Department of Defense provides a variety of geographic and topographic settings to conduct training activities. This is an important resource for developing a strong National defense.

C. Therefore, training activities on National Forest System lands will be authorized when compatible with other uses and in conformity with applicable forest plan(s), provided the Department of Defense determines and substantiates that lands under its administration are unsuitable or unavailable.

D. This agreement does not apply to the use of airspace over National Forest System lands unless directly associated with the land based training.

II. PURPOSE

The purpose of this Master Agreement is to establish procedures for planning, scheduling and conducting authorized military activities on National Forest System lands. It also establishes policies and procedures for supplemental agreements and special use authorizations which are required for all Department of Defense activities (including National Guard and Reserve activities) using National Forest System lands. This agreement replaces the Joint Policy Statements between the Department of Agriculture and (a) the Department of the Army signed July 3, 1951; the Department of the Navy, signed February 19, 1952; and the Department of the Air Force, signed September 12, 1951, which are hereby rescinded.

III. COORDINATION AND COOPERATION

To facilitate the orderly development, management, and administration of National Forest System lands and to provide suitable and appropriate lands to further the National defense effort, the Department of Defense and the Department of Agriculture jointly agree:

A. Availability of Department of Defense Lands - Prior to requesting use of National Forest System lands, the Department of Defense will determine if lands administered by the Department of Defense are available and suitable. In all cases where a special use authorization or supplemental agreement to use National Forest System lands is proposed, Department of Defense will forward its analysis and determination as to the unsuitability or unavailability of DoD land to the affected Forest Supervisor.

B. Planning For the Use of National Forest System Lands - Military training activities on National Forest System lands are actions which require the analysis of environmental impact in conformance with the National Environmental Policy Act (NEPA) and other statutory and regulatory requirements. The Department of Defense and the Department of Agriculture, Forest Service, will cooperate to accomplish appropriate NEPA compliance. The lead agency concept in 40 CFR 1501.5 will be applied to the process except in cases involving classified activities. In such cases, the Department of Defense Component will be the lead agency.

C. Management

1. Periodically conduct joint reviews of selected activities for the purpose of: (a) determining the effectiveness of supplemental agreements so that the management and mission of both agencies are accomplished; (b) identifying and recommending solutions to existing and potential problems; and (c) monitoring the implementation and effectiveness of environmental mitigation measures.

2. Jointly identify rights-of-way or other authorizations required to implement supplemental agreements or special use authorizations.

3. Have their respective agents mutually refer unresolved points of disagreement to the next higher management level for resolution.

IV. DEPARTMENT RESPONSIBILITIES

IT IS AGREED THAT:

A. The Department of Defense Components will:

1. Provide to the affected Forest Supervisor the analysis and determination as to the unsuitability or unavailability of Department of Defense lands.

2. Involve the Forest Service designated representative in the initial planning stages of activities proposed on National Forest System lands.

3. During initial planning, provide an unclassified description of proposed activities to the affected Forest Supervisor and cooperate in fulfilling requirements of the National Environmental Policy Act and conducting appropriate environmental analyses.

4. For each training activity, identify a representative of the Department of Defense to serve as liaison to the Forest Service.

5. Cooperate with Forest Service representatives to comply with the terms of this Master Agreement, supplemental agreements, and special use authorizations.

6. Reimburse the Forest Service for costs directly attributable to military training activities, subject to the availability of appropriated funds. This may include, but is not limited to, the preparation and processing of applications, preparation of environmental documents, administration of special use authorizations, and Forest Service liaison officers' time.

7. Explore land interchange as an alternative or mitigating measure when military training activities are not in conformance with the affected Forest Plan.

8. Make every effort to avoid degradation of National Forests and provide for restoration as agreed in the special use authorization.

9. Provide for mitigation measures identified in the environmental analysis and agreed in the special use authorization.

B. The Department of Agriculture, Forest Service will:

1. Make National Forest System lands available for military training activities when such activities can be made compatible with other uses and conform with applicable forest management plans, provided the Department of Defense determines and substantiates that lands under its administration are unsuitable or unavailable.

2. Cooperate with the Department of Defense to expedite decisions associated with military training activities on National Forest System lands.

3. Fully consider all proposals and, when necessary, develop alternatives that may meet the needs of the Department of Defense and the Department of Agriculture, Forest Service.

4. Ensure that applicable forest management plans include military training activities. Requirements for these activities should be coordinated with the Department of Defense during formulation and development of those plans.

V. SPECIAL USE AUTHORIZATION

The special use authorization for a Department of Defense activity on National Forest System lands requires, but need not be limited to, the following:

1. Identification of National Forest System lands required for the activity.

2. Duties and responsibilities of each agency in the planning process.

3. Procedures for resolving issues, misunderstandings, or disputes.

4. Identification of rights-of-way and other authorizations which may be needed outside the activity area.

5. Incorporate, develop, or reference a basic plan covering monitoring, fire protection and control, public health and safety, recreation, watershed, minerals, timber, grazing, fish, wildlife, public notification, and other appropriate features.

6. Assign responsibilities for restoration of the site. Restoration shall be subject to the availability of appropriated funds.

7. Provide procedures for emergency cessation of military activities where necessary to protect public health, safety or the environment.

VI. SUPPLEMENTAL AGREEMENTS

For recurring Department of Defense activities on Forest Service lands, supplemental agreements to this master agreement may be developed. Within 12 months following the effective date of this agreement, representatives of the Departments of Defense and Agriculture, Forest Service, shall agree upon a schedule for the revision of any existing supplemental agreement which requires modification to conform with this master agreement.

VII. DELEGATION

Authorized representatives of the Forest Service and the Department of Defense may execute special use authorizations and enter into supplemental agreements within the scope of this document.

VIII. MODIFICATION AND TERMINATION

This agreement may be modified or amended upon request of either Department and the concurrence of the other. This agreement may be terminated with 60-day notice of either party.

IX. IMPLEMENTATION

This agreement becomes effective when signed by both parties.

Secretary of Defense

Date: 22 SEP 1988

Secretary of Agriculture

Date: Sept 30 1988

Final
Environmental Impact Statement

Military Training Use of National Forest Lands Camp Shelby, Mississippi

Appendix B

1. Summary of Training Facilities Environmental Impact Statement
2. Record of Decision for Camp Shelby Training Facilities Final Environmental Impact Statement (June 1991)

APPENDIX B

1. Summary of Training Facilities
Environmental Impact Statement (EIS)

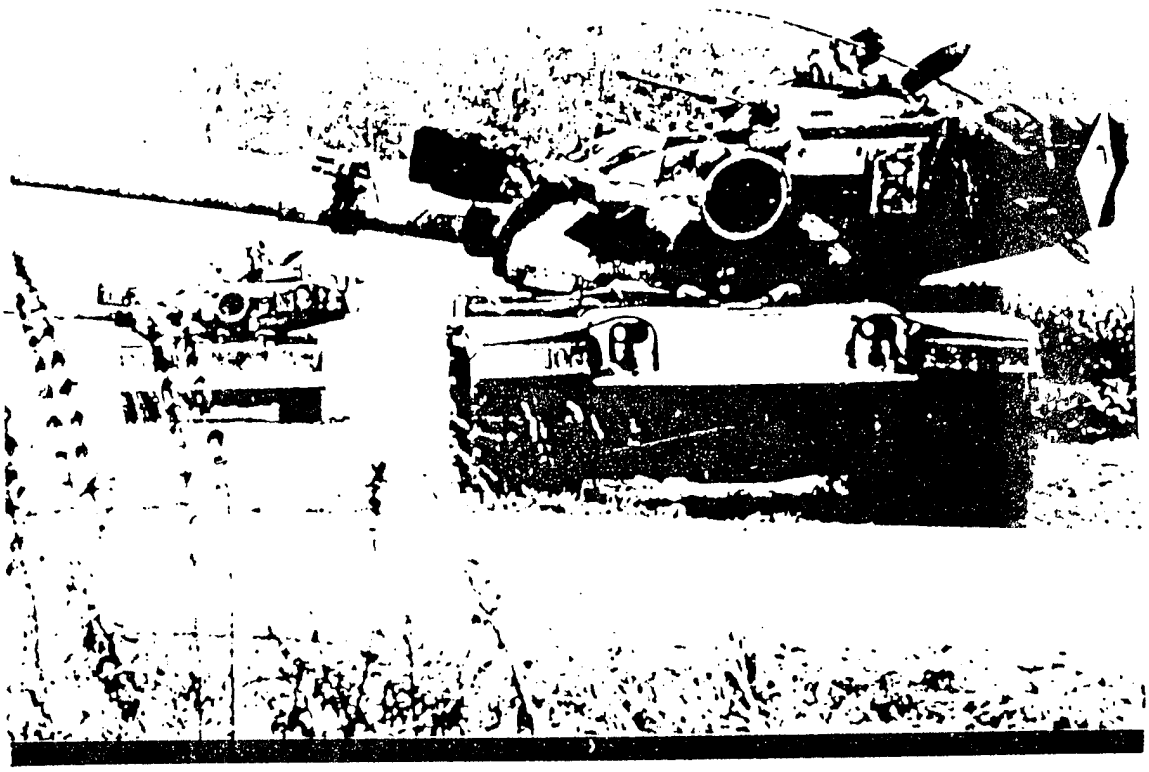
State of Mississippi Military Department

National Guard Bureau

CAMP SHELBY

Environmental Impact Statement

FINAL



Weatherford McDade, Ltd.

Planning Consultants • Landscape Architects

EXECUTIVE SUMMARY

BACKGROUND

Camp Shelby is a National Guard Annual Training Site which provides training support to a number of National Guard Units from states across the country. In addition, it is utilized by Active Army, Army Reserve, Air Force Reserve, Air National Guard, Navy Seabees, ROTC and other types of units. The installation supports training for over 100,000 troops annually.

National Guard training at Camp Shelby consists primarily of two types, based on the time of year they occur. Annual Training (AT) takes place during a period from May through August while Inactive Duty Training (IDT) takes place on weekends during the remainder of the year. Annual Training encampments are intended for maneuvering, tactical movements and coordination at battalion or brigade levels. During such activities, firing range utilization is held to a minimum as some of the safety fans (buffer zones around ranges) are utilized for maneuver purposes. IDT training periods are intended primarily for weapons firing activities such as familiarization, qualification and record firing. Additional training programs, such as the M60A3 New Equipment Training, occur outside of the established AT and IDT training periods. The M60A3 New Equipment Training program is covered in an earlier Environmental Assessment for Fielding of the M-1 and M60A3 Tanks and the Bradley Fighting Vehicle, published in 1986.

For the varied training activities it provides, Camp Shelby utilizes approximately 116,199 acres of National Forest Land within the DeSoto National Forest in South Mississippi. Combined with other land owned by the Department of Defense and the State of Mississippi, Camp Shelby utilizes a total land area of approximately 134,820 acres.

In an effort to carry out the training mission and manage the natural resources of the installation in an appropriate manner, a delicate balance must be sought. This balance places on one side the considerations and management of environmental resources. On the other side are the goals and objectives of military training activities, which are often inherently destructive to the environment.

This document addresses the various proposed facilities which are necessary for Camp Shelby to continue providing training support to National Guard and other military units. As required by the National

Environmental Policy Act (NEPA) of 1969, this document evaluates potential impacts from implementation of proposed facilities at Camp Shelby. The format follows the outline for Environmental Impact Statements as provided in Army Regulation 200-2, Environmental Effects of Army Actions.

This document, the Final Environmental Impact Statement (FEIS) is the result of the publication and review of the Draft Environmental Impact Statement (DEIS). The DEIS document provides detailed descriptions of potential impacts to the various attributes affected by the proposed facilities. After the public review and input process, the FEIS acts to build upon the DEIS document by providing additional data where necessary and corrections to errors in the DEIS. Furthermore the FEIS acts to identify and explain any changes to the proposed actions which occur as a result of the review and input process. The original DEIS document is combined with the responses to comments, the comments and other data to become a part of the Final EIS document. These comments are provided in Appendix 10-13.

Need For The Proposed Action

Reductions in the Nation's active military forces over the past decade have placed greater emphasis on the mission of the Reserve and Guard forces. Currently, the National Guard and the U.S. Army Reserve comprise more than 50% of the total army in the event of a mobilization response to a war or emergency. As a result, the Reserve and National Guard components have experienced an increase in requirements for training. This has caused increased utilization of the training sites and a need for more sophisticated training facilities. No longer does the National Guard receive outdated or used equipment for training. The majority of the tactical vehicles and weapons systems at Camp Shelby are the same as used by active army units around the world. National Guard units are also required to exhibit a higher skill level in particular mission capabilities than in the past, due to the need to meet this higher level of readiness.

This increased utilization has led to a greater demand on training and range facilities. New firing requirements emphasizing improved accuracy have caused a tremendous increase in utilization of range facilities. In the past it was possible to schedule range use so that when one range was in use there was no demand for other ranges nearby. With the increased utilization requirements, this scheduling flexibility

is no longer available. As a result, units which previously needed 1 or 2 weekends for firing activities on several ranges must now make additional trips to Camp Shelby to meet their training requirements.

The facilities proposed for construction are intended to solve a number of existing problems:
1) Out-of-date, inadequate facilities will either be replaced or supplemented to meet new training requirements;
2) scheduling conflicts will be reduced as new facilities will allow more effective utilization;
3) minimum qualifications and skill levels will be met as mandated by mission training requirements.

Primary Alternatives Considered

Four primary alternatives were evaluated for each of the proposed actions. These alternatives include:

1) Maintain the current training capabilities without the benefit of the proposed facilities (no action),

2) utilize the training facilities at another military installation,

3) implement the facilities at alternative sites on the Camp Shelby installation, and

4) implement the facilities at the preferred locations.

The No Action alternative is evaluated for each of the proposed facilities. Other alternatives are addressed where implementation offers a reasonable solution to the training need and are feasible with regard to installation planning requirements, training mission and reasonable costs.

THE PROPOSED FACILITIES

Facilities are classified based on their proposed location. Cantonment Area facilities are those proposed for the Cantonment area, the built-up district where headquarters, administrative, operational and maintenance facilities are located. The remaining facilities are proposed for the Operational Area, where maneuver, firing and bivouac activities take place. In each case, the proposed location of a facility, as well as the alternatives considered, are based on current data regarding limitations and opportunities with respect to training requirements and environmental attributes. Environmental attributes are those elements or areas of the environment which can be affected by training activities at Camp Shelby.

The following text provides brief descriptions of the proposed facilities. More detailed discussion of each facility and alternatives may be found in Section 3.

During the course of scoping, preparation, review and public comment on this document, facilities initially proposed, have been removed from the document. Two facilities proposed for the Cantonment Area (the Regional Medical Training Site and the Regional Maintenance Training Site) are adequately covered in separate environmental documents, so they will not be considered here. These two facilities have been addressed with appropriate environmental documentation through a Record of Environmental Consideration (REC). These documents are maintained by the MS-ARNG as a part of the project file for the facilities. The facilities proposed for the Operational Area which have been deleted are listed and discussed below.

A Multi-Purpose Range Facility was removed from the Draft EIS due to the lack of timely submittal of alternative sites for evaluation and the lack of funding. The Still Water Obstacle Sites (2), Machine Gun Moving Target range and Known Distance range, have been removed for the following reasons:
to reduce or avoid potential impacts to wetlands;
to adapt to interim management guidelines for endangered species;
to reduce the amount of cleared timber;
to accomplish .50 caliber machine gun firing requirements by combining two ranges into one;
and in response to public concerns in regard to still water obstacle sites.

The decision document for the Tactical Aviation Training Areas (4) will be the Special Use Permit EIS.

The Basic 25 Meter Range, previously proposed as a separate range will be combined as an integral part of the Auto Record Fire Ranges.

As a result of the above listed concerns, this document will not serve as the decision document on the following projects:

Multi-Purpose Range Facility
(4) Tactical Aviation Training Areas
(2) Still Water Obstacle Training Sites
Machine Gun Moving Target Range
Known Distance Range

In summary, the Draft EIS identified 14 facilities proposed in the Cantonment Area and 14 in the Operational Area. The chart below identifies the changes in numbers of facilities which have occurred.

Cantonment Area Facilities

Originally Proposed (DEIS)	Change	Present (FEIS)
14	0	14

Operational Area Facilities

Originally Proposed (DEIS)	Change	Present (FEIS)
14	-9	5

DESCRIPTIONS OF PROPOSED FACILITIES

The following text provides brief descriptions of the various proposed facilities located in the Cantonment and Operational Areas. Due to efforts currently underway to renew the Special Use permit, implementation of proposed projects for the operational area (lands under management control of USFS) will not occur until the Special Use Permit is renewed.

Proposed Cantonment Area Facilities

1. Regional NCO School - Mississippi Military Academy Complex
This facility will provide classrooms and training support for non-commissioned officers. It will be a 12 building complex of approximately 102,000 square feet.

2. Prisoner of War Camp
Consisting of barracks, administration building, guard towers and fences, this facility will provide realistic training to Military Police units in the operations and management of a POW facility.

3. Gas Training Chamber
The gas training chamber will be a concrete block building capable of training company sized units through the utilization of simulated agents.

4. Nuclear Biological Chemical (NBC) - Decontamination Site
This training facility will be utilized to train troops in the methods of cleaning equipment suspected of NBC contamination. It will be a gravel road in a loop configuration with stations located for decontamination, rinsing, drying and checking for safe status. No NBC agents or materials will be utilized in the training process at this facility or anywhere else at the Camp Shelby installation.

5. Combat Readiness Training Area
This facility will provide physical training elements for troops. Components will consist of a track, exercise bars, obstacle course and lighting for night use.

6. Litter Obstacle Course
To increase confidence and capability in bearing wounded on stretchers, the litter obstacle course will provide various elements such as slopes, walls, wire, etc. over which the trainees will transport a stretcher.

7. Pole Climbing Facility
Troops will be trained in the techniques and procedures for climbing, working atop and descending utility poles at this facility.

8. Rappel Towers
The rappel towers will be of wood construction and will provide training in rappelling from various structural configurations (windows and rooftops) or from helicopter mock-ups.

9. Dynamic Training Area
This facility will be a series of wooden structures and obstacles located on a small lake. The various elements will be utilized to train in rappelling, swimming with full combat uniform, log walking and other water related activities.

10. Tracked and Wheeled Vehicle Driving Facility
Consisting of a series of ditches, log walls, slopes and other types of obstacles, this facility will train operators of utility and tactical vehicles in the techniques of negotiating such elements.

11. Mobile Conduct of Fire Trainer (MCOFT)
This firing simulator is a trailer which houses a computerized tank simulator for tank crews to train in locating and engaging enemy targets.

12. Land Navigation Course
This will be an upgrade of facilities at the existing land navigation course. Bleachers, instruction area and support facilities are proposed improvements necessary to train troops in map reading and navigation in a cross country setting.

13. Military Operations in Urban Terrain (MOUT)
Consisting of a series of building shells, this facility provides an urban setting for training in riot control and urban warfare techniques and procedures.

14. Bayonet Training Court/Bayonet Assault Course
This facility will be constructed of wood, concrete blocks and earth forms and will provide various obstacles and elements for training with bayonets.

Proposed Operational Area Facilities

1. East Range Road
This gravel road will provide access to proposed new ranges on the east side of the impact area. It will also provide a link between the existing north and south tank trails.

2-5. Tactical Aviation Training Areas
These facilities have been dropped from further consideration in this document.

6-7. Still Water Obstacle Course
These facilities have been dropped from further consideration.

8. M-16 Night Firing Range
This upgrade to an existing range will provide night firing training capability with the 5.56 mm rifle. Lighting equipment will allow low level red lighting of 25 and 50 meter targets.

9. .50 Caliber Machine Gun Moving Target Range
This range has been dropped from further consideration.

10. Machine Gun Transition Range
This new range will qualify gunners in the use and operation of the M-2, 50 cal. Machine Gun, M-60 Machine Gun and M-249 Squad Automated Weapon (SAW). Support facilities for this range will include access road, parking area and target mechanisms.

11. Known Distance Range
This range has been dropped from further consideration.

12-13. Automated Record Fire Ranges (ARF)
Two of these ranges will be developed, one of these ranges will be developed at a new location and one will be an upgrade of existing range (#48). Access roads, control towers and parking areas will be provided as support facilities.

14. Basic 25 Meter Range
This range is no longer porposed as a separate range. It will be included in the range complex for each Auto Record Fire Range (ARF) and will be located adjacent to the firing line of the ARF.

ALTERNATIVES

A series of alternatives were identified for the proposed facilities to evaluate the best course of action for implementation. As these alternatives were examined, some were eliminated as not feasible, others were retained for further and more detailed evaluation.

ALTERNATIVES FOR CANTONMENT AREA FACILITIES

No Action
This alternative considered the continuation of an existing training effort without the benefit of a new facility.

Conduct Training at Another Installation
This proposal would conduct the training activity at another military installation. Generally, this alternative was not viable due to the costs of time and transportation to a nearby installation with comparable training facilities.

Alternate Location (Within the Cantonment Area)
This alternative evaluated the option of locating the proposed cantonment area facilities in an area other than the Close In Training Area (Alternative #4).

Prioritized Development
This alternative identifies those facilities which provide the greatest number of benefits to a wide variety of unit types.

The Preferred Action
This alternative addresses the various sites proposed as the most beneficial in regard to meeting the training need, yet offering the least impacts to the various attributes involved.

ALTERNATIVES FOR OPERATIONAL AREA FACILITIES

No Action
This alternative considered the continuation of an existing training effort without the benefit of a new facility.

Conduct Training at Another Installation
This was a proposal to conduct the training activity at another military installation. Again, this alternative was not viable due to the costs of time and transportation to a nearby installation with comparable training facilities.

Preferred and Alternate Locations
A number of locations were evaluated for facilities within the operational area. They are discussed in more detail in Section 3, as they relate to individual proposed facilities. After the public review process, alternatives for the East Range Road were re-evaluated to examine options available for minimizing impacts to wetlands. As presented in responses to comments, new alternatives were developed as a result of public input.

PUBLIC CONCERNS

Under the guidelines of the National Environmental Policy Act of 1969 and Army Regulations 200-2, a Notice of Intent was published in the Federal Register on July 22, 1986. A Scoping Meeting was held on July 30, 1986 and comments were received from the public, State and Federal Agencies.

Concerns identified during this scoping process are identified and addressed in this Environmental Impact Statement. They involve the potential effects on 11 general groups of environmental attributes with particular emphasis on noise levels, soil resources, water resources, wildlife species, plant species, threatened and endangered species of both plants and

wildlife and economics of the region. Impacts on the environment are addressed on an incremental basis for each proposed facility in Section 4. In Section 5 impacts are addressed on a cumulative basis regarding how the entire group of proposed facilities will impact the environment.

IMPACTS TO ATTRIBUTES

Environmental impacts of proposed actions have been evaluated to identify areas where an attribute may be adversely affected. Implementation of the proposed actions can be accomplished without significant and irreversible impacts to the environmental attributes of the installation. In many cases, impacts from proposed actions are insignificant. However, where adverse impacts are anticipated, mitigation measures are identified to protect and/or minimize impacts to attributes. Mitigation measures will be monitored on a regular basis to assure proper functioning and to identify any problem areas before they become significant. In areas where impacts to attributes occur as a result of ongoing training activities, management practices will be revised or augmented to minimize adverse effects. The following presents summarized discussions for each attribute.

CLIMATE

None of the proposed actions will have an effect on the climatic conditions of the region. It is recognized that climatic activity can, in many instances, influence or accentuate the impacts of training activities on other attributes.

AIR QUALITY

Proposed facilities will not adversely affect air quality of the region. Fugitive dust is anticipated in areas where construction and/or training activity will disturb vegetation and expose bare soil. These locations are generally remote and will have short term impact on air quality. Where fugitive dust may affect non-military activities, vegetative buffers will be maintained to minimize the dust movement from a training or construction activity. Chemical and mechanical dust control measures will be employed where necessary during and after construction of proposed facilities to reduce dust generation.

NOISE

The existing noise levels at Camp Shelby will be affected as a result of proposed ranges. Noise levels are divided into three zones according to established criteria. Zone 3, that area closest to a noise source,

and zone 2 the next closest zone, will be enlarged as a result of proposed firing ranges. These enlargements are minimal in size and will be contained within the existing installation boundary.

PHYSICAL SETTING
The proposed actions will not significantly affect the physical setting of the installation. Disruption of vegetation and soils will increase the potential for soil erosion. Specific measures for erosion control and sediment reduction will be applied as needed on an individual project basis. In accordance with the Camp Shelby Erosion Control Plan, temporary and permanent vegetation measures will be utilized to minimize soil movement on areas where soil disturbance occurs.

NATURAL RESOURCES
There will be areas where surface occupancy and access for removal of minerals will be affected, as a result of the proposed action. There will be impacts to vegetation where project implementation requires the removal or alteration of existing vegetative communities. Impacts to vegetation are insignificant in the cantonment area where the vegetative community is primarily a grass ground cover with a pine tree overstory. Impacts to vegetation in the operational area will be a change from forestland to open grassland in some areas. As provided in Section 4.5.2 (pp 4-147 through 4-160), mitigation measures are identified which will reduce and minimize impacts to vegetation. In order to minimize loss of marketable timber, the National Guard will coordinate with the U.S. Forest Service to harvest timber prior to clearing for construction of a facility. Acres of vegetation affected by the proposed action have changed from those provided in Sections 3, 4, and 5. The revised acreage totals are provided in response to comment #37 in Appendix 10-12 on page 10-432. Sensitive plant communities found in wetland areas will be avoided. Anticipated acres of wetlands affected by the proposed action are provided in Appendix 10-12 on page 10-416 of this document. In accordance with the Special Use Permit, sensitive plant species and communities will be protected and managed according to U.S. Forest Service guidelines.

The East Range Road and the new Auto Record Fire Range have alternatives which may impact wetlands. These are described in more detail in the site specific descriptions (Appendix 10-11) and the responses to comments (Appendix 10-12). Mitigation actions for impacts to wetlands are presented in Sections 4 and 5.

Wildlife species in some areas will be displaced as a result of changes from forestland to grassland. Efforts will be made to accomplish clearing of timber during times when minimal impact will occur to wildlife.

The National Guard will continue to coordinate management and protection of threatened and endangered species with the U.S. Forest Service and the U.S. Fish and Wildlife Service. Management practices for the red cockaded woodpecker (Picoides borealis) will be in keeping with the biological opinion issued by the Fish and Wildlife Service to the U.S. Forest Service in March of 1983 for the Camp Shelby Maneuver Area and will comply with current interim management guidelines. These interim guidelines are in addition to the Wildlife Habitat Management Handbook of the U.S. Forest Service and supersede the Handbook direction when in conflict.

The Fish and Wildlife Service has issued a biological opinion regarding the management and protection of the gopher tortoise (Gopherus polyphemus). As a result of this consultation the Mississippi Army National Guard will protect and manage accordingly, as directed by the Fish and Wildlife Service in their biological opinion. Copies of the opinions are located in Section 10, Appendix 10-6.

LAND USE DEVELOPMENT

Proposed facilities will be developed in accordance with established land use development on post. Land use as proposed in earlier environmental assessment documents will not be changed as a result of the proposed action. There will be no impacts to off post land use development as a result of the proposed action.

WASTE DISPOSAL

There will be no impacts related to or resulting from solid or hazardous waste management or disposal. None of the proposed facilities will create significant amounts of solid or hazardous waste.

WATER RESOURCES

There will be some changes to surface water hydrology where grading and shaping is necessary to modify a site during construction. However, site planning and design will utilize existing drainage patterns to minimize changes. Where projects require clearing of a large surface area, permanent erosion control structures will be utilized as a part of the construction process to minimize sediment loading in surface water runoff. The timing or scheduling of installation of erosion control

structures will be coordinated with the District Ranger. Potential impacts to wetlands from construction of the East Range Road will be minimized through the use of piling supported bridges or an alternate route.

There will be no impacts to ground water hydrology or drinking water resources as a result of proposed activities. Treatment of waste water at the installation will not be affected as the existing treatment plant has sufficient capacity to handle the slight increase in waste water. There will be no changes to the existing spill planning policies and procedures in effect at the installation.

CULTURAL RESOURCES
There are no known impacts to archeological and historical resources as a result of implementing the proposed facilities. Should an archeological or historical site be discovered during any of the planning, design or construction phases of a project, the State Historic Preservation Officer and the USFS District Ranger will be notified and operations on the particular project will cease until the site can be evaluated.

SOCIOECONOMIC RESOURCES
According to the Economic Impact Forecast System of the U.S. Corps of Engineers, the overall socioeconomic impacts will be beneficial to the local region as a result of implementation and operation of proposed facilities even though some losses of socioeconomic benefits from wildlife and timber production will occur.

ENERGY RESOURCES
Implementation and operations of the proposed facilities will cause a slight increase in the use of energy resources, primarily in petroleum products.

CUMULATIVE IMPACTS

Cumulative impacts are those impacts which increase or grow by accumulative or successive additions. Anticipated cumulative impacts will occur with respect to the following:

a) air quality, through the generation of fugitive dust;

b) noise, through enlargements of noise zones II and III within the installation boundary;

c) soils, an increase of disturbed soil during construction and in some instances during the ongoing operations of some facilities;

d) minerals, there will be an increase in acres of land with surface occupancy affected;

e) vegetation, conversion of forestland to open grass land;

f) wildlife, the loss of habitat where large areas must be cleared for a facility;

g) land use, available land will be more efficiently utilized for training activities;

h) water resources, surface water quality will be improved through the implementation of the erosion control plan and further protected through the application of mitigation measures;

i) socioeconomic resources, the local economy will be impacted in a beneficial manner with regard to cumulative impacts.

The proposed actions will provide Camp Shelby with minimum facilities necessary to meet training needs in accordance with the National Guard mandate for increased combat readiness.

Further discussion regarding cumulative impacts may be found in Section 5.

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APPENDIX B

2. Record of Decision for Camp Shelby
Final Environmental Impact Statement (July 1994)

Charge Code: 3710 08 M

Department of Defense
National Guard Bureau

Record of Decision

Agency: National Guard Bureau/Mississippi Army National Guard

Action: Record of Decision for Implementation of Proposed Projects for Mission Expansion/Multiple Construction at Camp Shelby, Mississippi

Summary: The National Guard Bureau and the Mississippi Army National Guard's decision is to implement the fourteen projects proposed for the cantonment area and five projects proposed for the operational area. The projects to be implemented were examined and evaluated separately and cumulatively in the Environmental Impact Statement (EIS).

All projects to be implemented will be implemented at the preferred location. Due to efforts currently underway to renew the Special Use Permit, implementation of proposed projects for the operational area (lands under control of United States Forest Service) will not occur until the Special Use Permit is renewed.

Projects to be implemented in the cantonment area are:

1. Regional NCO School - Mississippi Military Academy Complex
2. Prisoner of War Camp
3. Gas Training Chamber
4. Nuclear Biological Chemical (NBC) - Decontamination Site
5. Combat Readiness Training Area
6. Litter Obstacle Course
7. Pole Climbing Facility
8. Rappel Towers
9. Dynamic Training Areas
10. Tracked & Wheeled Vehicle Driving Facility
11. Mobile Conduct of Fire Trainer (MCOFT)
12. Land Navigation Course
13. Military Operations in Urban Training (MOUT)
14. Bayonet Training Course/Bayonet Assault Course

Projects to be implemented in the operational area are:

1. East Range Road
2. Automated Record Fire Ranges (2 ranges)

Projects that were programmatically evaluated in this EIS and that will require additional site specific evaluations are:

1. M-16 Night Firing Range
2. Machine Gun Transition Range

During the course of scoping, preparation, review and public comment on this EIS, certain facilities initially proposed have been removed from the document. Two facilities proposed for the cantonment area (the built up area where buildings and other facilities are located), the Regional Medical and Regional Maintenance Training Sites, are adequately covered with appropriate environmental documentation through a Record of Environmental Consideration (REC).

A Multi-Purpose Range Facility was removed from the Draft EIS due to the lack of timely submittal of alternative sites for evaluation and the lack of funding. The Still Water Obstacle Sites (2), Machine Gun Moving Target Range, and Known Distance Range have been removed for the following reasons: to reduce the amount of cleared timber; to accomplish .50 caliber machine gun firing requirements by combining two ranges into one; and in response to public concerns in regard to still water obstacle sites.

The decision document for the Tactical Aviation Training Areas (4) will be the Special Use Permit EIS. The Basic 25 Meter Range, previously proposed as a separate range will be combined as an integral part of the Auto Record Fire Ranges.

As a result of the above listed concerns, a decision will not be made on the following projects:

1. Multi-Purpose Range Facility
2. (4) Tactical Aviation Training Areas
3. (2) Still Water Obstacle Training Sites
4. Machine Gun Moving Target Range
5. Known Distance Range

Supplemental Information:

In response to the emphasis that has been placed on successful and prompt integration of national guard, reserve and active duty forces in the event of a national emergency, the Mississippi Army National Guard (MSARNG) has prepared an EIS on construction projects to support this requirement. Implementation of projects evaluated in this EIS provides for continuation and development of the Camp Shelby Training Site as required by the National Guard Bureau. Implementation of these projects will assist in insuring effective use of the training site and economical use of funding for development in an environmentally sound manner.

The implementation of adequately evaluated projects in the cantonment area and operational area will assist the training site in meeting training requirements. The decision to implement the projects at the preferred locations as compared to alternate locations, will create the least possible impact to the environment and provide Camp Shelby with minimum facilities for training.

In the EIS, a series of alternatives were identified in an effort to evaluate the best course of action for implementation. As these alternatives were examined, some were eliminated as not feasible, others were retained for further and more detailed evaluation. The alternatives considered for the cantonment area facilities were no action, conducting training at another installation, an alternate location within the cantonment area, prioritized development, and the preferred action. Alternatives considered for the operational area facilities were no action, conduct training at another installation, and preferred and alternate locations. A number of locations were evaluated for facilities within the operational area.

After the public review process, alternatives for the East Range Road were re-evaluated to examine options available for minimizing impacts to wetlands. These new options were evaluated and alternative five is the selected alternative for the East Range Road. The no action alternative considered the continuation of an existing training effort without the benefit of a new facility. The no action alternative is also the preferred environmental alternative; however, this alternative would not meet the training requirement. Implementing the projects at the preferred locations combined with adequate monitoring and mitigation measures will create the least possible impact to the environment and provide Camp Shelby with minimum facilities for training. Conducting the training at another installation was not considered viable due to the costs of time and transportation to an installation with comparable training facilities. The alternative sites evaluated the option of locating the facilities in an area other than the proposed location. The prioritized development alternative identified facilities that would provide the greatest number of benefits to a wide variety of units. The preferred location evaluated various sites proposed as the most beneficial in regard to meeting the training need, yet offering the least impact to the various attributes involved.

A Notice of Intent to prepare an Environmental Impact Statement was published in the Federal Register on July 22, 1986. A Scoping Meeting was held on July 30, 1986, and comments were received from the public, state and federal agencies. Concerns raised during the scoping process involved the potential impacts on noise levels, soil resources, water resources, wildlife species, plant species, threatened and endangered species of both plants and wildlife, and economies of the region. The impacts associated with the proposed actions were addressed individually and cumulatively with respect to effects on the environment.

A Notice of Availability of the Draft EIS was published in the November 3, 1989 Federal Register. A public meeting was held in Hattiesburg, MS on December 6, 1989 to receive comments on the draft EIS. Written comments were received between November 3, 1989 and December 17, 1989. The Final EIS was prepared in accordance with

Title 40 Code of Federal Regulations CFR Part 1500 and Army Regulation 200-2 (Environmental Effects of Army Actions). This Final EIS included comments received at the public meeting, written comments, and the responses to those comments. A Notice of Availability of the Final EIS appeared in the Federal Register on February 15, 1991. Two comments were received. One commend recommended that adequate professional staff be employed at Camp Shelby. The process of hiring the necessary staff is currently underway. The other comment recommended that we develop and implement an adequate monitoring program. This will be implemented.

The EIS process is not a substitute for the Federal, State, and local permitting and approval processes. When each action is implemented, it will be subject to the appropriate permits and approvals. Opportunities for public input will be provided as required by the standard permitting procedures. Separate detailed environmental documentation will be prepared and submitted as required by the U.S. Forest Service and on individual actions impacting areas of special concern (wetlands, threatened and endangered species, etc.). The use of good construction practices outlined in the EIS will be stipulated in construction projects.

The implementation of these construction practices will mitigate impacts from fugitive dust, erosion, or sedimentation. Camp Shelby will take the following actions to mitigate, monitor, and manage the environmental resources: Hiring of necessary professional staff; implementation of the Integrated Training Area Management Program, the Land Condition Trend Analysis Program, and the Camp Shelby Soil Erosion Program; implementation of the Installation Compatible Use Zone Program for noise impacts; development of a Natural Resource Management Program; management of Threatened and Endangered Species as required; implementation of a Geographic Information System to assist in managing the total Environmental Program; compliance with the Commission on Environmental Quality order #1887-90; development of support agreements that will require using units (other than U.S. Army Components) to program reimbursement funds for restoration requirements at Camp Shelby; and as a line item in the annual National Guard State Operating Budget, justify sufficient funds to defray any restoration requirements caused by U.S. Army components - i.e. ARNG, USAR and Active Army.

The decision to implement the projects evaluated in this EIS is warranted because implementation of the proposed actions can be accomplished without significant and irreversible impacts to the environment and national security will be enhanced through more effective and efficient training facilities. The economic stability of the immediate area would be enhanced by the cumulative beneficial socioeconomic effect of implementing these projects.

The National Guard Bureau and the MSARNG by this Record of Decision, incorporate their commitment in the EIS to employ all practicable means to minimize the impact of the implementation of the projects evaluated in this EIS.

Charlie D. Brackeen

CHARLIE D. BRACKEEN, Brigadier General
Special Advisor for Military Affairs

Donald Burdick

DONALD BURDICK, Major General, GS
Director, Army National Guard

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Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix C

Present Use of Camp Shelby by Army and Air Force National Guard and Other Military Components

Appendix C

PRESENT TRAINING USE OF CAMP SHELBY

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APPENDIX C

1. Camp Shelby Training Site Overview

1 - CAMP SHELBY TRAINING SITE
Camp Shelby, Mississippi
Training Overview

Camp Shelby Training Site (CSTS) was established in 1917 as a temporary training site to help meet the manpower needs created by WWI. At the time, there were over 36,000 troops stationed here, but with the end of WWI operation of the post was halted. In 1934, the state of Mississippi acquired the site for use as a summer camp for its National Guard and began new construction.

In early 1941, with our impending entry into WWII, construction began that would make Camp Shelby the largest military training center in the world .

Today the installation hosts hundreds of units and/or thousands of individuals annually from all across the nation for a variety of training activities, providing facilities and necessary support to conduct scheduled training. Table C-1 identifies some of the additional training activities which utilize Camp Shelby. CSTS also serves as a "weekend and annual training station" for several brigade sized units and innumerable other units, including the 38th Infantry Division (INARNG).

Camp Shelby is the nation's largest National Guard and Reserve Training Site (see attached NGB Pam 570-3 excerpt), serving as a training site for all branches of the military. CSTS also serves as the nation's largest State Owned Mobilization Station (SOMS), hosting 3 Brigades and an Armored Cavalry Squadron. As the nation's largest SOMS, Camp Shelby is tasked to mobilize over 22,000 personnel. Attached are excerpts from NGB Pam 25-1 depicting the states of the units that mobilize here (MS, AL, and TN). Also attached is a copy of a Training Plan from one of the units that trains/mobilizes here (30 SAB, TNARNG). This plan provides the reader with an idea of the type training conducted at CSTS.

Camp Shelby routinely hosts units and/or individual personnel from all across the Southeastern United States. The preponderance of these units and/or personnel com primarily from the 2d Army [USATWO] Area (KY, TN, NC, SC, GA, AL, MS, FL, PR and VI).

The excerpts from NGB Pam 25-1 are by no means all inclusive, as states from all over the U.S. train at Camp Shelby Training Site (CSTS). In fact, during 1990 over 116,000 personnel trained at CSTS, including units from as far away as California, Puerto Rico and the U.S. Virgin Islands. Note that approximately 229 separate units attended annual training at Camp Shelby.

In addition to the units regularly scheduled for Annual Training, Weekend Training and Special Training Events, CSTS also hosts other units from states other than, and in addition to, those mentioned above. These units train at CSTS with the

following organizations:

RTS-MED School: The Regional Training Site-Medical School is the only one of its kind in the nation located on a reserve training facility. They provide new equipment training and sustainment training for medical units receiving or operating with Deployable Medical System Equipment (DEPMEDS) equipment. The RTS-MED also serves as a regional medical equipment maintenance center which provides individual training for biomedical equipment personnel. There are additional courses offered such as a Medical Supply Course, a Combat Casualty Care Course and an EFMB Testing Preparatory Course. The RTS-MED hosts units (active and reserve) from all over the U.S. Some of the states represented include VA, NJ, CA, PR, VI, AR, LA, KS and many others, not including the USAR and Active Component units.

RTS-MAINT School: The Regional Training Site-Maintenance School provides training to individual soldiers assigned as maintenance personnel in various type units. Qualified instructors are available to provide instruction in virtually all areas of maintenance as well as combat vehicle retrieval and Class IX supply. The school, specializing in transition training for personnel in units receiving Force Modernization Equipment, trains individuals from all across the nation, but primarily from the Southeastern United States.

REG II NCO School: The Region III NCO School is tasked to train over 2,500 NCO's from the Region III Area (TX, LA, AR, MS, AL, and OK) each year in basic NCO leadership skills.

M60A3 DETT Program: The Displaced Equipment Training Team conducts M69A3 Tank Transition Training for those units not receiving Force Modernization Equipment. M60A3 tank training is conducted ONLY at Camp Shelby and hosts units from all over the U.S., but primarily those from East of the Mississippi River. Some of these units hail from NE, MI, OK, CO, MN, NY, IN, IA, KS, MO and others.

Mississippi Military Academy (MMA): The Mississippi Military Academy conducts the Mississippi National Guard Officer Candidate School, an ROTC/SMP Pre-Commissioning Training Program, the NCO Educational School, an Instructor Training Course, a Training Management System Course and a First Sergeant's Course. Their combined programs have graduated over 10,000 personnel since the academy's inception.

Air National Guard (ANG): Two air-to-ground ranges located on CSTS are vital to the Gulfport ANG base due to our close proximity. Units from various states conduct annual training (AT) at the Gulfport ANG Base and conduct range firing at our two air-to-ground ranges, which are critical to fulfill their annual training requirements (See documents from Maj Spraggins, Gulfport ANG).

20th NCR (Naval Construction Regiment) [Gulfport SeaBee Base]: Naval construction battalions from the Gulfport SeaBee Base train at Camp Shelby on a regular basis. Both the active units stationed at Gulfport and several reserve units from various states, come to Gulfport for annual training and are transported to Camp Shelby for their Combat Skills Training. Camp Shelby again becomes a vital part to another bases' existence.

Attached are photo-copies of selected maps extracted from NGB Pam 25-1. These maps depict the three states that mobilize at Camp Shelby (MS, AL and TN). These maps by no means reflect the magnitude of training conducted at CSTS for they exclude other units that also train here on a recurring basis from all over the United States.

The aforementioned training activities provide the reader with some insight into the magnitude of training conducted at CSTS. This overview by no means expounds of the myriad of training activities conducted on Camp Shelby nor would it be possible to do so in this format. Suffice it to say that the title of "The Nation's Largest National Guard and Reserve Training Site", is earned and well deserved.

To effectively conduct this training requires enormous training support. The Department of Defense estimates that for every one combat soldier there are three support personnel--the same is true of CSTS.

The Training Site supports training through a variety of organizations/activities which include:

Training Site Headquarters (Command element)
Directorates (DPTM, DOL, DFE, DRM, DPCA, HHD, RSSD)
Maintenance Support Organizations (SMO, MATES, CSMS, ECS, OMS-6 & DAS3)
Shipping and Receiving (USP&FO)
FORSCOM Field Operating Activity (40th Ordnance [EOD])
Other Tenants (Schools, armories/units, etc.)

In fact, the post staff/employees of over a thousand personnel, are all directly/indirectly involved in post operations--all for the purpose of providing outstanding training/support for customer units.

To enhance this required support during summer encampments (usually 1 May thru 1 September), numerous combat support/service support units are tasked to provide the additional support essential for successful training. This support includes: Medical, Aviation, Military Police, Communications, Maintenance, Personnel/Administration and other required logistics support. These units, consisting of hundreds of soldiers from across the nation, provide the absolutely critical function of supplying/supporting the force.

In summation, Camp Shelby Training Site is a unique installation providing outstanding training opportunities, enhanced by excellent ranges and facilities, essential supply and support, highly skilled and professional personnel, superb command and control and an endless supply of enthusiasm and energy.

TABLE C-1

TRAINING BY UNITS OTHER THAN MANEUVER

Units conduct many types of training on Camp Shelby other than maneuver while attending annual and/or weekend training - the following is a list of some of the training other than maneuver.

1 - Weapons Firing (Small Arms, Crew Served, Artillery & Mortar)

2 - Practice Hand Grenade

3 - TOW & Dragon Missile

4 - Firing of Tank Main Gun & Crew Served Weapons

5 - NBC Nuclear, Biological, & Chemical Training - Note - this is done with simulated (training) gas/agents only

6 - Rappel Training

7 - Leadership Reaction Courses

8 - Army Physical Training Test

9 - Maintenance Training

10 - Medical Training

11 - Patrolling, i.e., Infantry Foot Patrols

12 - Establishing Bivouac Areas & Defensive Perimeters

13 - Communications Training

14 - Swim Training - Both Personnel & Equipment

15 - Parachute Training

16 - All Types of Classroom Orientation & Training on Various Subjects

17 - Air Traffic Control

18 - Air Field Crash Rescue

19 - Land Navigation Training

20 - Engineer Construction (Troop Projects) to Include Environmental Rehabilitation

21 - Operations and Intelligence Training

22 - Drill and Ceremonies

23 - Training Set Fire Observation (TSFO) Learning How to Call For and Adjust Artillery Fire

24 - Environmental Training/Briefings

APPENDIX C

2. Army National Guard Major Training Area Troop Capacity Sizing

2 - Army National Guard Major Training Area Troop Capacity Sizing

Camp Shelby is the largest state owned mobilization station within the National Guard structure. As depicted on the following table, Camp Shelby has a troop capacity sizing of 8,900. Installations with a troop capacity of this size are considered Category A installations.

APPENDIX A

MAJOR TRAINING AREA TROOP CAPACITY SIZING

STATE	TRAINING AREA	TROOP CAPACITY SIZING	CATEGORY
AL	Ft McClellan (ARNG Element)	1600	C
AK	Ft Richardson (Camp Carrol)	600	D
AR	Camp Robinson	3300	A SOMS *
AZ	Florence Mil Reservation	400	E
AZ	Ft Huachuca (ARNG Element)	400	E
AZ	Navajo Army Depot	600	D
CA	Camp Roberts	7300	A SOMS *
CO	Camp West	300	E
CT	Camp O'Neill	1000	C
FL	Camp Blanding	4000	A SOMS
GA	Ft Stewart (ARNG Element)	5300	A
IA	Camp Dodge	1200	C
ID	Gowen Field	2000	B SOMS
IL	Camp Marseilles	700	D
IN	Atterbury RFTA	4200	A SOMS
KS	Nickell Barracks	400	E
KY	Eastern KY Training Site	100	E
LA	Camp Beauregard	1000	C
MA	Camp Curtis Guild	400	E
MA	Camp Edwards	3000	A SOMS
MD	Gunpowder Military Resv	300	E *
ME	Riley-Bog Brook	500	D
MI	Camp Grayling	7200	A SOMS
MI	Camp Custer	1500	C
MN	Camp Ripley	7800	A SOMS
MT	Ft Harrison	700	D
MO	Camp Clark	600	D
MO	Camp Crowder	500	D
MS	Camp Shelby	8900	A SOMS
MS	Camp McCain	600	D
NC	Camp Butner	300	E
ND	Camp Grafton	1500	C
NE	Hastings	300	E
NE	Camp Ashland	350	E
NJ	Ft Dix (Sea Girt)	400	E
NV	Stead Training Site	100	E *
NY	Camp Smith	2100	B
OH	Camp Perry	1000	C
OK	Camp Gruber	3000	A
OK	Ft Sill (ARNG Element)	700	D
OR	Camp Rilea	1000	C

* Indicates change from last publication.

MAJOR TRAINING AREA TROOP CAPACITY SIZING

STATE	TRAINING AREA	TROOP CAPACITY SIZING	CATEGORY	
PR	Camp Santiago	3500	A	
SC	Ft Jackson (Leesburg Tng Center)	1700	B	*
SC	Clarks Hill Training Site	200	E	*
SD	Camp Rapid	600	D	
TN	Catoosa Training Range	300	E	
TN	Milan Arsenal	700	D	
TX	Camp Maxey	600	D	
TX	Camp Bowie	200	E	
TX	Camp Swift	700	D	
TX	Camp Wolters	500	D	
UT	Camp Williams	2300	B	
VA	Camp Pendleton SMR	900	D	*
VT	Camp Ethan Allen	600	D	
WV	Camp Dawson	1000	C	
WY	Camp Guernsey	1300	C	

* Indicates change from last publication.

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APPENDIX C

3. Camp Shelby Training Site Brochure

Welcome to Camp Shelby!

Welcome to Camp Shelby, Mississippi, one of the largest state-owned and operated field training sites in the United States.

Camp Shelby has more than 134,820 acres available for training, 960 buildings, 50 ranges, 64 numbered training areas, an airfield, and an airborne drop zone. The camp has130 surveyed artillery firing points, and has accommodated seven artillery battalions training simultaneously. Especially suitable for combined arms infantry training, The camp has limited armor maneuver areas and six tank firing ranges, to include ranges for the M-1 tank, and the Bradley fighting vehicle, two air-to-ground gunnery ranges and numerous specialized and unique training facilities. Its newest addition is the M-1 tank training program being conducted by the 155th Armor Brigade, Mississippi National Guard.

Camp Shelby is the annual training site for over 45,000 National Guardsmen and reservists from more than twenty states, but is also used throughout the year — typically 325 days and 44 week-ends of the year. In 1989 more than 107,380 troops trained here. The camp's wartime mission is to serve as a major, independent mobilization station of the U. S. Army Forces Command (FORSCOM). Its peacetime mission is to furnish necessary support and facilities needed by units training here.

Camp Shelby is located ten miles south of Hattiesburg, Mississippi, on the northern edge of the De Soto National Forest. The camp lies at the center of an excellent transportation network. It is located approximately 100 road miles from; Mobile, Alabama, Jackson, Mississippi, and New Orleans, Louisiana. The Gulf Coast is a one-hour drive to the south. Mississippi's climate year-round is mild which enhances the camp's use as a training center.

History

Camp Shelby was established in 1917. Hattiesburg civic leaders petitioned the government to build a post in the area. Local businessmen worked with General Leonard Wood in making the site selection. Approximately 6,000 National Guard Troops from Indiana, Kentucky, and West Virginia moved here to form the nucleus of the 38th Division. These troops named the new post in honor of Isaac Shelby, Indian fighter, Revolutionary War hero, and first Governor of Kentucky.

The camp, built by 4,500 civilians at a cost of 3.3 million dollars, eventually boasted 1,206 buildings, most of which were used for administration and logistics support. During World War I there were 36,000 troops stationed here. The troops were housed in tents.

Of all the First World War training centers, Camp Shelby achieved the second-highest health record and was awarded a special commendation for discipline and efficiency. However, upon demobilization, it was deactivated, and all but four of the buildings were torn down. The four buildings were ammunition storage magazines, and one of them, Building 6981, still stands north of the MATES tactical vehicle parking lot on Warehouse road.

In 1934, the State of Mississippi acquired the site for use as a summer camp by the National Guard. In 1937, Camp McClellan, Alabama an older post, was dismantled, and some of the materials were used to construct the early wooden buildings at Shelby. Many of these buildings are still in use.

Land in the De Soto National Forest was used for Army maneuvers in 1938, and soon Camp Shelby's natural advantages of climate, terrain, and location brought it to the attention of mobilization planners in Washington. With the assistance of the Mississippi Congressional delegation, the federal government negotiated for the lease of additional land, federal funds were appropriated, and in September, 1940, the camp was reopened as a federal installation.

Elements of the 37th Division, Ohio National Guard, were stationed here, as well as the famed "Cyclone Division," the 38th, of Indiana, Kentucky, and West Virginia. The 38th Division got its nickname as a result of a tornado that occurred during their World War I training at Camp Shelby.

In addition to the 37th and 38th Divisions, the 31st (Dixie), the 43rd, 65th, and 69th Divisions trained here, as well as the famous Japanese-American 442nd Regimental Combat Team, which became the most highly decorated unit in the European Theater. Women's Army Corps (WAC) units also trained here. The post contained a large convalescent hospital, and a prisoner of war camp which initially housed members of the German Africa Corps. At one time the population exceeded 100,000 troops, making Camp Shelby the largest training center in the world.

The Camp Shelby of WW II contained 360,000

acres — (an area much larger than current available land) — an additional 400,000 acres was leased for maneuver space. In all, over a thousand square miles were in use for training. Initially, troops using Camp Shelby were housed in tents (over 14,000), forming the largest tent city in the world. Construction workers (17,000), and Army engineer units constructed 1,800 buildings and 250 miles of improved roads at a cost of 24 million dollars.

After the war, however, the post was again closed. The War Assets Administration sold the federally-owned property. Even the water pipes were dug up and sold, most of them going to Oklahoma City, where some are still in use!!

During the Korean Conflict, Camp Shelby was developed as an Emergency Railhead Facility, and $3 million was spent to restore rail, water, and electric services. In the summer of 1954, nondivisional National Guard units trained at the post, and in 1956, the Continental Army Command designated Camp Shelby as a Permanent Training Site, directed by Third Army Headquarters.

Initially troops performing annual training at Camp Shelby were housed in tents, but in 1958 Congress allocated money for the first of the permanent-type barracks. In 1959 the Department of the Army approved the overall Camp Shelby plan and adopted it as the model for future construction at all field training sites.

The 199th Light Infantry Brigade trained here prior to their overseas deployment to Vietnam. The money derived from their training was used to construct Building 6606.

Museum

In September 1984, the 65th Infantry Division Association dedicated a monument in memory of their departed comrades resulting in a chain reaction of interest and enthusiasm for the establishment of a museum at Camp Shelby. The Mississippi Army National Guard NCO Association has made a substantial financial contribution to support the Camp Shelby Museum Project.

In June 1988, the Department of the Army Center of Military History approved the establishment of an Army Holding Facility (Armed Forces Museum) at Camp Shelby. Individuals and organizations have donated over 1,492 items that are on display in building number 80.

The Adjutant General has since appointed a committee to develop, organize and incorporate a museum foundation. The Armed Forces Museum Foundation was incorporated January 1989.

The Foundation will provide an umbrella under which individuals and organizations can support the further development and sustainment of the Museum. Through the Museum we can proudly inform and educate as well as perpetuate the significant contributions the State of Mississippi has made to the defense of the United States, and to preserve our military history. For additional information contact: Armed Forces Museum Foundation, Inc., Post Office Box 5027 (Attn: MS-DSR-PA), Jackson, MS 39296-5027.

Training

Camp Shelby has access to over 132,000 acres (about 206 square miles). Approximately 117,000 acres are owned by the U. S. Forest Service with a special use permit granted to the Mississippi National Guard. The main cantonment area, 7,900 acres, is owned by the state, 6,500 acres are leased from private owners, and 1,394 acres are owned by the Department of the Army. Funds have been allocated for the purchase and lease of additional land. Another 149,000 acres of De Soto National Forest would become available for training in the event of a national emergency.

Camp Shelby has ranges to accommodate all weapons from the 9mm pistol to the 8-inch howitzer. There are 114 surveyed artillery firing positions each of which can be occupied by an entire firing battery of artillery using any weapon from the 105mm through the 8-inch howitzer. Firing positions are located throughout the camp, but all fire into an artillery impact area 4,000 meters wide and 4,000 meters deep. Eight observation posts overlook this impact area. In addition to the artillery firing points, 16 mortar firing points are located to the east, south, and west of the impact area. Mortar points will accommodate any mortar in the U. S. Army inventory.

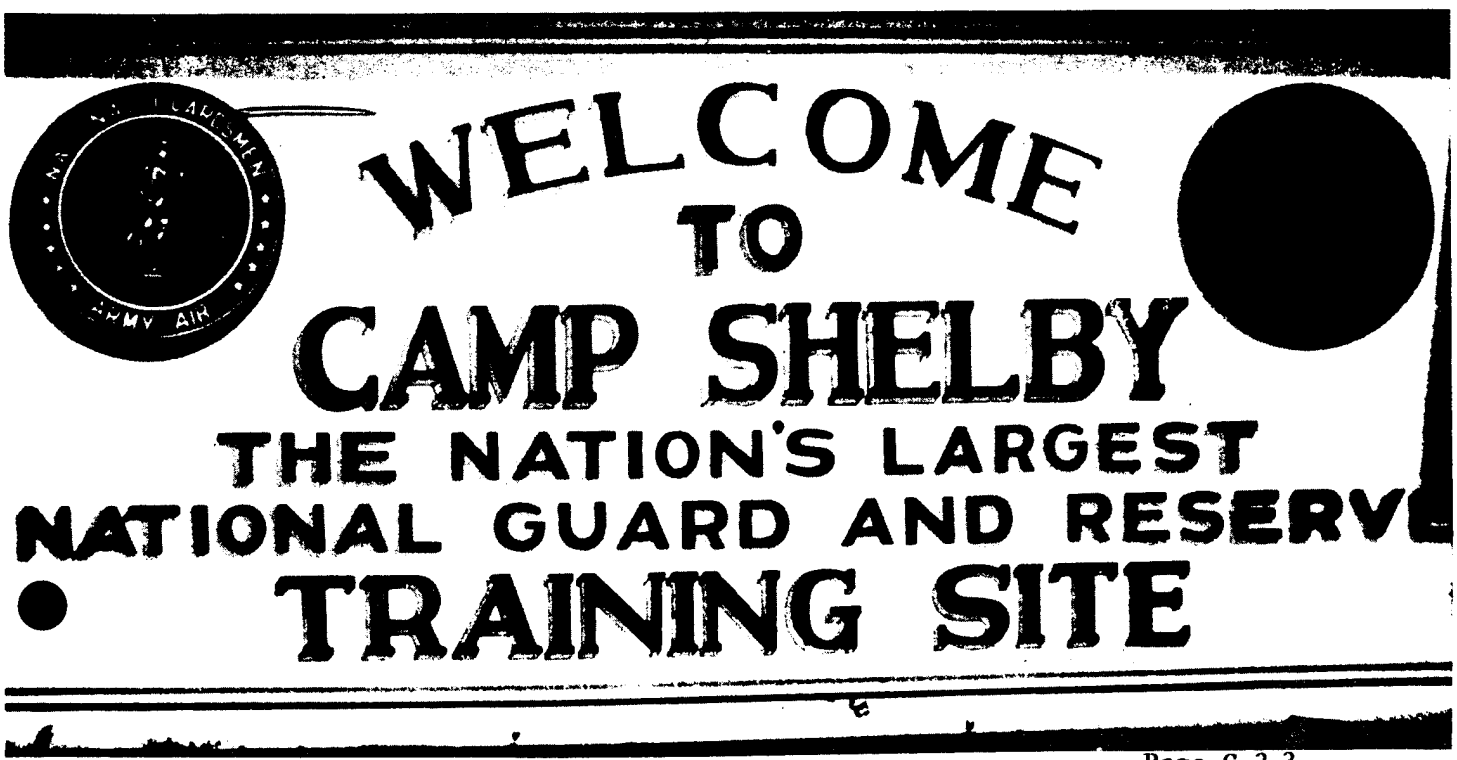
The Training Set, Fire Observation (TSFO), a $100,000 computerized facility, is used to train artillery forward observers and scouts. Housed indoors to allow all-weather use, the TSFO utilizes panoramic projection of color slides showing actual terrain. The projection is coordinated with topographic maps of the terrain shown, and thus can be used to teach map reading and terrain orientation as well as observation of indirect fire.

A program teaching THREAT equipment recognition is also available, and the newest program can be used to train personnel in some fire direction center procedures. The TSFO can accommodate 30 students at one time.

Being especially suitable for armor training, three National Guard armored brigades conduct annual



Camp Shelby, Mississippi



Camp Shelby, Mississippi

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Appendix C

training here regularly. Facilities include two Tank Table VI ranges, three Table VII/VIII tank crew combat firing courses, and a tank platoon battle run. The installation's current tank ranges have the capability to support one full armor brigade in a firing mode during annual training.

Existing maneuver areas include a 19-kilometer deep corridor currently under development, varying from one to five kilometers in width. Furthermore, marketable timber is being selectively cut from areas to provide the extended visibility necessary for long-range armor engagements, with Multiple Integrated Laser Engagement System (MILES) equipment available for simulating armor engagements.

Infantry training areas include 50 dismounted maneuver areas and 12 track maneuver areas. There are available ranges for qualification firing of all current infantry weapons including the M-60 and 50 caliber machine guns. Camp Shelby has the following small arms ranges: One record fire pistol range, one familiarization pistol range, one MP combat pistol range, five 25 meter rifle ranges, one field fire rifle range, one record fire rifle range, one familiarization rifle range. For machine gun fire there are two 10 meter ranges, one qualification range, three familiarization ranges, one transition range (10 points for M-60mg, 5 for 50 caliber mg), and two moving target ranges; also, the TSFO facility houses a computerized M-16 rifle trainer which simulates all aspects of rifle marksmanship.

In addition to the above ranges, a multiple use known-distance (KD) range is available,as well as four armor ranges to support Bradley fighting vehicle gunnery training tables V through VIII. For live fire dismounted training, there is one squad dismount range and one Mechanized infantry platoon battle course available. Ranges are also available for firing the M203 grenade launcher, and anti-armor tracking and live fire, to include the TOW, Dragon, 90mm RR, M-72 LAW, and the AT-4 LAW.

The mechanized ranges are organized according to the multiple use concept; all activities may not be conducted concurrently. However, 16,000 acres are available for armor and mechanized training, and 123,000 acres (about 90% of the post) are available for infantry training.

Furthermore, because of the multiple use range concept, all ranges can not be fired at the same time, and automated target equipment requires set-up and take-down time before and after firing; this requires careful management, which is provided by the full-time staff.

In addition, a wide variety of facilities are available for infantry-oriented basic soldiering skills. These include a gas chamber, several camouflage training areas, two demolition areas, a field fortification area, a repelling tower, and both track and wheeled vehicle driver training courses.

Hagler Army Air Field has 5,000 feet of paved runway and 9,000 square yards of apron space. The main runway is suitable for aircraft up through the C-130; maximum weight capacity is 175,000 pounds.

There are three C-130 turn-around/parking spaces. The air field control tower is operational during periods of annual training. There is an administrative/operations building, two hangar/maintenance shops, and 31 helicopter tie-down pads. In addition, three tactical air strips and numerous helicopter landing areas are located in training and maneuver areas. Camp Shelby also has its own drop zone, and the Air National Guard utilizes two (2) air-to-ground gunnery ranges on the post.

Camp Shelby affords engineer units ample opportunities to perform battlefield mission under realistic training conditions. Two demolition areas are available, as are engineer rigging and landmine warfare training areas. One float bridge area, two Bailey bridge areas, one field fortification area, six water supply training areas, a POL training area, and one amphibious training area are also available.

Combat Support and Combat Service Support Units also have excellent training opportunities available at Camp Shelby. The Load Out Training Area (LOTA) contains rail boxcars and flat cars, and full-size loading simulators of C-130 and C-141 cargo aircraft. Transportation units can practice air and rail loading and unloading and also Material Handling Equipment (MHE) operations.

Schools

The Regional School Support Detachment (RSSD) serves as the headquarters for three (3) National Guard Bureau schools located at Camp Shelby. The three schools are the M60A3 Displaced Equipment Training Team (DETT), Regional Training Site - Maintenance (RTS-Maint), and the Regional Training Site - Medical (RTS-Med). The RSSD provides administrative, logistical, medical, and training support to each of the schools and upon request provides support to individuals or units utilizing them. The RSSD also serves as liaison between the schools and higher command elements. The RSSD also develops programs to ensure future growth of the school.

The M60A3 DETT was organized in March of 1986 for the purpose of providing transition training for reserve component armor crewmen and organizational turret mechanics fielding the M60A3

tank. The DETT provides year round training for units in annual training status. This saves funding and provides consistently high quality training for soldiers. Several new missions for the DETT are under development for implementation upon completion of the M60A3 tank program.

The Regional Training Site - Maintenance provides training to individual soldiers assigned as maintenance personnel to various types of units. Qualified instructors are available to provide instruction in virtually all areas of maintenance as well as combat vehicle retrieval and class IX supply. A new, comfortable training facility equipped with up-to-date simulators and modern equipment is use to facilitate training.

The Regional Training Site - Medical provides new equipment training and sustainment training for medical units receiving or operating with Deployable Medical System (DEPMEDS) equipment. An eight (8) acre training site and an extensive training complex is available to facilitate training. The RTS-Med also serves as a regional medical equipment maintenance center which provides individual training for biomedical equipment personnel. Several additional courses are under development including a Medical Supply Course and a Combat Casualty Care Course.

The Mississippi Military Academy (MMA), National Guard Officer Candidate School (OCS), is currently in its 32nd year of operation. The 12-month officer candidate school curriculum is divided into three phases, two resident phases conducted during successive summers, and an interim IDT phase conducted during weekends throughout the year. The OCS program has graduated 960 officers, of whom more than 400 continue to serve.

In 1975, the Mississippi Military Academy implemented the Non-Commissioned Officer Educational School by conducting a Senior NCO Course for selected E8s and E9s from throughout the state. The success and impact of this program, led to a nation-wide Reserve Component NCO Program. From the first course, the NCO Education System has evolved into the present format of Primary Leadership Development Course (PLDC) for E4s and E5s, Basic NCO Course for E6s, and an Advanced NCO Course for E7s.

Additionally, MMA offers an Instructor Training Course (ITC), Training Management System (TMS), and a First Sergeant Course (FSC).

Since 1975, MMA has graduated more than 6,000 non-commissioned officers from varied NCO Educational Programs.

The Mississippi Military Academy also conducts a ROTC/SMP Pre-Commissioning Training Program. ROTC Military Science III and IV's from universities throughout the state participate in a fast-paced, performance oriented training program designed to provide training in critical areas which enhance officer development. This program, five months in length, and first implemented in Mississippi, has been adopted by several other states to meet similar needs.

The Second Army Nuclear, Biological, and Chemical (NBC) School trains 500 to 800 students each year in the fundamentals of nuclear, biological, and chemical (NBC) defense. The school is operational from April through August each year. During calendar year 1989, five 13-day NBC Defense courses were conducted to prepare company and battalion-level personnel of all branches for duties in these areas with in their parent units.

Concurrently, MOS conversion courses were conducted to train personnel for MOS 54B (Chemical Operations). The MOS courses include nine Skill Level 1 Conversion Courses and seven Skill Levels 2/3 Conversion Courses. The school is staffed by both Army National Guard and Reserve personnel, and students are drawn from active Army, Guard and Reserve units throughout the Second Army area.

The Region III NCO Academy serves the states of Alabama, Arkansas, Louisiana, Mississippi, Oklahoma, and Texas. USAR students from other states also attend. Staffed by 55 full-time trainers and administrators, the school operates year-round and conducts approximately 17 training cycles per year.

The NCO Academy trains soldiers in the grades of E-4 and E-5 in the Primary Leadership Development Course (PLDC) using a two-week, three-phased, 123.5-hour curriculum. In order to pass the course, students must achieve a grade of 70% in all academic areas and 100% in all hands-on training. The course can accommodate twelve 12-man squads, for a total of 144 students per cycle. Between October, 1984, and September 1989, the NCO School trained and graduated 9,063 non-commissioned officers.

Support

Camp Shelby is a designated major mobilization station, which would operate under U. S. Army Forces Command (FORSCOM) in case of national emergency or war. The Camp Shelby mission would be to mobilize, receive, train, and equip units in preparation for overseas deployment. In order to accomplish this mission, certain post activities have

been established, all oriented toward mobilization.

The Mobilization and Training Equipment Site (MATES) receives equipment from Army National Guard units and maintains and stores it for mobilization and training. The site stores approximately 833 combat vehicles, 24 pieces of major engineer equipment, 154 wheeled vehicles and 4,874 pieces of miscellaneous equipment. MATES supports 34 specific organizations of the Mississippi, Alabama, and Tennessee Army Guard, comprising armor, infantry, artillery, engineer, combat support, and maintenance units. One of 18 such sites in the nation, the Camp Shelby MATES is the crucial logistic base for these units in the areas of maintenance, property accounting, support of training, storage and preservation, security, repair parts supply, and reporting.

The Combined Support Maintenance Shop (CSMS) performs support maintenance — repair, overhaul, and rebuild — and conducts maintenance assistance in support of regional organizational and maintenance shops and units of the Mississippi National Guard. The CSMS provides direct support for units training at Camp Shelby.

An Inter-Service Support Agreement (ISSA) between FORSCOM, Second Army, and the Adjutant General of Mississippi established a similar equipment site for U. S. Army Reserve units and equipment. The Equipment Concentration Site (ECS) performs functions similar to the MATES, storing and maintaining 30 combat vehicles, approximately 500 wheeled vehicles and trailers, engineer and construction equipment. They also provide support equipment such as refrigeration, laundry, bakery, and refueling equipment — a total of 770 separate items. The ECS supports units from Florida, Georgia, Alabama, Tennessee, Mississippi, and Puerto Rico.

The Organizational Maintenance Shop (OMS) provides maintenance that is beyond the capabilities of various assigned using units. The Shop located at Camp Shelby supports units within a 60-mile radius, as well as the units on post.

The United States Property and Fiscal Office (USP&FO) ships, receives, and stores all classes of supplies for the MATES, ECS, OMS, CSMS, and a dozen other OMS facilities at various locations. The USP&FO operates a series of warehouses at Camp Shelby, including a cold weather equipment contingency storage building, and an aviation Class IX facility for storage of obsolete aviation repair parts in support of all states.

In conjunction with USP&FO supply activities, the 367th Maintenance Company operates a DAS 3/DS 4 computerized inventory control system. DAS 3 is Decentralized Automated Service Support System, and encompasses Class IX support for all non-brigade ground units; DS 4 stands for Direct Support Unit Supply System. Computer operations are housed in a van which makes the system fully deployable upon mobilization. Furthermore, a training van is available to train Direct Support Maintenance units during annual training, in their DS Class IX supply missions.

Facilities

Since designation as a Permanent Training Site, Camp Shelby has continued to add to its facilities, 20 increments over a 25 year period. At the present time, the post has sufficient BOQ's, BEQ's, logistics buildings, dining facilities and headquarters buildings to support an entire division or its equivalent. Medical facilities, and troop morale, welfare and recreational (MWR) facilities also available. These are summarized in Table I.

TABLE I - FACILITIES

TYPE	NUMBER	CAPACITY
General Officer Quarters	3	8
Field Grade Officer	22	166
Bachelor Officer Quarters	49	980
Senior Warrant Quarters	2	16
Senior NCO Quarters	5	95
Enlisted Barrack	281	10,116
Latrine Buildings	82	
Dining Facilities	69	200 each
Division Headquarters	1	
Brigade Headquarters	5	
Battalion Headquarters	22	
Company Headquarters	99	
Battalion Supply Buildings	18	
Troop Medical Clinics	2	
Classroom Facilities	5	50 each

Additional support facilities for units to train at Camp Shelby are varied to meet Department of Defense criteria for a major Mobilization Station. In addition to the ranges and training areas already mentioned, units can expect to have available the facilities listed in Table II.

TABLE II - SUPPORT

TYPE	NUMBER
Ammunition Supply Point (w/20 steel arched magazines)	1
Bulk Fuel Storage (MOGAS 100,000 gal)	1
Bulk Fuel Storage (Diesel 100,000 gal)	1

Bulk Fuel Storage (JP-4 15,000)	1
Unit Fuel Stations (MOGAS)	12
Unit Fuel Stations (Diesel)	10
Troop Issue Subsistence Activity	1
Range Control Facility	4
Training Set Fire Observation	1
Organizational Maintenance Shop	1
Mobilization & Training Equipment Site	1
USAR Equipment Concentration Site	1
Army Aviation Air Field	1
Army Aviation Tactical Air Strips	3
Illuminated Helicopter Pads	4
Regional Training Site-Maintenance	1
Regional Training Site-Medical	1
Field Training Site, Medical	1
Installation Support Unit Armory	1

Camp Shelby was built during periods of austere military budgets, as reflected by the cost effectiveness and simplicity of design apparent throughout the post. Phase 21A and 21B of the Camp's on-going program consists of the improvement and renovation of existing facilities.

Part I is a modification and addition to the Camp Shelby electrical distribution system at a cost of $500,000.00.

Part II is for a natural gas distribution system at a cost of $935,000.00.

Part III is modification and addition to heating systems at a cost of $2,800,000.00.

Some buildings are already suitable for year-round occupancy. An additional battalion size area is being "winterized." Additional latrines for female personnel, sidewalks, paving of parking areas near unit orderly rooms, modernization of dining facilities, and the installation of fans in the barracks are also on-going improvements.

Morale/Recreation Facilities

Camp Shelby has five field pavilions for troop recreation. Greer Chapel offers both Protestant and Catholic services during Annual Training periods. The main post exchange, branch PX, and the Class VI store operate year round. Additional troop facilities include two washaterias, the post theater, enlisted personnel service clubs, two lakes and several outdoor basketball and volleyball courts. Other facilities include Lake Walker, a 39 acre recreational and fishing lake, and a 25-space recreational vehicle campground beside the lake· four lighted softball fields and six lighted tennis courts.

A new Officers Club was constructed in 1983, and the main NCO Club has been renovated. A junior Olympic swimming pool now serves Camp Shelby, and the new BEQ had a 44-person wing added in 1986.

The Department of Defense does not appropriate funds for certain facilities which are normally considered part of the main cantonment area of a post. However, under provisions of a Mississippi state law, the revenues from the sale of timber and mineral products on state land at Camp Shelby, must be spent at Camp Shelby. In conjunction with the State Forestry Commission, the Adjutant General administers a timber management program, depositing all proceeds into a special fund for morale, welfare, and recreational improvements. Over one million dollars has been made available from the timber fund for these purposes.

Additional Information

For additional information regarding training opportunities at Camp Shelby, contact one of the following:

Mississippi Military Department
Post Office Box 5027
Jackson, MS 39296-5027
Commercial (601) 973-6311
AUTOVON 637-6311

or

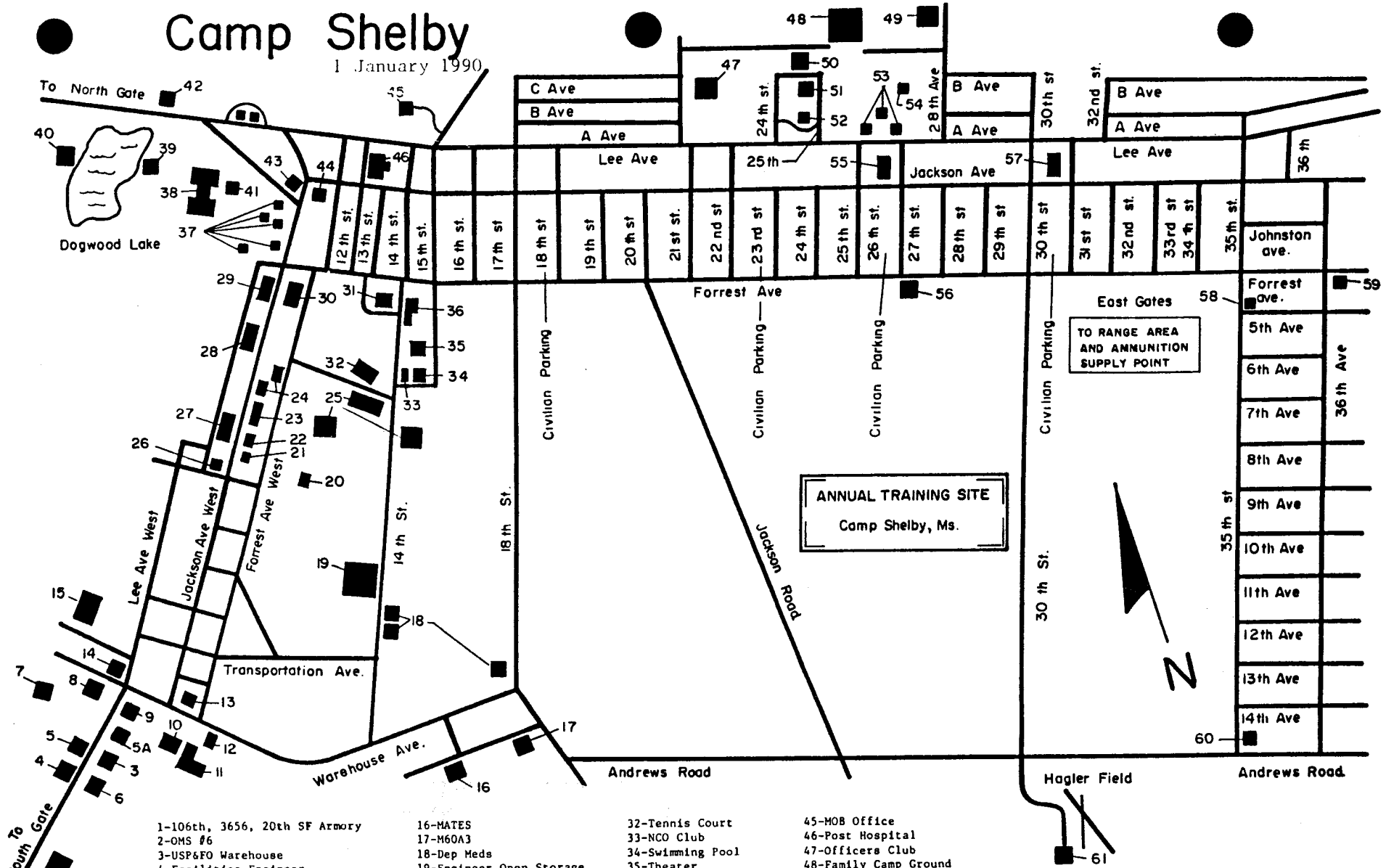
Training Site Supervisor
Camp Shelby, MS 39407-5500
Comm: (601) 584-2871, ext. 2685
AUTOVON 921-2685

The Mississippi Army National Guard extends thanks to the Active Army, Army National Guard, US Army Reserve, and others who contributed to this booklet.

This booklet is dedicated to the soldiers of Camp Shelby — past, present, and future — those who have served their nation in peace and in war, those who now serve, and those who will carry on the proud traditions of freedom through strength and courage, through diligence and self-sacrifice, and through patriotism of the highest order.

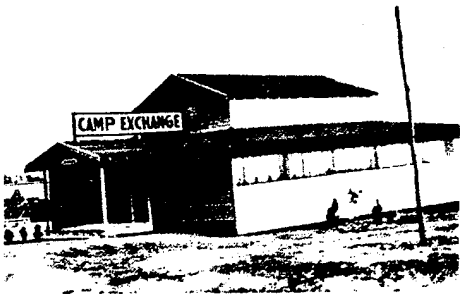
Camp Shelby

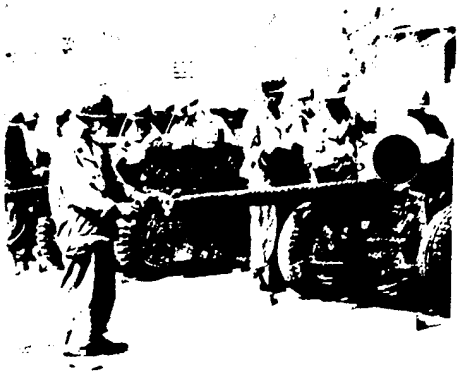
1 January 1990



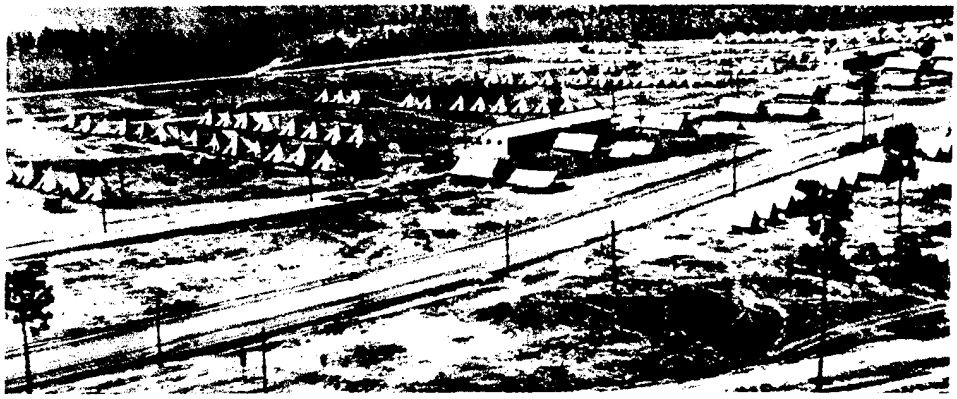
1-106th, 3656, 20th SF Armory
2-OMS #6
3-USP&FO Warehouse
4-Facilities Engineer
5-ECS
5A-ECS Warehouse
6-DAS III
7-FE Maint
8-Post Supply & Finance
9-Branch PX & Fire Station
10-USP&FO Warehouse
11-CSMS
12-CSMS Supervisor
13-Museum
14-Billeting Office
15-Ration Breakdown
16-MATES
17-M60A3
18-Dep Meds
19-Engineer Open Storage
20-Washateria
21-DOL
22-RSSD
23-NBC Classroom
24-MP HQ
25-Softball Field
26-TSFO
27-40th ORD DET (EOD)
28-ACCH
29-Redstone Rediness
30-Post Chapel
31-Class VI & Credit Union
32-Tennis Court
33-NCO Club
34-Swimming Pool
35-Theater
36-Service Club
37-VIP Quarters
38-BOQ 1 Blockhouse
39-East Pavilion #1
40-West Pavilion #2
41-Grove Pavilion
42-TNG Site HQ/ISU Armory
43-Camp HQ
44-Post Commander
45-MOB Office
46-Post Hospital
47-Officers Club
48-Family Camp Ground
49-WW/TP
50-Evaluation Bldg
51-Post Office
52-Paxton Hall (2400)
53-General Officer Qtrs
54-Tiki Pavilion
55-Main PX
56-Washateria/Barber Shop
57-MMA HQ
58-Leadership Reaction Cours
59-Regional Maint. TNG Site
60-Bulk Fuel Storage Center
61-Hagler Field



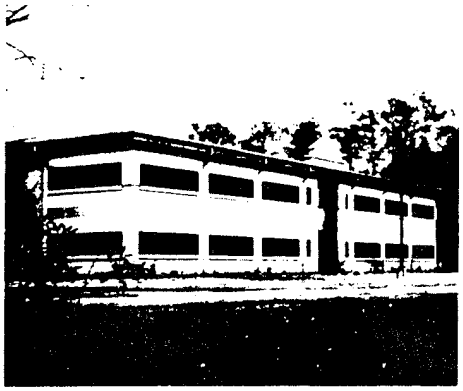


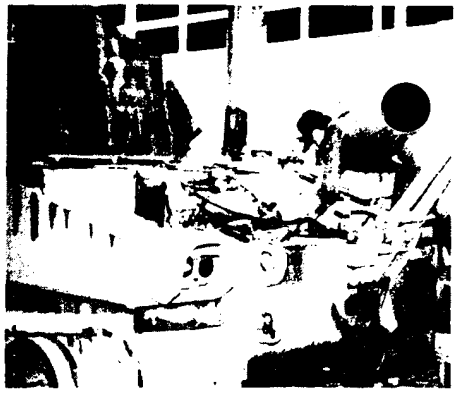










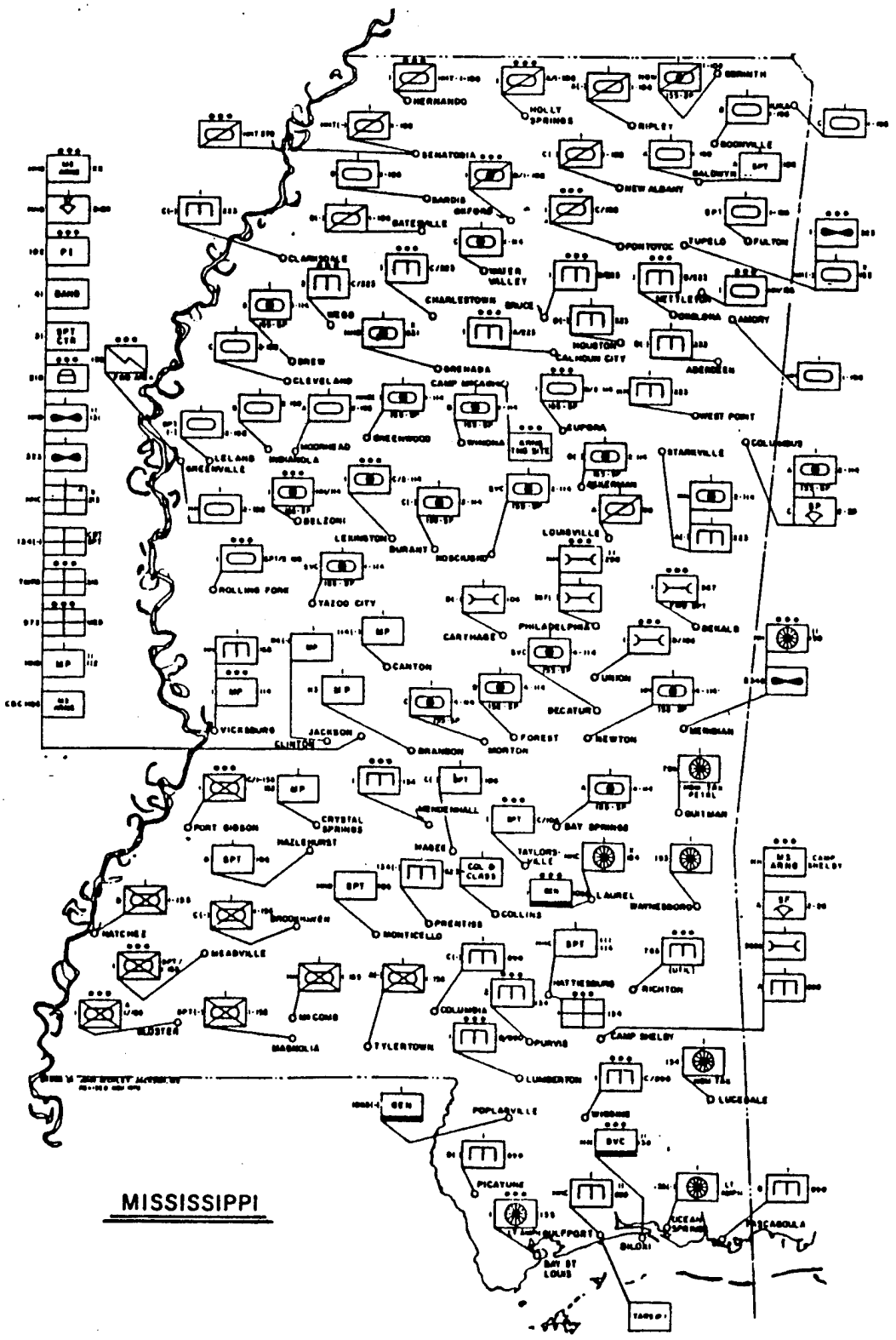




This brochure is dedicated to the soldiers of Camp Shelby--past, present, and future--those who have served their nation in peace and in war, those who now serve, and those who will carry on the proud traditions of freedom through strength and courage, through diligence and self-sacrifice, and through patriotism of the highest order.

APPENDIX C

4. Major Users of Camp Shelby


MISSISSIPPI

TROOP LIST
MISSISSIPPI ARMY NATIONAL GUARD
1 September 1989 *

UNIT	STATION	UIC	SUC	REMARKS
HQ, STARC (-) MSARNG	JACKSON, MS 39296-4955	W8AGAA	001	PO Box 4955 949-6347
102 PUBLIC AFFAIRS DET	JACKSON, MS 39296-4955	WQD9AA	004	PO Box 4955 949-6348
41ST ARMY BAND	JACKSON, MS 39296-4955	WQJ9AA	007	PO Box 4955 949-6348
MISSISSIPPI MILITARY ACADEMY	CP SHELBY, MS 39407-5500	W8AGA3	002	3002 Jackson Ave 584-2319
REGION III NCO ACADEMY	CP SHELBY, MS 39407-5500	W7W8AA	151	Bldg 3503 584-2215
M60A3 DET TEAM (AV 921-2591)	CP SHELBY, MS 39407-5500	W7QZAA	005	Bldg 6890 584-2591
REGIONAL TRAINING SITE MAINTENANCE	CP SHELBY, MS 39407-5500	W7WMAA	006	3601 Forrest Ave 584-2237
REGIONAL TRAINING SITE MEDICAL	CP SHELBY, MS 39407-5500	W7WTAA	150	Bldg 886 584-2522
DET 2, STARC MSARNG, CAMP MCCAIN	ELLIOTT, MS 38926-0686	W8AGA2	008	PO Box 686 226-7283
AVCRAD (AV 363-8261)	GULFPORT, MS 39505-3349	W7TNAA	009	PO Box 3348 868-6103
TSU, CAMP SHELBY	CP SHELBY, MS 39407-5500	W7LZAA	010	NG Armory 584-2311
DET 1, STARC MSARNG, TROOP COMMAND	JACKSON, MS 39204-4334	W8AGA1	012	1420 Raymond Rd 372-9462
210 FIN SEC	JACKSON, MS 39204-4334	WP86AA	099	1420 Raymond Rd 373-2143 Box C
750 PSC	JACKSON, MS 39204-4334	WYH1AA	014	1420 Raymond Rd 373-5361
1159th GENERAL SUPPORT POSTAL COMPANY	CLARKSDALE, MS 38614-0387	WYULAA	015	PO Box 387 627-7411
HQ, 631 FA Bde	GRENADA, MS 38901-0966	WP24AA	016	PO Box 966 226-1571
HB, 631 FA Bde	GRENADA, MS 38901-0966	WP24AA		PO Box 966 226-01571
HQ, 1 BN, 114 FA	GREENWOOD, MS 38930-0901	WPKCAA		PO Box 901 453-6521
HB (-), 1 BN, 114 FA	GREENWOOD, MS 38930-0901	WPKCT0	019	PO Box 901 453-6521
DET 1, HB, 1 BN, 114 FA	BELZONI, MS 39038-0122	WPKCT1	022	PO Box 122 247-1826
BTRY A, 1 BN, 114 FA	DREW, MS 38737-0246	WPKCA0	025	PO Box 246 745-8701
BTRY B, 1 BN, 114 FA	WINONA, MS 38967-0600	WPKCB0	028	PO Box 600 283-3533
BTRY C, 1 BN, 114 FA	WATER VALLEY, MS 38965-0312	WPKCC0	034	PO Box 312 473-1722
SVC BTRY, 1 Bn, 114 FA	YAZOO CITY, MS 39194-0247	WPKCS0	037	PO Box 247 746-4721
HQ, 4 BN, 114 FA	NEWTON, MS 39345-0149	WP3MAA		PO Box 149 683-3837
HB, 4 BN, 114 FA	NEWTON, MS 39345-0149	WP3MT0	040	PO Box 149 683-3837
BTRY A, 4 BN, 114 FA	BAY SPRINGS, MS 39422-1904	WP3MA0	043	PO Box D 764-2298
BTRY B, 4 BN, 114 FA	FOREST, MS 39074-0478	WP3MB0	046	PO Box 1478 469-4711
BTRY C, 4 BN, 114 FA	MORTON, MS 39117-0617	WP3MC0	049	PO Box Q 732-8040
SVC BTRY, 4 BN, 114 FA	DECATUR, MS 39327-0067	WP3MS0	052	PO Box 67 635-2127

(* This troop list incorporates the 1 Sep 89 reorganization of 890th & 223d Engr Bn)

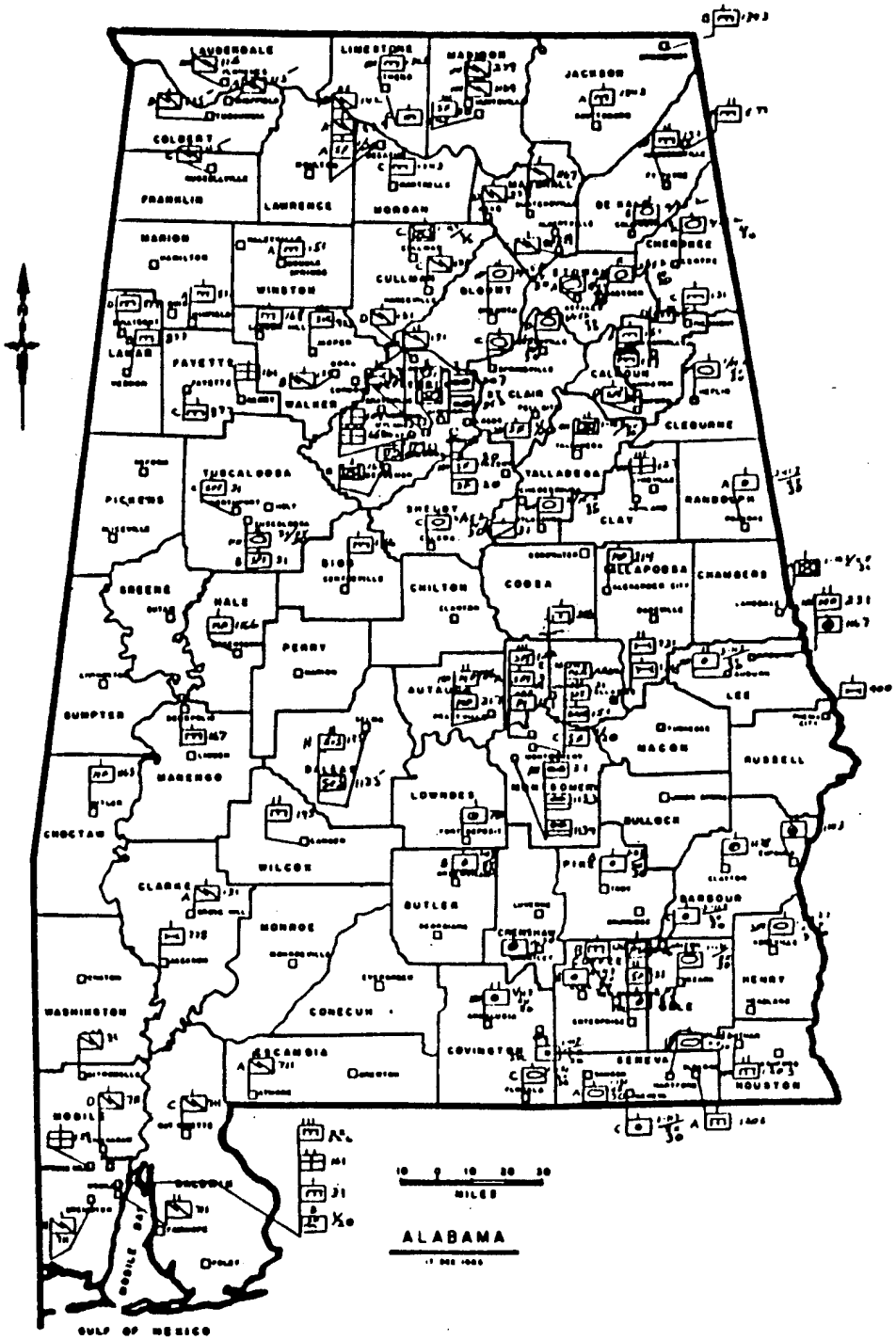
UNIT	STATION	UIC	SUC	REMARKS
HQ, 1ST SQDN, 108 AC	SENATOBIA, MS 38668-0278	WQNDAA		PO Box 278 562-4232
HT (-), 1ST SQDN, 108 AC	SENATOBIA, MS 38668-0278	WQNDT0	056	PO Box 278 562-4494
DET 1, HT, 1 SQDN, 108 AC	HERNANDO, MS 38632-0070	WQNDT1	059	PO Box 70 368-6333
TRP A (-), 1 SQDN, 108 AC	RIPLEY, MS 38663-0208	WQNDA0	062	PO Box 208 837-7147
DET 1, TRP A, 1/108	HOLLY SPRINGS 38635-0098	WQNDA1	063	PO Box 98 252-1521
TRP B (-), 1 SQDN, 108 AC	BATESVILLE 38606-0507	WQNDB0	066	PO Box 507 563-7218
DET 1, TRP B, 1 SQDN, 108 AC	OXFORD, MS 38655-1075	WQNDB1	069	PO Box 1075 234-1811
TRP C (-), 1 SQDN, 108 AC	NEW ALBANY, MS 38652-0178	WQNDC0	072	PO Box 178 534-4940
DET 1, TRP C, 1 SQDN, 108 AC	PONTOTOC, MS 38863-0536	WQNDC1	075	PO BOX 536 489-1711
CO D, 1 SQDN, 108 AC	SARDIS, MS 38666-0337	WQNDD0	078	PO Box 337 487-1161
HOW BTRY, 1 SQDN, 108 AC	CORINTH, MS 38834-1169	WQNDP0	081	PO Box 1169 286-6857
HQ, 112 MP Bn	JACKSON, MS 39204-4334	WQAWAA		1420 Raymond Road 354-6033 Box F
HD, 112 MP Bn	JACKSON, MS 39204-4334	WQAWAA	084	1420 Raymond Road 354-6033
113 MP Co	BRANDON, MS 39042-0759	WQA4AA	087	PO Box 759 825-2142
114 MP Co (-)	CLINTON, MS 39056-0117	WQA5AA	089	PO BOX 117 924-1228
Det 1, 114 MP Co	VICKSBURG, MS 39180-1096	WQA5A1	091	PO BOX 1096 636-1656
Det 2, 114 MP Co	CANTON, MS 39046-0294	WQA5A2	092	PO BOX 294 859-3282
162 MP Co	CRYSTAL SPRINGS 39059-0578	WXFFAA	096	PO BOX 578 892-4222
HQ, 185 AVN GP	JACKSON 39209-3435	WTBBAA		364 SHOP STREET 354-7544
HD, 185 AVN GP	JACKSON 39209-3435	WTBBAA	101	364 SHOP STREET 354-7544
CO E, 185 AVN GP (AV: 694-9504)	MERIDIAN, MS 39304-4068	WVF5AA	112	PO BOX 4068 693-5068
232 ATC DET	JACKSON, MS 39209-3435	WVGZAA	105	364 SHOP STREET 354-7542
HQ, 1 BN, 185 AV	TUPELO, MS 38801-7024	WTQGAA		105 LEMONS DRIVE 842-2777
HC (-), 1 BN, 185 AV	TUPELO, MS 38801-7024	WTQGT0	106	105 LEMONS DRIVE 842-2777
DET 1, HHC, 1 BN, 185 AVN	JACKSON, MS 39209-3435	WTQGT1	107	364 SHOP STREET 354-7542
CO A, 1 BN, 185 AVN	JACKSON, MS 39209-3435	WTQGA0	108	364 SHOP STREET 354-7542
CO B, 1 BN, 185 AVN	TUPELO, MS 38801-7024	WTQGB0	109	150 LEMONS DR 842-1378/9
CO C, 1 BN, 185 AVN	JACKSON, MS 39209-3435	WTQGC0	110	364 SHOP STREET 354-7544
CO D, 1 Bn, 185 AVN	TUPELO, MS 38801-7024	WTQGD0	111	150 LEMONS DRIVE 842-1378/9

UNIT	STATION	UIC	SUC	REMARKS
HQ, 2 SF BN, 20 SF (AV: 731-9399)	JACKSON, MS 39204-4334	WTPDAA		1420 RAYMOND ROAD 372-1666 Box A
HQ, 2 SF BN, 20 SF GP	JACKSON, MS 39204-4334	WTPDTO	113	1420 RAYMOND ROAD 372-1666 BOX A
AUG TDA, HQ, 2 SF BN, 20 SF GP	JACKSON, MS 39204-4334	WTPD99	114	1420 RAYMOND ROAD 372-1666 BOX A
CO A, 2 SF BN, 20 SF GP	CAMP SHELBY, MS 39407-5500	WTPDAO	116	NG ARMORY 584-2239
CO C, 2 SF BN, 20 SF GP	COLUMBUS, MS 39704-2566	WTPDCO	119	PO BOX 2566 328-4475
SPT CO, 2 SF BN, 20 SF GP	JACKSON, MS 39204-4334	WTPDDO	120	1420 RAYMOND ROAD 372-1666 BOX A
HQ, 184 TRANS BDE (JXN PHONE 961-4087) (AV: 921-2804)	LAUREL, MS 39442-2428	WXE5AA		PO BOX 2428 428-0184
HC, 184 TRANS BDE	LAUREL, MS 39442-2428	WXE5AA	122	PO BOX 2428 428-0184
193 MOVEMENT CONTROL DET	LAUREL, MS 39442-2428	WYD8AA	123	PO BOX 2428 428-7365
HQ, 114 AREA SUPPORT GROUP (AV: 921-2668)	HATTIESBURG 39403-1628	WXFAAA		PO BOX 1628 583-2756
HC, 114 AREA SUPPORT GROUP	HATTIESBURG 39403-1628	WXFAAA	125	PO BOX 1628 583-2756
31st RAOC	JACKSON 39204-4334	WTJWAA	013	1420 Raymond Road 372-0951 Box B
HQ, 138 SUP & SVC BN	BILOXI, MS 39533-1920	WTWHAA		PO Box 1920 388-3232
HC, 138 SUP & SVC BN	BILOXI, MS 39533-1920	WTWHAA	128	PO BOX 1920 388-3232
1355 SUP & SVC CO (-)	OCEAN SPRINGS 39564-1347	WVH7AA	131	PO BOX 1347 875-7964
DET 1, 1355 SUP & SVC CO	BAY ST. LOUIS 39520-2220	WVH7A1	133	PO BOX 2220 467-4681
1065 GEN SUP CO (-)	POPLARVILLE 39470-0231	WTWGAA	135	PO BOX 231 795-8466
DET 1, 1065 SUP & SVC CO	BILOXI, MS 39533-1920	WTWGA1	136	PO BOX 1920 388-3232
785 ENGR DET	RICHTON, MS 39476-1015	WVBCAA	139	PO DRAWER S 788-9632
HQ, 150 QM BN	MERIDIAN, MS 39304-4098	WVNHAA		PO BOX 4098 693-5065
HD, 150 QM BN	MERIDIAN, MS 39304-4098	WVNHAA	196	PO BOX 4098 693-5065
624 QM Co (-)	WAYNESBORO, MS 39367-0369	WVOQAA	197	PO BOX 369 735-4563
DET 1, 624 QM Co	LAUREL, MS 39442-2428	WVOQA1	198	PO BOX 2428 428-7365
786 TRANS CO (-)	LUCEDALE, MS 39452-0587	WQH9AA	201	PO BOX 587 947-2751
DET 1, 786 TRANS CO	QUITMAN, MS 39355-0036	WQH9A1	203	PO BOX 36 776-6241
HQ, 298 MAINT BN	PHILADELPHIA 39350-0036	WXFBAA		PO BOX 36 656-5999
HD, 298 MAINT BN	PHILADELPHIA 39350-0036	WXFBAA	210	PO BOX 36 656-2502
367 MAINT CO (-)	PHILADELPHIA 39350-0036	WXFCAA	212	PO BOX 36 656-5081
DET 1, 367 MAINT CO	DEKALB, MS 39328-0548	WXFCA1	213	PO BOX 548 743-5214
623 SVC CO (COL & CLS)	COLLINS, MS 39428-1209	WVF7AA	215	PO BOX 1209 765-4972
3656 MAINT CO	CP SHELBY 39407-5500	WQDAAA	216	NG ARMORY 584-2333

UNIT	STATION	UIC	SUC	REMARKS
HQ, 168 ENGR GP	VICKSBURG 39181-0061	WQLFAA		PO BOX 61 636-5665
HC, 168 ENGR GP	VICKSBURG 39181-0061	WQLFAA	225	PO BOX 61 636-5665
HQ (-), 223 ENGR BN	WEST POINT 39773-0637	WQLHAA		PO BOX 637 494-2374
SC (-), 223 ENGR BN	WEST POINT 39773-0637	WQLHTO	229	PO BOX 637 494-2374
Det 1, HSC, 223 ENGR BN	ABERDEEN, MS 39730-0664	WQLHT1	230	PO BOX 664 369-2931
CO A (-), 223 ENGR BN	HOUSTON 38851-0226	WQLHAO	253	PO 0226 456-3761
DET 1, CO A, 223 ENGR BN	OKOLONA, MS 38860-0270	WQLHAT	255	PO BOX 270 447-5771
CO B (-) 223 ENGR BN	CALHOUN CITY 38916-0067	WQLHBO	235	PO BOX 67 628-5812
DET 1, CO B, 223 ENGR BN	BRUCE 38915-0266	WQLHB1	237	PO BOX 266 983-2202
CO C (-)223 ENGR BN	CHARLESTON, MS 38921-0437	WQLHCO	247	PO BOX 437 647-2796
DET 1, CO C, 223 ENGR BN	WEBB, MS 38966-0546	WQLHC1	250	PO BOX 546 375-8363
DET 2, CO C, 223 ENGR BN	MARKS, MS 38646-0180	WQLHC2	248	PO DRAWER G 326-2720
254 ENGR DET	ELLIOTT, MS 38926-0686	WTWUAA	251	PO BOX 686 326-2720
HQ, 890 ENGR BN	GULFPORT, MS 39502-4223	WP7DAA		PO BOX 4223 863-4891
SC, 890 ENGR BN	GULFPORT, MS 39502-4223	WP7DTO	259	PO BOX 4223 863-4891
DET 1, HSC, 890 ENGR BN	PURVIS, MS 39475-0160	WP7DT1	262	PO BOX 160 794-8018
DET 2, HSC, 890 ENGR BN	CAMP SHELBY, MS 39407-5500	WP7DT2	260	CAMP SHELBY 584-2XXX
CO A (-), 890 ENGR BN	PICAYUNE, MS 39466-0816	WP7DAO	280	PO Box 816 798-6271
DET 1, CO A, 890 ENGR BN	LUMBERTON, MS 39455-0471	WP7DA1	281	PO BOX 471 796-8317
CO B, 890 ENGR BN	PASCAGOULA, MS 39576-1833	WP7DBO	268	2802 Shortcut Rd 762-2581
CO C (-), 890 ENGR BN	COLUMBIA, MS 39429-0090	WP7DCO	274	PO BOX 90 736-4062
DET 1, Co C, 890 ENGR BN	WIGGINS, MS 39577-0368	WP7DC1	275	PO BOX 368 928-4855
HQ, 213 MED BDE (AV 731-9373)	JACKSON, MS 39204-4334	WP9FAA		1420 Raymond Rd 372-2295 Box G
HC, 213 MED BDE	JACKSON, MS 39204-4334	WP9FAA	286	1420 Raymond Rd 372-2295 Box G
TMFB AUG, HC, 213 MED BDE	JACKSON, MS 39204-4334	WP9F99	287	1420 Raymond Rd 372-2295 Box G
134 CBT SPT HOSP (-) 354-7550	JACKSON, MS 39204-4334	WP9UAA	295	1420 Raymond Road 372-9197/98 Box H
DET 1, 134 CSH (AV 921-2668)	HATTIESBURG 39403-1628	WP9UA1	296	PO BOX 1628 544-2290
DET 2, 134 CSH	ELLIOTT, MS 38926-0686	WP9UA2	297	PO BOX 686 226-7354
972 MED DET	JACKSON, MS 39204-4334	WQAQAA	298	1420 Raymond Road 372-2395 Box I

UNIT	STATION	UIC	SUC	REMARKS
HQ, DET 1 (1st Cav Div), HHC, 155 AR BDE (AV: 742-2987)	TUPELO, MS 38803-2057	WTRAFF		PO BOX 2057 841-9090
DET 1 (1st Cav Div), HHC, 155 AR BDE	TUPELO, MS 38803-2057	WTRAA1	301	PO BOX 2057 841-9090
DET 2 [MSB(-)], HHC, 155 AR BDE	MAGEE, MS 39111-0327	WTRAA2	320	PO BOX 327 849-3642
DET 3 (MMC), HHC, 155 AR BDE	MONTICELLO 39654-1517	WTRAA3	305	PO BOX G 587-2181
DET 4 (DECON/MAINT) HHC, 155 AR BDE	Cp MCCAIN 38926-0686	WTRAA4	306	PO BOX 686 226-7283
TRP A, 98 CAV	LOUISVILLE 39339-0006	WTRCAA	303	PO BOX 6 773-5331
134 ENGR CO (-)	CARTHAGE 39051-0909	WTRBAA	327	PO Drawer 909 267-5631
DET 1, 134 ENGR CO	UNION, MS 39365-0216	WTRBA1	328	PO BOX 216 774-8251
HQ, 106 FWD SPT BN	MONTICELLO 39654-0519	WTNBAA		PO BOX 519 587-7963
HC, 106 FWD SPT BN	MONTICELLO 39654-0519	WTNBTO	304	PO BOX 519 587-7963
CO A, 106 FWD SPT BN	PRENTISS, MS 39474-1227	WTNBAO	324	PO BOX 1227 792-4413
CO B (-), 106 FWD SPT BN	CAMP SHELBY, MS 39407-5500	WTNBBO	322	NG ARMORY 584-2332
DET 1, CO B, 106 FWD SPT BN	TAYLORSVILLE 39168-0040	WTNBB1	325	PO BOX 40 785-4242
DET 2, CO B, 106 FWD SPT BN	MONTICELLO 39654-0519	WTNBB2	326	PO BOX 519 587-7963
CO C, 106 FSB	HAZLEHURST 39083-0670	WTNBCO	312	PO BOX 670 894-4221
HQ, 2 BN, 114 FA	STARKVILLE 39759-1366	WPKDAA		PO BOX 1366 323-5922
HB, 2 BN, 114 FA	STARKVILLE 39759-1366	WPKDTO	330	PO BOX 1366 323-5922
2 BN, 114 FA, HHB, AUG	STARKVILLE 39759-1366	WPKD99	331	PO BOX 1366 323-5922
BTRY A, 2/114	COLUMBUS 39704-2566	WPKDAO	333	PO BOX 2566 328-4471
BTRY B (-), 2/114	ACKERMAN 39735-0276	WPKDBO	336	PO BOX 276 285-6231
DET 1, BTRY B, 2/114	EUPORA, MS 39744-0846	WPKDB1	339	PO BOX 846 258-3781
BTRY C (-), 2/114	DURANT, MS 39063-0364	WPKDCO	342	PO BOX 364 653-6321
DET 1, BTRY C, 2/114	LEXINGTON 39095-0418	WPKDC1	345	PO BOX 418 834-1153
SVC BTRY, 2/114	KOSCIUSKO 39090-0606	WPKDSO	348	PO BOX 606 289-4682
HQ, 155 ARMD BDE (AV 742-2987)	TUPELO 38803-2057	WTRAAA		PO BOX 2057 841-9090
HC, 155 ARMD BDE	TUPELO 38803-2057	WTRAAA	300	PO BOX 2057 841-9090
HQ, 1 BN (M), 155 IN	MCCOMB, MS 39648-2813	WPKLAA		319 WEST AVE N 684-7133
HC (-), 1 BN, 155 IN	MCCOMB, MS 39648-2813	WPKLTO	350	319 WEST AVE N 684-7133
1ST BN, 155 IN, HHC, AUG	MCCOMB, MS 39648-2813	WPKL99	353	319 WEST AVE N 684-7133
DET 1, HHC, 1/155	MEADVILLE 39653-0416	WPKLT1	351	PO BOX 416 384-2315
DET 2, HHC, 1/155	BROOKHAVEN 39601-2336	WPKLT2	358	689 HWY 51 N 833-5981
DET 3, HHC, 1/155	PORT GIBSON 39150-0370	WPKLT3	362	PO BOX 370 437-4431

UNIT	STATION	UIC	SUC	REMARKS
CO A, 1/155	TYLERTOWN 39667-0352	WPKLA0	352	PO BOX 352 876-3489
CO B, 1/155	NATCHEZ 39120-4137	WPKLB0	355	349 LIBERTY ROAD 445-8381
CO C, 1/155	MENDENHALL 39114-0187	WPKLC0	359	PO BOX 187 847-3131
CO D, 1/155	GLOSTER 39638-0609	WPKLD0	361	PO BOX 609 225-4952
CO E, 1/155	MAGNOLIA 39652-0151	WPKLE0	363	PO BOX 151 783-2301
HQ, 1 BN, 198 ARMOR	AMORY, MS 38821-0158	WPKQAA		PO BOX 158 256-3741
HC(-), 1 BN, 198 ARMOR	AMORY, MS 38821-0158	WPKQT0	364	PO BOX 158 256-3741
1ST BN, 198 ARMOR, HHC, AUG	AMORY, MS 38821-0158	WPKQ99	369	PO BOX 158 256-3741
DET 1, HHC, 1 BN, 198 ARMOR	FULTON, MS 38843-0619	WPKQT1	365	PO BOX 619 862-4931
CO A, 1/198	BALDWYN, MS 38824-0277	WPKQA0	366	PO BOX 277 365-7554
CO B, 1/198	BOONEVILLE 38829-0188	WPKQB0	367	PO BOX 188 728-4881
CO C, 1/198	IUKA 38852-0416	WPKQC0	368	PO BOX 416 423-5006
CO D, 1/198	NETTLETON 38858-0370	WPKQD0	371	PO BOX 370 963-7331
HQ, 2 BN, 198 ARMOR	GREENVILLE 38702-1497	WXFGAA		PO BOX 1497 334-4327
HC (-) 2 BN, 198 ARMOR	GREENVILLE 38702-1497	WXFGT0	373	PO BOX 1497 334-4327
2 BN, 198 ARMOR, HHC, AUG	GREENVILLE 38702-1497	WXFG99	375	PO BOX 1497 334-4327
DET 1, HHC, 2 BN, 198 ARMOR	LELAND 38756-0192	WXFGT1	374	PO BOX 192 686-4746
CO A, 2/198	MOORHEAD 38761-0647	WXFGA0	378	PO BOX 647 246-5361
CO B, 2/198	INDIANOLA 38751-0448	WXFGB0	381	PO BOX 448 887-4808
CO C, 2/198	CLEVELAND 38732-0366	WXFGC0	384	PO BOX 366 843-2631
CO D, 2/198	ROLLING FORK 39159-0307	WXFGD0	388	PO BOX 307 873-2805


ALABAMA
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TROOP LIST
ALABAMA ARMY NATIONAL GUARD

CITY	PAGE NO	UNIT	TELEPHONE COMM/ATTNet
ABBEVILLE	30	Det 1, 128 Med Co	585-2946
	40	Det 1, HHC 1/131 Armor	585-2946
ALBERTVILLE	19	Det 1, Co C, 279 Sig	878-1831
ALEXANDER CITY	26	214 MP Co (-)	234-5581
ALEXANDRIA	49	UTES #1	848-4235/ATV: 865-4235
ALICEVILLE	28	Det 1, 1166 MP Co	373-8131
ANDALUSIA	44	HQ (-) 1/117 FA	222-5851/261-4209
	44	HQ Btry, 1/117 FA	222-5064
	48	OMS #24	222-4265
ANNISTON	4	Co B, 151 Engr Bn	236-4631
ARAB	19	Co D, 279 Sig Bn	586-4195
	47	OMS #4	586-3140
ARITON	13	Btry C, 2/117 FA	762-2326
ASHFORD	41	Co D, 1/131 Armor	899-3231
ASHLAND	29	HHD, 127 Med Gp	354-2212/3
	29	550 Med Det	354-2212
	30	128 Med Co (-)	354-2142
ASHVILLE	41	Co B, 1/152 Armor	594-7911
ATHENS	9	HQ, 1343 Engr Bn	232-3020/421-1296
	9	HQ Co, 1343 Engr Bn	232-9375
	10	Co D (-) 1343 Engr Bn	232-9375/421-1296
	47	OMS #2	232-1285
ATMORE	19	Co A, 711 Sig Bn	368-4511
ATTALLA	41	Co A, 1/152 Armor	538-9331
AUBURN	13	HHB, 2/117 FA	887-8973
BAY MINETTE	20	Co C (-) 711 Sig Bn	937-7166
BERRY	31	161 Med Co (-)	689-4592
BESSEMER	33	644 Ord Co(-)	425-4650

CITY	PAGE NO.	UNIT	COMM/ATT
BIRMINGHAM	15	Det 1, HHC, 1/192 Avn	841-1288
	15	Co A, 1/192 Avn	841-1288
	17	HHC, 131 Sig Bn	251-8297/8672
	22	HQ, 167 Spt Cmd	945-7142/7156;942-2985/6; 524-1204/1251
	22	HQ Co, 167 Spt Cmd	945-7147
		Co B, 1/131 Avn	841-6839
	25	Co E (-) 131 Avn	841-1662
	25	Co F, 131st Avn	841-1633
	29	109 Evac Hosp (-)	849-0261/6212
	29	650 Med Det	841-0468
	24	715 Maint Co (-)	781-3655
	38	HQ, 20 SF Gp, 1SF	951-5300;ATV: 694-2272
	38	HQ Co, 20 SF Gp 1SF	951-5325
	47	OMS #11	841-0276
	50	AASF #2	841-0111/3385;ATV: 694-2241
	51	20 SF Equip Site	951-5330
	69	HQ, 117 TR Wg	841-9200/841-9+ext ATV: 694-2201/2202
BOAZ	19	Co C (-) 279 Sig Bn	593-4431
BRANTLEY	35	1670 Trans Co	527-8700
BREWTON	32	638 Ord Co (-)	867-5598
BRIDGEPORT	4	Co A, 151 Engr Bn	495-2421
BRUNDIDGE	36	900 Maint Co (-)	735-2603
	48	OMS #25	735-3995
BUTLER	27	1165 MP Co (-)	459-3363
CALERA	12	Co C, 2/152 Armor	668-2751
CAMDEN	32	HHC, 440 Ord Bn	682-4612
CARBON HILL	5	Det 1, Co C, 877 Engr	924-9555
CENTRE	12	Co A, 2/152 Armor	927-3348
CENTREVILLE	11	HHD, 145 Engr Bn	926-4524/9547
	11	166 Engr Co	926-9051
CHATOM	20	Co D, 711 Sig Bn	847-2453
CHICKASAW	32	640 Ord Co (-)	690-6493/660-6493
CHILDERSBURG	12	Det 1, HHC 2/152 Armor	378-6421
CITRONELLE	20	659 Sig Co	866-7406
CLANTON	34	650 Ord Co (-)	755-1440

CITY	PAGE NO.	UNIT	TELEPHONE COMM/ATTNet
CLAYTON	35	1128 Trans Co (-)	775-8396
COLLINSVILLE	12	Co B 2/152 Armor	524-2356
CORDOVA	24	Det 1, 715 Maint Co	483-6089
CRICHTON	20	Det 1, Co B, 711 Sig	690-6494
CULLMAN	43	Co C, 1/167 Inf	734-0375
	49	CSMS #2	734-4163/4244/4908/5325
	51	123d Sup & Svc Co DAS3	734-7320
DADEVILLE	36	Det 1, 158 Maint Co	825-4531
DALEVILLE	13	Svc Btry, 2/117 FA	598-8889
	14	Btry B, 3/117 FA	598-6265
DECATUR	16	HHD, 142 Sig Bde	353-2146/449-4406 ATV: 746-7042/7329 FAX: 746-7329
	39	Det 1, Co A, 1/20 SF	350-1230/449-4406
	39	Det 1, Co B, 1/20 SF	350-1230
DEMOPOLIS	11	167 Engr Co	289-3398
DORA	17	Co A, 131 Sig Bn	648-5100
DOTHAN	6	HHC, 1203 Engr Bn	793-9508/223-5269
	6	186 Engr Co	793-7407/223-5269
	49	OMS #27	793-9508/9/2992
	69	115 Tac Con Sq	792-6793;ATV: 742-9234/9234
DOUBLE SPRINGS	10	Co B, 1343 Engr Bn	489-5542
EGLIN AFB	50	ARNG Tng Site & Eglin Tank Range	(904) 882-1116/1181 ATV: 872-1116/1181
ELBA	13	Btry B, 2/117 FA	897-2914
ENTERPRISE	23	1146 Pers Sv Co	347-0055
	45	HHC, 31 Spt Bn	347-0051/2/267-5283
	46	Det 2, Co B, 31 Spt Bn	347-0052
	49	OMS #30	347-0054
	51	Pers Svc Center #2	393-2260/1/3/4/220-5528
	52	31 Spt Bn DAS3	393-3418
EUFAULA	34	HHD, 1103 Trans Bn	687-4288
	35	Det 1, 1128 Trans Co	687-3108
EUTAW	11	168 Engr Co	372-3263

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EVERGREEN	44	Det 1, HHB, 1/117 FA	578-2656
FAIRHOPE	33	Det 1, 640 Ord Co	928-9333
FAYETTE	46	31 Engr Co	932-4415
FLORALA	41	Co C, 1/131 Armor	858-3411
FLORENCE	16	HHC, 115 Sig Bn	764-5721/727-8297
	16	Det 1, Co A, 115 Sig	764-4401
	31	Det 1, 161 Med Co	767-6323
	47	OMS #1	767-0711
FOLEY	20	Det 1, Co C, 711 Sig	943-7877
FORT DEPOSIT	35	781 Trans Co (-)	227-4346
FT MCCLELLAN	2	1151 Engr Det (-)	848-4628
	2	Det 2 (Tng Site) STARC	848-4941
	38	Det 1, Spt Co, 1/20 SF	848-3008
	47	OMS #10	848-3642/ATV:865-3642
	50	ARNG Tng Site	848-3631/3835/ATV:865-3631
	50	Directorate of Res Com	848-3556/ATV:865-3556
	51	AL Military Acacdemy	848-3428/3312;ATV:865-3428
FORT PAYNE	3	HHC, 151 Engr Bn	845-0959/4381
	47	OMS #5	845-6069
FORT RUCKER	49	UTES #2	255-6212;ATV:558-6212/2507
	51	ARNG Multi-Media Tng	255-2520;ATV:558-2903/2520
GADSDEN	41	HHC (-) 1/152 Armor	442-8898/9
	47	OMS #8	442-6646
	69	HQ, 226 Cbt Info Sys Gp	442-3370/1/2;ATV:694-2256/ 2267/2235
GENEVA	44	Btry C, 1/117 FA	684-9068
GEORGIANA	35	Det 1, 781 Trans Co	376-2339
GOODWATER	24	123 Sup & Svc	839-6798
GREENSBORO	27	1166 MP Co (-)	624-7153
GREENVILLE	44	Btry A, 1/117 FA	382-5511
GROVE HILL	21	1167 Sig Co	275-8146
GUIN	5	Co C (-) 877 Engr	468-3806
GUNTERSVILLE	18	Co B, 279 Sig Bn	582-3602

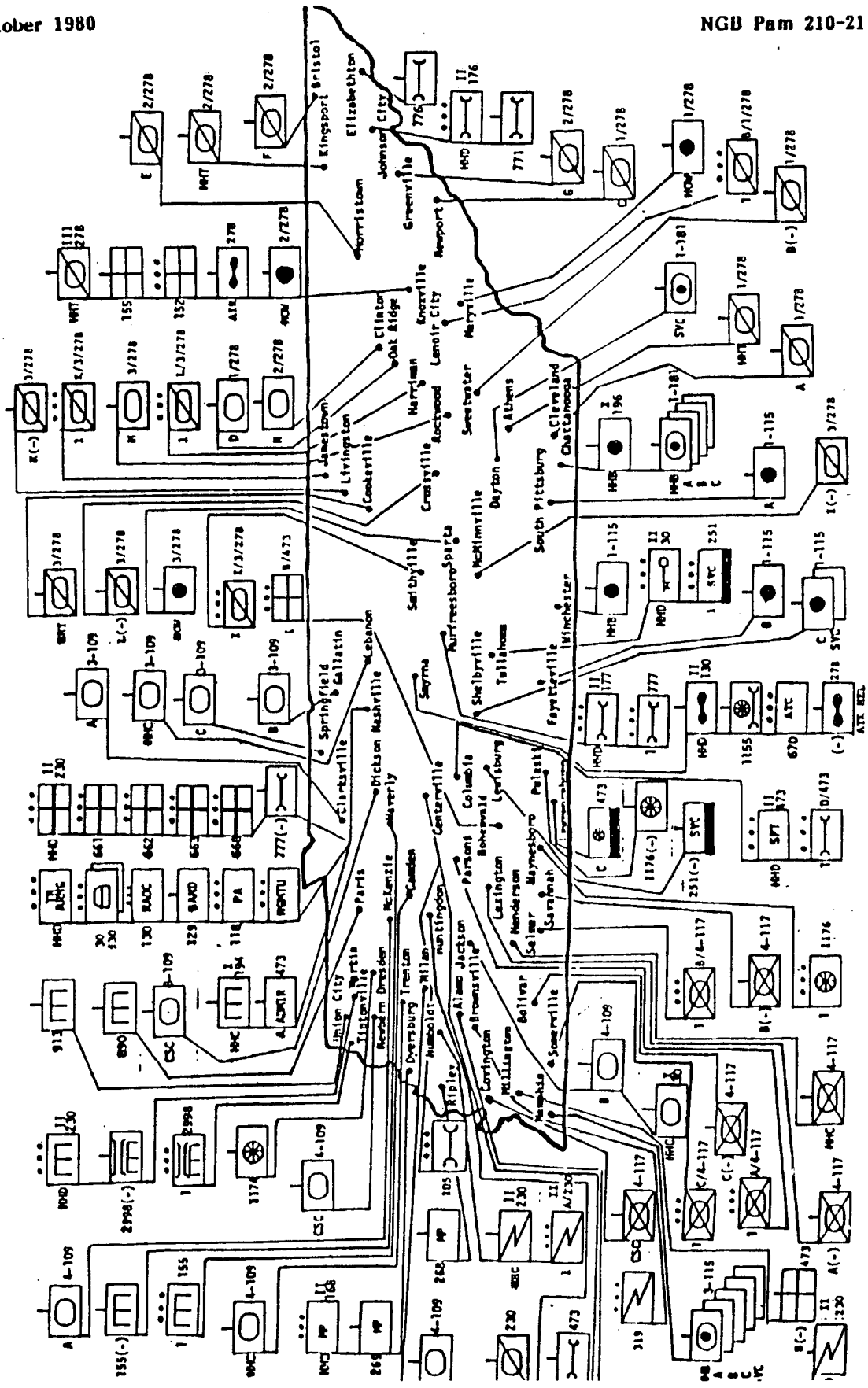
CITY	PAGE NO.	UNIT	COMM/ATTNet
HALEYVILLE	17	Det 1, Co B, 115 Sig Bn	486-3540
HAMILTON	4	HQ, 877 Engr Bn	921-2646
	4	HQ Co, 877 Engr Bn	921-2625
	47	OMS #6	921-3827
HAMMONDVILLE	10	Det 1, Co D, 1343 Engr	635-6841
HANCEVILLE	18	Co C, 131 Sig Bn	352-6757
HARTFORD	40	Co B, 1/131 Armor	588-3222
HARTSELLE	10	Co C, 1343 Engr Bn	773-7324
HEADLAND	6	1314 Engr Det	693-3621
	6	1001 Engr Det	693-3621
	6	1002 Engr Det	693-3621
	7	1003 Engr Det	693-3621
	7	1004 Engr Det	693-3621
	7	1005 Engr Det	693-3621
	7	1302 Engr Det	693-3621
	7	1303 Engr Det	693-3621
	7	1304 Engr Det	693-3621
	7	1305 Engr Det	693-3621
	8	1306 Engr Det	693-6321
	8	2087 Engr Det	693-3621
HEFLIN	41	Det 1, HHC, 1/152 Armor	463-2285
	42	Co D, 1/152 Armor	463-2285
HOLT	46	Co C, 31 Spt Bn	553-5072
HOMEWOOD	23	167 Mat Mgt Cen (-)	871-8318; 870-5231
HUNTSVILLE	3	1169 Engr Gp	881-3461/91/438-6250 876-9339;ATV 746-9339
	18	HQ, 279 Sig Bn	883-8500/438-6281
	18	HQ Co, 279 Sig Bn	883-8501
	18	Co A, 279 Sig Bn	883-7290
	29	Det 1, 109 Evac Hosp	883-1890
	38	HHD, 1/20 SF Bn	883-7570/4156/438-6282
	38	Spt Co (-) 1/20 SF Bn	883-7570/4156/438-6282
	47	OMS #3	881-7842
JACKSON	36	778 Maint Co (-)	246-2223
	48	OMS #23	246-4230
JACKSONVILLE	4	Co D, 151 Engr Bn	435-6376
	33	HQ, 441 Ord Bn	435-2550
	33	HQ Co, 441 Ord Bn	435-2564
	33	666 Ord Det	435-2555

CITY	PAGE NO.	UNIT	TELEPHONE COMM/ATTNet
JASPER	23	HHC, 135 Sup & Svc Bn	221-4870
	47	OMS #7	387-7828
LAFAYETTE	43	Det 1, Co D, 1/167 Inf	864-8140
LEEDS	42	Det 1, HHC, 1/167 Inf	699-5550
	43	Co E, 1/167 Inf	699-7691
LINDEN	28	HHD, 1200 QM Bn	295-8814/5
	27	Det 1, 1165 MP Co	295-8814/5
	48	OMS #16	295-5938
LINEVILLE	28	1208 QM Co	396-2629
LIVINGSTON	32	Det 1, 638 Ord Co	652-2891
LUVERNE	44	Btry B, 1/117 FA	335-5647
MARION	45	Det 1, Co B, 31 Spt Bn	683-6987
MILLPORT	33	Det 1, 644 Ord Co	662-3552
MOBILE	2	Det 1, 1151 Engr Det	690-6551/660-6551
	15	445 Avn Det	690-6292
	15	446 Avn Det	690-6292
	19	HHC, 711 Sig Bn	690-6487/8/6582/660-6487/8
	20	Co B (-) 711 Sig Bn	690-6498
	30	1133 Med Co	690-6293
	30	HHD, 161 Med Bn	690-6486/6568
	30	129 Med Co	342-4892
	31	1127 Med Det	342-4892
	31	1161 Med Det	342-4892
	34	HQ, 226 TAS Gp	690-6561/0/660-6561/0
	34	HHC, 226 TAS Gp	690-6479/660-6479
	34	1000 Trans Det	690-6512
	39	Co B, (-) 1/20 SF Gp	690-6497/660-6497
	49	OMS #28	690-6495/660-6495
	49	OMS #29	690-6496/660-6496
	50	WET/AT Site	690-6551/660-6551
	50	AASF #3	433-3320/3
MONROEVILLE	36	Det 1, 778 Maint Co	743-2581
MONTGOMERY	1	HQ, AL ARNG	271-7400/238-4400
	1	HHD STARC AL ARNG	271-7214/238-4214
	1	131 PA Det	271-8320/238-8320
	1	151 Army Band	271-7301; 271-8321
	1	1156 MP Det	271-8319
	1	1157 MP Det	271-8319/238-8319
	2	Det 3 (DOR) STARC	271-7304; 277-6070
	3	Trp Cmd STARC AL ARNG	279-9408; 271-7305/220-4623
	3	Det 1 (Trp Cmd) STARC	279-9278; 271-7305

CITY	NO.	UNIT	TELEPHONE COMM/ATTNet
MONTGOMERY	15	Det 4,HHC, 1/192 Avn	284-4359
	15	Co E 1/192 Avn	284-4359
	22	167 Data Processing	277-3592
(CONT)	24	HQ(-), 1/131 Avn	284-0249
	24	HQ Co, 1/131 Avn	288-5190
	25	Co A, 1/131 Avn	284-0250
	25	Co D (-) 1/131 Avn	284-0470
	25	Det 1, Co E, 131 Avn	281-1069
	26	HQ, 31 Spt Gp	272-6960/238-4413; ATV: 363-7413
	26	1987 Pers Svc Co	277-0805
	26	1241 Adjutant Gen Co	272-6960/238-4413
	38	Co A (-), 1/20 SF Gp	279-9071
	48	OMS #18	281-0335
	48	OMS #20	271-8332
	49	CBMS #1	271-7394
	49	Dir, Surface Maint	271-7286/238-4286
	49	State Army Avn Off	271-7263;ATV:363-7263
	50	AL Mil Academy	271-7241/238-4241
	50	AASP #1	281-7722/3/261-5910; ATV: 742-9237
	51	158 Maint Co DAS3	271-7489;ATV: 363-7489
	51	123 S&S Co DAS3	271-7438
	51	USPFO	271-7313/238-4313
	51	Pers Svc Center #1	271-7457; ATV: 363-7497
	52	State Defense Force	271-7487
	69	HQ AL ANG	271-7264; ATV: 363-7266
	70	HQ, 187 TF Gp	284-7100 or 284-7+ext ATV: 742-4210
	70	232 Cbt Info Sys Sq	241-4446; ATV: 742-92420
	70	280 Cbt Comm Sq	240-1400; ATV: 742-9430
MOULTON	17	Det 1, Co C, 115 Sig	974-5871
NEW BROCKTON	8	1315 Engr Det	894-2308
	8	1006 Engr Det	894-2308
	8	1007 Engr Det	894-2308
	8	1008 Engr Det	894-2308
	9	1009 Engr Det	894-2308
	9	1307 Engr Det	894-2308
	9	1308 Engr Det	894-2308
	9	1309 Engr Det	894-2308
	9	1310 Engr Det	894-2308
	9	1311 Engr Det	894-2308
NORTHPORT	40	HQ, 31 Arm Bde	339-1555
	40	HQ Co, 31 Arm Bde	339-8720
	45	Co A, 31 Spt Bn	339-7200
	47	OMS #9	339-4188
ONEONTA	11	HHC (-) 2/152 Armor	625-3951
	11	HQ Co, 2/152 Armor	274-7167
	48	OMS #12	625-3952

CITY	PAGE NO.	UNIT	TELEPHONE COMM/ATTNet
OPELIKA	23	Det 1, 167 Mat Mgt Cen	745-0093
	31	HQ, 111 Ord Gp	745-0092/826-5600
	31	Hq Co, 111 Ord Gp	745-0091
	48	OMS #22	749-4048
OPP	45	Svc Btry, 1/117 FA	493-6305
OXFORD	42	Co C, 1/152 Armor	831-6412
	45	Co B (-), 31 Spt Bn	831-0641
OZARK	40	HHC (-), 1/131 Armor	774-8075/2858
	48	OMS #26	774-3397
PELL CITY	38	Spt Co (-), 20 SF Gp	338-7622
PELHAM	43	Co B, 1/167 Inf	663-6976
PHENIX CITY	14	Btry C, 3/117 FA	298-0935
	37	Det 1, 900 Maint Co	298-8249
PIEDMONT	4	Co C, 151 Engr Bn	447-6712
PRATTVILLE	26	HHD, 231 MP Bn	365-2927;365-1133
	27	217 MP Co	365-6565
REFORM	24	946 Sup Co	375-6361
ROANOKE	13	Btry A, 2/117 FA	863-4011
RUSSELLVILLE	16	Co B (-) 115 Sig Bn	332-2570
SAMSON	40	Co A, 1/131 Armor	898-2040
SCOTTSBORO	10	Co A, 1343 Engr Bn	574-1022
SELMA	23	HHC, 122 Spt Gp	874-8728/4045/232-0211
	24	1135 Gen Sup Co	872-3269
	32	Det 2, 638 Ord Co	875-9982
	51	Co A, AL Mil Academy	875-1084
SHEFFIELD	17	Co C (-), 115 Sig Bn	383-7938
SLOCOMB	6	1204 Engr Co	886-2380
SPRINGVILLE	12	Co D, 2/152 Armor	467-7944
SULLIGENT	5	Det 1, HSC, 877 Engr Bn	698-9928
SYLACAUGA	46	Trp E, 31st Cav	245-7551

CITY	PAGE NO	UNIT	TELEPHONE COMM/ATTNET
TALLADEGA	42	HHC (-), 1/167 Inf	362-9040/4191
	48	OMS #14	362-2130
TALLASSEE	35	HHD, 731 Maint Bn	283-5055
	36	158 Maint Co (-)	283-2055
	48	OMS #21	283-6914
THOMASVILLE	27	Det 2, 1165 MP Co	636-4207
TROY	14	HQ, 3/117 FA	566-7014/5
	14	HQ Btry, 3/117	566-4101
	14	Btry A, 3/117 FA	566-0570
	22	167 Trans Ctr	566-5936
	22	1167 Trans Det	566-5936
	22	1659 Trans Det	566-5936
TUSCUMBIA	16	Co A (-) 115 Sig Bn	383-4254
TUSKEGEE	27	Det 1, 214 MP Co	727-0800
UNION SPRINGS	14	Svc Btry, 3/117 FA	738-3055
VALLEY	42	Co A, 1/167 Inf	756-3464
VALLEY HEAD	10	Det 1, Co D, 1343 Engr	635-6841
VERNON	5	Co B, 877 Engr	695-7312
VINCENT	34	Det 1, 650 Ord Co	672-2461
WARRIOR	18	Co B, 131 Sig Bn	647-6421
WEDOWEE	43	Co D (-) 1/167 Inf	357-4574
WETUMPKA	28	1206 QM Det	567-5100
	28	1207 QM Team	567-5100
	28	1209 QM Det	567-0444
WINFIELD	5	Co A, 877 Engr Bn	487-2771


TENNESSEE ARMY NATIONAL GUARD
Bristol
Kingsport
Elizabethton
Johnson City
Morristown
Greeneville
Newport
Clinton
Oak Ridge
Knoxville
Harriman
Lenoir City
Maryville
Sweetwater
Athens
Cleveland
Chattanooga
Jacksboro
Livingston
Cookeville
Crossville
Rockwood
Dayton
South Pittsburg
Smithville
Sparta
McMinnville
Murfreesboro
Springfield
Gallatin
Lebanon
Shelbyville
Tullahoma
Winchester
Clarksville
Dickson
Nashville
Waverly
Centerville
Columbia
Lawrenceburg
Pulaski
Fayetteville
Sparta
Union City
Martin
Paris
McKenzie
Camden
Parsons
Lexington
Henderson
Selmer
Bolivar
Jackson
Humboldt
Huntingdon
Trenton
Dyersburg
Milan
Brownsville
Ripley
Covington
Millington
Memphis
Somerville

APPENDIX C

5. Annual Training Schedules for AT 1988 through AT 1991

AS OF: 11 FEBRUARY 1988

CAMP SHELBY MS. ANNUAL TRAINING SCHEDULE FY - 88

7 - 21 MAY 88
(TNARNG FA BDE CAMP)

UNIT	MACOM	STR
TN STARC DET 1	TNARNG	127
114 GP SPT BNC	NSARNG	146
115 FA BN 01	TNARNG	497
130 CS BN BNC	NSARNG	66
150 QM BN HHD	NSARNG	65
176 ENGR BN HHD	TNARNG	75
181 FA BN 01	TNARNG	527
196 FA HHD	TNARNG	156
298 CS BN HHD	NSARNG	55
900 MASH	TNARNG	146
947 CS CO MNT	NSARNG	230
441 MD DET	TYARNG	61
623 CS CO CLS	NSARNG	96
624 QM CO PET	NSARNG	170
776 ENGR CO	TNARNG	262
786 TC CO PET	NSARNG	172
890 EN BN,HHC(-)	NSARNG	30
890 EN BN,CO A(-)	NSARNG	90
1045 GS CO (-)	NSARNG	16
1355 S&S CO	NSARNG	102
3297 HOSP(-)	000081	150
3656 CS CO MNT	NSARNG	133
TOTAL		3440

20 MAY -11 JUNE 1988
(NSARNG NON-AR BDE CAMP)

UNIT	MACOM	STR
MS STARC	NSARNG	100
DET 1 TRP CMD	NSARNG	90
AL DOR (-)	ALARNG	72
16 FLD SVC CO	01ARNT	100
41 AG BAND	NSARNG	45
63 FA BN 03	000121	505
102 FA DET	NSARNG	13
112 MP BN HHD	NSARNG	59
113 MP CO	NSARNG	164
114 FA BN 01	NSARNG	476
114 FA BN 04	NSARNG	476
114 MP CO	NSARNG	156
122 CS GP BNC	ALARNG	93
140 TC BN TTK	000121	69
154 S&S BN	NYARNG	50
158 MNT CO	ALARNG	196
161 MD CO (-)	ALARNG	93
163 FA BN 01	TNARNG	919
167 HHC (-)	ALARNG	2
167 HHC (-)	ALARNG	15
167 SPT CMD (-)	ALARNG	28
168 EN GP(-)	NSARNG	23
184 TC ENGR BNC	NSARNG	115
185 AV GP HHD	NSARNG	58
185 ATK BN 01	NSARNG	200
185 TC CO 01, E	NSARNG	144
213 MD BDE BNC	NSARNG	80
217 MP CO (-)	ALARNG	134
231 MP BN HHD	ALARNG	54
232 AV DET	NSARNG	16
239 TC CO(-)	000081	125
244 EN DET	SCARNG	23
268 TC CO	007581	99
287 TC CO	000121	141
346 TC BN HHD	007581	54
347 MD DET AMD	000081	69
400 GS CO (-)	000125	16
432 TC CO HDM	007581	210
493 MP CO	000121	150
647 TC CO	000121	109
651 FA BDE HHD	NSARNG	141
731 CS BN	ALARNG	56
783 CS CO MNT	TNARNG	142
828 TC BN TTK(-)	000121	65
972 MD DET @	NSARNG	25
1032 TC CO	VAARNG	125
1103 TC BN HHD	ALARNG	51
1128 TC CO	ALARNG	180
1135 S&S CO	ALARNG	101
1136 IN DET	TYARNG	16
1659 TC DET	ALARNG	6
1670 TC CO	ALARNG	163
3297 HOSP (-)	000081	150
3299 MD DET (-)	000081	25
		6358

10 JUNE - 2 JULY 1988
(TNARNG AR BDE CAMP)

UNIT	MACOM	STR
TN STARC (-)	TNARNG	105
AL BDE (-)	ALARNG	47
30 AR BDE BNC	TNARNG	242
65 CH DET	000125	9
109 AR BN 03	TNARNG	474
* 109 AR BN 04 (-)	TNARNG	150
115 FA BN 03	TNARNG	450
117 IN BN 04	TNARNG	759
135 CS BN BNC	ALARNG	205
145 MD DET AMD	000081	51
151 EN BN CPT	ALARNG	137
156 MP BN HHD	ALARNG	64
163 CS CO(FLDSVC)	TNARNG	108
167 HCC (-)	ALARNG	2
167 HHC (-)	ALARNG	15
167 SPT CMD (-)	ALARNG	28
168 EN CO	ALARNG	90
177 TC CO	000081	145
229 MP CO	000081	162
234 MD DET	000081	10
252 CS BN MNT	000081	66
267 S&S BN BNC	000081	79
425 CH DET	000081	41
449 TLSG BNC (CS)	000081	251
614 MP CO	NYARNG	160
620 QM DET (MP)	VIARNG	15
640 QM DET (MP)	VIARNG	15
650 QMB CO (-)	ALARNG	110
807 PC CO (-)	007581	82
920 CS CO MNT	000081	199
1014 S&S CO	000081	190
1015 MT CO	000081	220
1133 MD CO (-)	ALARNG	96
1169 EN GP	ALARNG	125
1343 EN BN	ALARNG	710
3297 HOSP (-)	000081	150
3299 MD DET (-)	000081	25
TOTAL		6343

9 - 23 JULY 1988
(ALARNG AR BDE)

UNIT	MACOM	STR
AL TRP CMD	ALARNG	50
AL BDE (-)	ALARNG	100
117 FA BN 01	ALARNG	591
117 FA BN 03	ALARNG	474
151 EN BN	ALARNG	737
161 MD CO (-)	ALARNG	33
167 HCC (-)	ALARNG	2
167 HHC (-)	ALARNG	15
167 SPT CMD (-)	ALARNG	28
168 EN CO	ALARNG	90
198 MP BN HHD	NYARNG	60
319 TC CO	000081	145
329 MP CO	000081	162
334 MD DET	000081	10
352 CS BN MNT	000081	66
367 S&S BN BNC	000081	79
425 CH DET	000081	41
449 TLSG BNC (CS)	000081	251
614 MP CO	NYARNG	160
620 QM DET (MP)	VIARNG	15
640 QM DET (MP)	VIARNG	15
650 QMB CO (-)	ALARNG	110
807 PC CO (-)	007581	82
920 CS CO MNT	000081	199
1014 S&S CO	000081	190
1015 MT CO	000081	220
1133 MD CO (-)	ALARNG	96
1169 EN GP	ALARNG	125
1343 EN BN	ALARNG	710
3297 HOSP (-)	000081	150
3299 MD DET (-)	000081	25
TOTAL		5107

30 JULY - 13 AUGUST 1988
(NSARNG AR BDE CAMP)

UNIT	MACOM	STR
MS STARC (-)	NSARNG	90
AL BDE (-)	ALARNG	39
78 CML DET	000094	4
98 AR CAV A	NSARNG	147
106 CS BN SPT	NSARNG	900
112 MP BN (-)	NSARNG	51
14 FA BN 02	NSARNG	710
123 CS CO S&S	ALARNG	182
134 EN CO	NSARNG	237
155 AR BDE BNC	NSARNG	242
155 IN BN 01	NSARNG	741
167 HCC (-)	ALARNG	2
167 HHC (-)	ALARNG	15
167 SPT CMD (-)	ALARNG	28
194 BN BDE BNC	TNARNG	155
198 AR BN 01	NSARNG	517
198 AR BN 02	NSARNG	515
212 EN CO	TNARNG	150
226 TLSG BNC(CS)	ALARNG	260
314 CML DET	000081	127
340 MD DET AMD	000081	51
365 CS BN BNC	000121	81
366 CML CO	000081	127
411 MD CO(-)	000081	100
418 QM DET (MP)	000125	15
429 MD BN (-)	000081	38
495 TC CO H TRK	000081	133
650 QMB CO (-)	ALARNG	110
781 TC CO	ALARNG	178
1065 GS CO (-)	NSARNG	16
3297 HOSP (-)	000081	150
3299 MD DET (-)	000081	25
TOTAL		6116

**********M60A3 DETT SCHEDULE**********

UNIT	MACOM	TRAINING DATES
1-152 AR, A	ALARNG	4 OCT - 18 OCT 87
1-152 AR, B	ALARNG	11 OCT - 25 OCT 87
1-152 AR, C	ALARNG	18 OCT - 1 NOV 87
1-152 AR, D	ALARNG	25 OCT - 8 NOV 87
1-131 AR, A	ALARNG	1 NOV - 15 NOV 87
1-131 AR, B	ALARNG	8 NOV - 22 NOV 87
1-131 AR, C	ALARNG	22 NOV - 6 DEC 87
1-131 AR, D	ALARNG	29 NOV - 13 DEC 87
31 CAV TRP, E	ALARNG	9 JAN - 23 JAN 88
719 CAV TRP, D	SCARNG	24 JAN - 7 FEB 88
2-263 AR, A	SCARNG	31 JAN - 14 FEB 88
2-263 AR, B	SCARNG	7 FEB - 21 FEB 88
2-263 AR, C	SCARNG	14 FEB - 28 FEB 88
2-263 AR, D	SCARNG	21 FEB - 6 MAR 88
1- 26 CAV SQ, A	MAARNG	6 MAR - 20 MAR 88
1- 26 CAV SQ, B	MAARNG	13 MAR - 27 MAR 88
EASTER BREAK		27 MAR - 9 APR 88
1-172 AR, A	VTARNG	9 APR - 23 APR 88
1-172 AR, B	VTARNG	16 APR - 30 APR 88
1-172 AR, C/D	VTARNG	23 APR - 7 MAY 88
4-109 AR, A	TNARNG	14 AUG - 28 AUG 88
4-109 AR, B	TNARNG	21 AUG - 4 SEP 88
4-109 AR, C	TNARNG	28 AUG - 11 SEP 88
4-109 AR, D	TNARNG	4 SEP - 18 SEP 88
230 CAV TRP, B	TNARNG	11 SEP - 25 SEP 88

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@ Additional AT

* Units will be undergoing DETT in FY88

PRECAMP CONFERENCE

AT PERIOD	PCC DATE
7 - 21 MAY 88	30 JAN 88
28 MAY - 11 JUNE 88	6 FEB 88
18 JUNE - 2 JULY 88	13 FEB 88
9 - 23 JULY 88	20 FEB 88
30 JULY - 13 AUG 88	27 FEB 88

OFFSET CAMPS

14 - 28 MAY 88

785 EN DET	NSARNG	57

21 MAY - 4 JUN 88

108 AR CAV 01	NSARNG	900
890 EN BN(-)	NSARNG	30
890 EN BN, CO A	NSARNG	15
890 EN BN, CO B	NSARNG	164
		1109

4 - 18 JUN 88

890 EN BN, HHC	NSARNG	30
890 EN BN, CO A	NSARNG	12
890 EN BN, CO C	NSARNG	164
		206

11 - 25 JUN 88

HHA	NSARNG	300

27 MAY - 10 JUNE 1989
(KYARNG FA BDE CAMP)

UNIT	MACOM	STR
KY STARC	KYARNG	150
25 CS BAOC	ARARNG	89
31 LG GP SPT HHC	ALARNG	154
115 FA BN 01 (155T)	TNARNG	491
123 AR BN 03 HHC	KYARNG	300
123 AR BN 03, A	KYARNG	80
123 AR BN 03, B	KYARNG	80
138 FA BN 02 (155SP)	KYARNG	603
167 LG SPT CMD	ALARNG	25
167 LG DPU	ALARNG	7
167 LG MMC	ALARNG	16
168 MP BN MHD	TNARNG	37
177 CS BN MNT HHD	TNARNG	44
181 FA BN 01 (8" SP)	TNARNG	471
196 FA BDE HHB	TNARNG	141
198 MP BN HHD	KYARNG	54
214 MP CO	ALARNG	165
217 MP CO	ALARNG	158
231 MP BN HHD	ALARNG	58
269 MP CO	TNARNG	114
307 CS CO HEM	KYARNG	162
327 CS BN S&S HHC	000079	70
350 MD DEN DET (-)	000120	15
383 QM CO GS	000121	63
396 MD CO AMB (-)	000120	25
417 CM DET	000121	10
438 MP CO	KYARNG	164
441 MD DET AIR AMB	KYARNG	53
442 CS CO FLD SVC	000079	121
614 MP CO	KYARNG	164
623 FA BN 01 (8" SP)	KYARNG	704
696 OD BN MNT DS/GS	000121	56
711 SC BN	ALARNG	162
715 CS CO MNT DS FWD	ALARNG	207
777 CS CO MNT DS	TNARNG	224
781 TC CO M PET (-)	ALARNG	98
803 CS CO GS (-)	000121	8
894 QM CO PETRO SUP	000121	99
1135 CS CO S&S	ALARNG	240
1136 IN ABN DET	TIARNG	16
1174 TC CO MDM TRK	TNARNG	79
1176 QM CO PET SUP	TNARNG	130
1206 QM DET WTR SUP(-)	ALARNG	4
1207 QM TM WTR DST(-)	ALARNG	4
1208 QM CO (-)	ALARNG	4
1209 QM CO	ALARNG	69
3271 MD HOSP (-)	000120	25
3274 MD HOSP (-)	000120	150
MS MIL ACADEMY	MSARNG	165
		6528

17 JUNE - 1 JULY 1989
(MEDEX 89 CAMP)

UNIT	MACOM	STR
TN STARC	TNARNG	100
FL MD HSLD	FLARNG	10
TN MD HSLD	TNARNG	10
5 MD GP HHD	000121	52
30 CS GP HHC	NCARNG	92
75 MD FLD HOSP	000121	440
109 MD EVAC HOSP	ALARNG	402
120 MD BN HHD	OKARNG	41
130 CS CTR RAOC	TNARNG	80
134 MD HOSP CBT SPT	MSARNG	284
135 CS BN S&S HHD	ALARNG	67
145 MD CO CLR	OKARNG	111
145 MD DET (AIR)	000081	51
162 CS CO FLD SVC	PRARNG	188
167 LG DPU	ALARNG	7
167 LG MMC	ALARNG	16
167 LG SPT CMD	ALARNG	25
168 EN GP HHC	MSARNG	119
202 MD GP HHD	FLARNG	51
213 MD BDE HHC	MSARNG	73
219 QM DET (WP)	PRARNG	16
227 TC CO TRK	000120	165
245 MD CO CLR	OKARNG	111
298 CS BN MNT HHD	MSARNG	64
300 MD MASH	TNARNG	146
302 MD DET SURG	000125	7
305 MD DET ORTH	000079	7
309 MD DET SURG	000077	7
319 MD DET ANES	000081	3
322 MD DET CNSVC	000077	3
331 MD DET DISP	000081	10
342 MD DET ENTOM	000081	40
344 MD DET DISP	000081	14
349 MD HOSP CBT SPT	000081	275
350 MD DEN DET (-)	000120	15
354 MD DET DISP	000121	18
364 MD CO AIR AMB	000121	51
367 CS CO MNT DS FWD	MSARNG	229
383 CS CO GEN SUP	000121	63
386 MD DET NEUROSURG	000077	7
396 MD CO AMB	000120	25
401 CM CO SME	000081	127
407 MD CO AMB	007581	63
428 CM DET CBR	000081	5
429 MD BN HHD	000081	43
432 MD DET LAB	000081	20
450 OD CO AMMO (-)	000120	74
525 MD DET CNSVC	000077	3
586 MD DET ORTHO	000125	4
588 MD DET SURGICAL	000125	7
663 MD DET SURGICAL	TNARNG	7
711 SC BN	ALARNG	162
781 TC CO MTK PET(-)	ALARNG	94
805 MP CO	000120	211
851 CS CO S & S	000121	151
812 TC BN HHD	000120	55
820 MD HSP STA(-)	007581	73
972 MD DET DENT SVC	MSARNG	51
986 MD DET MEL AMB	VAARNG	53
1146 MD DET AMB (GND)	000121	14
1207 MD DET SURG	TNARNG	7
3207 MD DET ORTH	TNARNG	7
3271 MD HOSP (-)	000120	25
3274 MD HOSP (-)	000120	150
		4901

8 - 22 JULY 1989
(MSARNG AR BDE CAMP)

UNIT	MACOM	STR
MS STARC	MSARNG	100
98 AR CAV TRP A (-)	MSARNG	147
106 CS BN SPT (-)	MSARNG	810
114 FA BN 02 (-)	MSARNG	610
117 FA BN 02	ALARNG	461
123 CS CO S&S	ALARNG	181
134 EN CO (-)	MSARNG	154
155 IN BN 01 HHC (-)	MSARNG	693
155 AR BDE HHC (-)	MSARNG	177
167 LG DPU	ALARNG	7
167 LG MMC	ALARNG	16
167 LG SPT CMD	ALARNG	25
171 CS GP HHC	000120	100
193 TC DET MCT	MSARNG	23
198 AR BN 01 (-)	MSARNG	479
198 AR BN 02 (-)	MSARNG	479
310 MD DEN DET (-)	000120	29
311 QM DET PET LAB	000120	12
315 QM DET (WTD)	000120	22
350 MD DEN DET (-)	000120	15
362 QM BN S&S	000120	54
396 MD CO AMB (-)	000120	25
412 MD CO AIR AMB	000125	50
431 QM DET (WTD)	000120	20
450 OD CO AMMO (-)	000120	75
658 CS CO GS CLI	000121	10
711 SC BN (-)	ALARNG	162
731 CS BN HHD	ALARNG	60
735 CS BN DS/GS	MOARNG	66
778 CS CO MNT DS	ALARNG	234
846 TC CO MTRK	000120	147
941 TC CO (PET)	000120	92
1035 CS CO HEM	MOARNG	242
3271 MD HOSP (-)	000120	25
3274 MD HOSP (-)	000120	150
		5952

29 JULY - 12 AUGUST 1989
(MSARNG NON-AR BDE CAMP)

UNIT	MACOM	STR
MS STARC DET 1	MSARNG	57
20 SF BN 02 (-)	MSARNG	50
38 FA DIV (-)	INARNG	10
41 AG BAND	MSARNG	42
83 FA BN 03	000121	505
102 FA DET FLD SVC	MSARNG	14
108 AR CAV SQ 01	MSARNG	986
113 MD BN CO A	INARNG	42
114 FA BN 01 (155SP)	MSARNG	555
114 FA BN 04 (155SP)	MSARNG	519
114 LG SPT GRP HHC	MSARNG	146
138 CS BN HHC S&S	MSARNG	66
139 FA BN 03 (105T)	INARNG	400
139 FA BTRY K(TGTAQ)	INARNG	99
150 FA BN 02(155T/8")	INARNG	634
163 FA BN 01 (105T)	INARNG	506
167 LG DPU	ALARNG	7
167 LG MMC	ALARNG	16
167 LG SPT CMD	ALARNG	25
184 TC BDE TRK HHC	MSARNG	128
185 AV GP HHD	MSARNG	61
185 AV BN 01	MSARNG	317
185 AV BN CO E	MSARNG	183
191 CS CO LEN	000121	209
232 AV DET ATC	MSARNG	16
245 TC BN HHD	OKARNG	50
310 MD DEN DET (-)	000120	29
346 TC BN HHD	007581	54
350 MD DEN DET (-)	000120	15
396 MD CO AMB (-)	000120	25
412 MD CO AIR AMB	000125	50
430 CS CO FIELD SVC	007581	122
432 TC CO MDM TRK	007581	210
631 FA BDE HHB	MSARNG	143
640 QM DET (WP)	VIARNG	15
711 SC BN	ALARNG	162
738 CS BN CO D	INARNG	80
787 CS BN MNT HHD	000121	31
1065 CS CO (-) CLI	MSARNG	40
1245 TC CO LT MDM TRK	OKARNG	119
1345 TC CO LT MDM TRK	OKARNG	98
1355 CS CO S&S	MSARNG	208
3271 MD HOSP (-)	000120	25
3274 MD HOSP (-)	000120	150
3656 CS CO HVY EQ MNT	MSARNG	156
		7375

PRE-CAMP CONFERENCE

AT PERIOD	PCC DATE
27 MAY - 10 JUN 89	04 FEB 89
17 JUN - 01 JUL 89	11 FEB 89
08 JUL - 22 JUL 89	18 FEB 89
29 JUL - 12 AUG 89	24 FEB 89

AS OF: 04 AUG 90

CAMP SHELBY MS, ANNUAL TRAINING SCHEDULE TY-90

5 - 19 MAY 90
(TN NON-AR BDE CAMP)

UNIT	MACOM	STR
TN STARC	TNARNG	50
105 MP CO PHY SEC	NYARNG	151
115 FA BN 01 (155 TW)	TNARNG	491
115 SC BN	ALARNG	590
117 FA BN 03 (8" SP)	ALARNG	456
131 SC BN	ALARNG	515
135 CS BN S&S	ALARNG	68
142 SC BDE HHC	ALARNG	165
155 EN CO CONST SPT	TNARNG	159
167 LG/TC MMC CTR(-)	ALARNG	25
167 LG GP COSCOM	ALARNG	25
168 MP BN HHD	TNARNG	37
173 AG CO	TNARNG	57
173 CES (FF)	MSARNG	6
177 CS BN	TNARNG	44
181 FA BN 01 (8" SP)	TNARNG	471
194 EN BDE HHC	TNARNG	155
196 FA BDE HHB	TNARNG	141
212 CS BN HHC S & S	000123	69
212 EN CO CBT HVY	TNARNG	129
226 CS TASG HHC	ALARNG	258
230 EN BN HHD(-)	TNARNG	34
251 QM CO	TNARNG	15
268 TC CO LT TRK	007581	49
269 MP CO GUARD	TNARNG	114
321 LG HHC	000090	200
330 MD HOSP (-)	000125	110
348 EN BP	000121	117
380 MD DET DEN	000125	15
418 QM DET MTR PUR	000125	15
441 OD BN HHC AMMO	ALARNG	85
493 MP CO	000125	81
530 FI	TNARNG	10
644 OD CO AMMO	ALARNG	175
659 SC CO	ALARNG	166
661 MD DET	TNARNG	34
663 MD DET	TNARNG	7
672 CS CO (-) GS	000125	10
696 MT BN	000121	56
771 CS CO MAINT	TNARNG	213
775 EN DET (-)	TNARNG	10
776 CS CO MAINT	TNARNG	213
778 CS CO MAINT	ALARNG	296
913 EN CO CBT SPT	TNARNG	233
926 EN BN	000121	744
1123 MD CO AA (-)	ALARNG	110
1135 CS CO S & S	ALARNG	143
1167 SC CO	ALARNG	166
1175 QM CO PET SUP	TNARNG	130
1207 QM TM WTR	ALARNG	15
1208 QM CO (-)	ALARNG	50
1209 QM CO	ALARNG	69
1355 CS CO	MSARNG	6
1451 TC CO MDM TRK	NCARNG	106
2998 EN CO FLT BRG	TNARNG	215
COSCOM	BRAGG	10
	TOTAL	8074

26 MAY - 9 JUN 90
(MS AR BDE CAMP)

UNIT	MACOM	STR
1CAV DIV DET 1	MSARNG	146
1CAV DIV DET 2	MSARNG	137
1CAV DIV DET 3	MSARNG	105
1CAV DIV DET 4	MSARNG	55
A-98 CAV	MSARNG	128
106 FSB(-)	MSARNG	392
114 FA BN 02	MSARNG	628
155 AR BDE (-)	MSARNG	210
1-155 IN BN C	MSARNG	78
1-198 AR BN(-)	MSARNG	388
2-198 AR BN(-)	MSARNG	467
231 MP BN HHD	TNARNG	30
330 MD HOSP(-)	000125	110
364 MD AIR AMB	000121	40
380 MD DET DEN	000125	15
706 TFS	USAFR	50
1133 MD CO AA	ALARNG	110
	TOTAL	3089

16 - 30 JUN 90
(TN AR BDE CAMP)

UNIT	MACOM	STR
TN TRP CMD	TNARNG	105
30 AR BDE HHC	TNARNG	242
30 QM BN PET SUP	TNARNG	55
50 CS BN HHD S & S	FLARNG	87
(ATT:149 CS CO CL I PLT	FLARNG	15
109 AR BN 03 (M60A3)	TNARNG	541
115 FA BN 03 (155 SP)	TNARNG	596
117 IN BN 04	TNARNG	759
167 LG DPU	ALARNG	4
167 LG GRP COSCOM	ALARNG	25
167 LG MMC	ALARNG	17
167 TC MCC (-)	ALARNG	2
172 CES (FF)	MSARNG	6
279 SC BN CO D	ALARNG	162
282 CS CO S & S	000121	124
300 MD MASH	TNARNG	146
314 CM CO SMK	000081	127
330 MD HOSP (-)	000125	230
348 MD DET AIR AMB	000081	41
352 CS BN MNT	000081	56
377 QM CO PET SUP	000081	89
380 MD DET DEN	000125	15
383 QM CO (-) CL 1	000121	16
417 CM DET NBC	000121	10
430 CS CO FLD SVC	007581	122
449 LG TASG HHC	000081	251
473 CS BN HVY SUP	TNARNG	737
530 FI	TNARNG	10
568 AG CO (PSC)	TNARNG	70
755 MP CO	PRARNG	160
890 EN CO SAB	TNARNG	241
928 OD CO MNT LE	000081	199
978 AG	000125	35
988 CS CO(-)	000081	25
1015 CS CO MNT DS	000081	215
1174 TC CO MDM TRK	TNARNG	79
1176 QM CO PET SUP	TNARNG	130
1207 MD DET SURG	TNARNG	7
3292 SH USARF	000125	800
3678 OD CO AMMO	PRARNG	193
MP SPT	TNARNG	50
MMA - 32 OCS CLASS (MMA SPT PERS)	MSARNG	70
	MSARNG	100
	TOTAL	6964

7 - 21 JUL 90
(MS NON-AR BDE CAMP)

UNIT	MACOM	STR
MS STARC DET 1	MSARNG	57
31 CS RADC	MSARNG	81
41 AG BAND	MSARNG	42
83 FA BN 03	000121	505
100 TC PLT (-)	MSARNG	35
102 PI DET (-)	MSARNG	14
112 MP BN	MSARNG	55
114 ASG (-)	MSARNG	23
114 FA BN 01 (155 SP)	MSARNG	555
134 MD HOSP CBT	MSARNG	284
137 TC DET	KYARNG	12
145 MED DET	000081	17
150 QM BN PET SUP	MSARNG	60
162 CS CO FLD SVC	PRARNG	126
167 LG GRP COSCOM	ALARNG	25
167 LG/TC MCC CTR(-)	ALARNG	15
168 EN GP HHC	MSARNG	119
168 LG ASG HHC	000125	86
172 CES (FF)	MSARNG	6
184 TC BDE HHC	MSARNG	128
185 AV BN 01	MSARNG	317
185 AV GP HHD	MSARNG	61
193 TC DET MVT CTRL	MSARNG	23
219 QM DET MTR PUR	PRARNG	18
232 AV DET ATC	MSARNG	16
279 SC BN CO B	ALARNG	162
287 TC CO HVY TRK	000121	141
306 MD HSP(-)	000125	125
324 QM DET MTR DIS	000125	20
338 OD BN HHD	1-ARMY	30
360 QM DET MTR DIS	000125	20
365 QM BN S&S	000121	79
367 CS CO MNT DS FWD	MSARNG	229
380 MD DET DEN	000125	15
416 AG DET REPL	000121	25
432 TC CO	007581	193
440 ORD BN (-) AMMO	ALARNG	79
623 CS CO SVC	MSARNG	96
624 QM CO PET SUP	MSARNG	160
631 FA BDE HHB	MSARNG	143
638 OD CO AMMO	ALARNG	249
656 TC CO	000083	176
705 TC CO	000083	100
706 TC CO	000083	213
718 TC BN	000083	49
756 TC CO	000083	86
786 TC CO PETRO	MSARNG	160
817 AG DET	000121	35
829 TC BN HHD	000121	66
867 MD DET AA	MDARNG	65
890 EN BN CBT HVY	MSARNG	763
941 QM CO FOL	007581	178
1065 CS CO (-) CL I	MSARNG	25
1103 TC BN MTR TRNS	ALARNG	49
1159 AG CO PSTL	MSARNG	44
1167 TC DET MVT CTR	ALARNG	4
1177 TC CO(-) CAR	GAARNG	76
1241 AG POSTAL	ALARNG	15
1255 CS CO S & S	MSARNG	179
1659 TC DET	ALARNG	12
3390 SH USARF	000121	1200
MP SPT	MSARNG	50
7655 CS CO HEM	MSARNG	156
	TOTAL	8107

28 JUL - 11 AUG 90
(AL AR BDE CAMP)

UNIT	MACOM	STR
AL TRP CMD	ALARNG	97
31 AR BDE HHC	ALARNG	180
31 EN CO	ALARNG	211
31 AR CAV TRP E	ALARNG	145
31 CS BN SPT	ALARNG	736
31 LG ASG HHC	ALARNG	150
117 FA BN 01 (155 SP)	ALARNG	528
117 FA BN 02 - B	ALARNG	80
123 CS CO S & S	ALARNG	143
131 AR BN 01	ALARNG	126
152 AR BN 01 (M60A3)	ALARNG	485
167 IN BN 01 (-)	ALARNG	601
167 LG/TC MCC CTR(-)	ALARNG	15
167 LG GRP COSCOM	ALARNG	25
214 MP CO	ALARNG	158
217 MP CO	ALARNG	158
231 MP BN HHD	ALARNG	70
268 TC CO LT TRK	007581	50
279 SC BN CO A	ALARNG	162
296 TC CO MDM TRK	000121	221
306 MD HSP(-)	000125	125
313 MD TM SRG	2290HP	7
318 QM DET MTR DST	000081	20
322 QM DET MTR DST	000081	20
394 QM BN MTR SUP	007581	10
348 MD DET(-)	000081	10
380 MD DET DEN	000125	15
410 QM DET	000081	69
429 CM DET	000081	10
658 CS CO (-) CL1	000121	10
730 CS BN MT DS/GS	NCARNG	60
731 CS CO MNT DS	NCARNG	240
889 MD TM SRG	000097	7
1206 QM DET MTR	ALARNG	69
1208 QM CO (-)	ALARNG	65
3392 USAR SCHOOL	000121	168
MMA - PLDC	MSARNG	130
	TOTAL	5376

18 AUG - 01 SEP 90
(AL NON-AR BDE CAMP)

UNIT	MACOM	STR
TRP CMD (167 COSCOM)	ALARNG	288
HQSTARC NJ TRPCDDET2	NJARNG	40
40 OD GP(AMMO)HHC	000121	88
108 AR CAV SQN 01	MSARNG	910
117 OD CO MT ME	NJARNG	112
119 OD BN MT HHD	NJARNG	56
122 CS CORPS SPT GP	ALARNG	97
127 MD GP HHD	ALARNG	58
130 CS CTR RAO TN	TNARNG	80
139 RADC	NCARNG	30
144 CS CO HVY MT SP	NJARNG	65
154 CS BN HHD S&S	NJARNG	67
156 MP BN HHD	ALARNG	57
(ATT:450 MP CO)	000121	81
158 CS CO MAINT (-)	ALARNG	184
167 CS U ADP	ALARNG	127
167 LG DPU	ALARNG	13
167 LG MMC (-)	ALARNG	200
167 TC MCC CTR	ALARNG	49
173 CES (FF)	MSARNG	6
213 MD BDE HHC	MSARNG	80
246 AR - 01	MIARNG	200
253 TC CO LT/MDM TK	NJARNG	109
277 QM CO POL SP	NJARNG	67
279 SC BN C CO/HHD	ALARNG	305
306 MD HOSP (-)	000125	125
332 OD BN AMMO HHD(-)	NJARNG	15
348 MD DET	000081	17
362 QM BN POL HHD	000120	54
380 MD DET DEN	000125	15
851 CS CO S & S	000121	151
868 MD DET AA	MDARNG	65
1165 MP CO	ALARNG	158
1241 AG POSTAL	ALARNG	15
1670 TC	ALARNG	50
VULCAN KNIGHT EXERCISE		1000
	TOTAL	5024

PRE-CAMP CONFERENCES

(FOR REGULAR AT UNITS ONLY)
(HELD AT BLDG. #1490 @ 0900)

AT PERIOD	PCC DATE
05 MAY-19 MAY 90	03 FEB 90
26 MAY-09 JUN 90	10 FEB 90
16 JUN-30 JUN 90	17 FEB 90
07 JUL-21 JUL 90	24 FEB 90
28 JUL-11 AUG 90	03 MAR 90

	TOTALS
CAMP 1	8074
CAMP 2	3089
CAMP 3	6964
CAMP 4	8107
CAMP 5	5376
CAMP 6	5024
TOTAL: REGULAR AT PERIODS =	36634

AS OF: 23 MAR 91

CAMP SHELBY, MS ANNUAL TRAINING SCHEDULE TY-91

4 - 18 MAY 91 (VULCAN SHIELD '91)

UNIT	MACOM	STR
TROOP COMMAND AND UNITS		
167 COSCOM - TROOP COMMAND		250
50 ASG	FLARNG	140
108 AR CAV 01	MSARNG	850
117 FA BN - 03	ALARNG	441
122 SPT GP HHC	ALARNG	120
135 CS BN S&S HHD	ALARNG	68
167 DPU	ALARNG	85
167 LG MMC	ALARNG	230
185 AV BN 01	MSARNG	317
231 MP BN HHD	ALARNG	40
277 MI CO DS	GAARNG	213
329 ASG	VAARNG	100
348 EN GP HHC	000121	117
450 MP CO	000121	176
467 EN BN CMBT	000121	700
493 MP CO	000121	33
785 EN DET UTIL	MSARNG	57
926 EN BN (CBT HVY)	000121	525
VULCAN SHIELD EX	TBA	600
SITE SUPPORT UNITS		
5TH MED GRP	000121	25
186 CES	MSANG	6
305 MD HSP FLD	000121	88
1133 MD CO AA	ALARNG	100
		5281

25 MAY - 8 JUN 91 (AL AR BDE CAMP)

UNIT	MACOM	STR
TROOP COMMAND AND UNITS		
DET 1 (-) TRP CMD	ALARNG	97
31 AR BDE HHC	ALARNG	330
31 AR CAV TRP E	ALARNG	145
31 EN CO	ALARNG	211
31 CS BN SPT HHC	ALARNG	736
117 FA BN 01 (155 SP)	ALARNG	643
133 SIG BN	ILARNG	539
142 SC BDE HHC	ALARNG	105
152 AR BN 01 (M60A3)	ALARNG	558
167-1 IN BN (-)(M113)	ALARNG	634
167 LG SPT CMD	ALARNG	10
279 SC BN	ALARNG	694
640 OD CO AMMO (-)	ALARNG	211
659 SC CO	ALARNG	147
711 SC BN	ALARNG	719
SITE SUPPORT UNITS		
5TH MED GRP	000121	25
186 CES	MSANG	6
305 MD HSP FLD	000121	88
1133 MD CO AA	ALARNG	100
3656 CS CO	MSARNG	156
		6154

15 - 29 JUN 91 (IN INF DIV CAMP)

UNIT	MACOM	STR
TROOP COMMAND AND UNITS		
IN STARC	INARNG	40
38 AG CO ADMIN	INARNG	104
38 CS BN SUPPLY-TRANS	INARNG	187
38 CS CTR MAT MGT	INARNG	145
38 CS HHC SUPPORT CMD	INARNG	72
38 DIVARTY HHB	INARNG	195
38 IN DIV BAND	INARNG	41
38 IN HHC DIV	INARNG	219
38 MP CO AIR DIV	INARNG	90
76 BDE HHB 38 ID	INARNG	95
113 EN CO C	INARNG	166
113 MD BN HQ,A-C	INARNG	233
135 MD HSP NASH	MOARNG	128
139 FA BN 03	INARNG	599
150 FA BN 02	INARNG	638
151 IN DET (LRS)	INARNG	66
151 IN BN 01	INARNG	709
152 IN BN 01	INARNG	709
152 IN BN 02	INARNG	817
163 FA BN 01 (-)	INARNG	469
167 LG SPT CMD	ALARNG	30
354 MD DET	000121	18
438 CM CO NBC DEF (-)	INARNG	80
738 CS BN MAINT	INARNG	416
915 MD CO AMB	INARNG	50
1003 EN DET	ALARNG	2
1304 EN DET TA	ALARNG	6
SITE SUPPORT UNITS		
134 CBT SPT HSP	MSARNG	250
173 CES	MSANG	6
972 DEN DET	MSARNG	15
991 MD DET AA	000121	53
1166 MP CO	ALARNG	37
		6685

6 - 20 JUL 91 (IN AR BDE CAMP)

UNIT	MACOM	STR
TROOP COMMAND AND UNITS		
TN STARC	TNARNG	100
30 AR BDE HHC	TNARNG	242
30 QM PN	TNARNG	58
30 SAB HHC	TNARNG	551
31 ASG	ALARNG	135
109 AR BN 04	TNARNG	421
115 FA BN 03	TNARNG	596
117 IN BN 04 (-)	TNARNG	200
167 LG SPT CMD	ALARNG	22
180-2 IN HHD TLAT	OKARNG	48
180-2 IN C	OKARNG	88
180-2 IN E	OKAPNG	97
230 AR CAV TRP B	TNARNG	153
473 CS BN HVY SUP	TNARNG	737
530 FI	TNARNG	56
640 QM TM WTR PUR	VIARNG	15
661 MD DET	TNARNG	34
730 MT BN HHD	NCARNG	97
890 EN CO	TNARNG	245
1176 QM CO	TNARNG	130
1200 QM BN HHD (-)	ALARNG	68
1207 MD TM	TNARNG	7
2085 SCH (ATT 3/115)	000125	5
SITE SUPPORT UNITS		
173 CES	MSANG	6
306 FLD HSP	000125	88
380 MD DET DNTL	000125	57
1146 MD DET FLD AMB	000121	15
1255 MD CO AA	MSARNG	55
3656 CS CO (-)	MSARNG	14
		4340

27 JUL - 10 AUG 91 (MS NON-AR BDE CAMP)

UNIT	MACOM	STR	
TROOP COMMAND AND UNITS			
(WHEELS '91)			
MS STARC DET 1	MSARNG	100	
31 RAOC	MSARNG	81	*
83 FA BN 03 (155 SP)	000121	595	
102 PI DET FLD SVC OPS	MSARNG	14	
114 FA BN 01 (155 SP)	MSARNG	555	
114 FA BN 04 (155 SP)	MSARNG	519	
114 ASG HHC	MSARNG	141	*
138 CS BN	MSARNG	66	*
150 QM BN POL SP HHD	MSARNG	60	
167 LG SPT CMD	ALARNG	22	
167 MCO	ALARNG	28	
168 EN GP HHC	MSARNG	90	
184 TC BDE HHC	MSARNG	128	
185 AV GP	MSARNG	61	
213 MD BDE HHC/HSLD/TM	MSARNG	120	
223 EN CBT HVY HHC	MSARNG	808	
298 CS BN MT DS/GS	MSARNG	64	*
375 TC GP HHD (MT)	000121	47	
631 FA BDE HHB	MSARNG	143	
890 EN BN CBT HVY	MSARNG	763	
1065 CS CO (-)	MSARNG	22	
1159 AG CO PSTL	MSARNG	20	
1177 TC CO	GAARNG	93	
SITE SUPPORT UNITS			
173 CES	MSANG	6	
232 ATC PLT	MSARNG	16	
306 FLD HSP	000125	88	
380 MD DET DNTL	000125	57	
1146 MD DET FLD AMB	000121	15	
1255 MD CO AA	MSARNG	55	
3656 CS CO (-)	MSARNG	14	
217 MP CO	ALARNG	37	
		4738	

*(114 ASG UNITS SCHEDULED FOR ODT TY 91; THEY APPEAR ON THIS SCHEDULE ONLY AS A CONTINGENCY).

CAMP	TOTAL
1	5281
2	6154
3	6685
4	4340
5	4738
	27198

PRE-CAMP CONFERENCES

(FOR NORMAL AT UNITS ONLY;TO BE HELD AT BLDG 1490 @ 0900)

AT PERIOD	PCC DATE
04 MAY-18 MAY 91	2 FEB 91
25 MAY-08 JUN 91	9 FEB 91
15 JUN-29 JUN 91	16 FEB 91
06 JUL-20 JUL 91	23 FEB 91
27 JUL-10 AUG 91	2 MAR 91#

(# MS UNITS PCC @ 1000 HRS)

** THIS SCHEDULE REFLECTS REGULAR A.T. UNITS ONLY; DEPMEDS, M60A3 DET & OTHER TRAINING UNITS APPEAR ON PAGE 4.**

APPENDIX C

6. Air National Guard Utilization of Camp Shelby during Training Year 1990

Units Which Use Camp Shelby Every Operational Day

Units	Type Aircraft	Location
187 Tactical Fighter Group	F-16	Montgomery, AL
926 Tactical Fighter Wing	A-10	New Orleans, LA
204 VA	F-18	New Orleans, LA
23 Tactical Fighter Wing	A-10	England AFB, LA
4485 Tactical Training Wing	A-10/F-16/F-4	Eglin AFB, FL
MAG-46	UH-1	New Orleans, LA

Units Which First Deploy to Gulfport, MS then Operate from There

Units	Type Aircraft	Location
21 Tactical Fighter Wing	OV-10	Shaw AFB, SC
104 Tactical Fighter Group	A-10	Springfield, MA
112 Tactical Fighter Group	A-7	Pittsburgh, PA
128 Tactical Fighter Group	A-10	Madison, WI
131 Tactical Fighter Wing	F-4	St. Louis, MO
138 Tactical Fighter Wing	A-7	Tulsa, OK
140 Tactical Fighter Group	A-7	Denver, CO
149 Tactical Fighter Group	F-16	Kelly AFB, TX
178 Tactical Fighter Group	A-7	Springfield, OH
181 Tactical Fighter Group	F-4	Terre Haute, IN
182 Tactical Air Support Group	OA-37	Peoria, IL
183 Tactical Fighter Group	F-16	Springfield, IL
184 Tactical Fighter Group	F-16	Wichita, KS
188 Tactical Fighter Group	F-16	Ft. Smith, AR
917 Tactical Fighter Wing	A-10	Barksdale AFB, LA
347 Tactical Fighter Wing	A-10/A-16	Moody AFB, GA

Table C-2

Units Which Use Camp Shelby Every Operational Day

Units	Type Aircraft	Location
187 Tactical Fighter Group	F-16	Montgomery, AL
926 Tactical Fighter Wing	A-10	New Orleans, LA
204 VA	F-18	New Orleans, LA
23 Tactical Fighter Wing	A-10	England AFB, LA
4485 Tactical Training Wing	A-10/F-16/F-4	Eglin AFB, FL
Mag-46	UH-1	New Orleans, LA

Table C-3

Units Which First Deploy to Gulfport, MS then Operate from There

Units	Type Aircraft	Location
21 Tactical Fighter Wing	OV-10	Shaw AFB, SC
104 Tactical Fighter Group	A-10	Springfield, MA
112 Tactical Fighter Group	A-7	Pittsburgh, PA
128 Tactical Fighter Group	A-10	Madison, WI
131 Tactical Fighter Wing	F-4	St. Louis, MO
138 Tactical Fighter Wing	A-7	Tulsa, OK
140 Tactical Fighter Group	A-7	Denver, CO
149 Tactical Fighter Group	F-16	Kelly AFB, TX
178 Tactical Fighter Group	A-7	Springfield, OH
181 Tactical Fighter Group	F-4	Terre Haute, IN
182 Tactical Air Support Group	OA-37	Peoria, IL
183 Tactical Fighter Group	F-16	Springfield, IL
184 Tactical Fighter Group	F-16	Wichita, KS
188 Tactical Fighter Group	F-16	Ft. Smith, AR
917 Tactical Fighter Wing	A-10	Barksdale, AFB, LA
347 Tactical Fighter Wing	A-10/A-16	Moody AFB, GA

Table C-4

1990 Use of the Camp Shelby Air-to-Ground Range

Units	Acft.	#A/C	Guns	Bombs	Live Bombs	Sams	EW	Days Sch.	Hrs. Sch.	Hrs. Used	Hrs. Cancel
First Quarter											
926	A-10	261	27600	1011	0	59	66	37	102.25	70.75	31.5
187	F-16	98	7600	480	0	0	0	40	46.25	21.75	24.5
204	A-7	35	500	291	0	0	0	23	23	7	16
104	A-10	134	12900	714	0	0	0	10	35	28.25	6.75
178	A-7	61	6100	243	0	0	0	7	22.5	12.5	10
4485	F-4	2	200	12	0	0	0	1	1.5	0.5	1
4485	F-16	18	200	18	0	0	0	3	1.5	1	0.5
MAG-46	UH-1	0	0	0	0	0	0	3	3	0	3
Second Quarter											
926	A-10	272	35200	1369	0	0	0	33	67.5	43	24.5
187	F-16	164	11800	833	0	0	0	34	58	33.5	26.5
204	A-7	29	1200	348	0	0	0	11	11	7	4
23	A-10	14	1400	78	0	0	0	3	2.5	1.5	1
Third Quarter											
926	A-10	203	37400	1171		35	17	27	55	47	8
187	F-16	241	19300	1090		37	22	29	61.25	46.25	15
VA204	A-7	11	750	120				8	10	4.5	5.5
23	A-10			0				2	1		1
112	A-7	8	800	48				2	2	1	1
149	F-16	0	0	0				1	0.5	0	0.5
MBG96	UH-1	0	0	0				1	1	0	0
Fourth Quarter											
926	A-10	316	63500	1689		6	11	45	98.25	71.75	26.5
187	F-16	251	10400	1010		44	7	44	98.25	58.75	39.5
204	A-7	45	5550	507				21	19.5	15.5	4
70	F-16	8		48				1	1	1	
131	F-4	2		2				2	1	0.5	0.5
138	A-7	4						2	1	1	
21	OV-10	7		29	28			3	11.5	11.5	
23	A-10	5	1000	30				1	1	1	
Totals		2189	243400	11141	28	181	123	394	736.25	486.5	250.7

1990 USE OF THE CAMP SHELBY AIR-TO-GROUND RANGE

UNITS	ACFT	# A/C	GUNS	BOMBS	LIVE BOMBS	SAMS	EW	DAYS SCH	HRS SCH	HRS USED	HRS CANCEL
926	A-10	261	27600	1011	0	59	66	37	102.25	70.75	31.5
187	F-16	98	7600	480	0	0	0	40	46.25	21.75	24.5
204	A-7	35	500	291	0	0	0	23	23	7	16
104	A-10	134	12900	714	0	0	0	10	35	28.25	6.75
178	A-7	61	6100	243	0	0	0	7	22.5	12.5	10
4485	F-4	2	200	12	0	0	0	1	1.5	0.5	1
4485	F-16	18	200	18	0	0	0	3	1.5	1	0.5
MAG-46	UH-1	0	0	0	0	0	0	3	3	0	3
second Qtr											
926	A-10	272	35200	1369	0	0	0	33	67.5	43	24.5
187	F-16	164	11800	833	0	0	0	34	58	33.5	26.5
204	A-7	29	1200	348	0	0	0	11	11	7	4
23	A-10	14	1400	78	0	0	0	3	2.5	1.5	1
Third Qtr											
926TFG	A-10	203	37400	1171		35	17	27	55	47	8
187TFG	F-16	241	19300	1090		37	22	29	61.25	46.25	15
VA204	A-7	11	750	120				8	10	4.5	5.5
23TFW	A-10							2	1		1
112	A-7	8	800	48				2	2	1	1
149TFG	F-16	0	0	0				1	0.5	0	0.5
MBG96	UH-1	0	0	0				1	1	0	0
fourth Qtr											
926	A-10	316	63500	1689		6	11	45	98.25	71.75	26.5
187	F-16	251	10400	1010		44	7	44	98.25	58.75	39.5
204	A-7	45	5550	507				21	19.5	15.5	4
70	F-16	8		48				1	1	1	
131	F-4	2		2				2	1	0.5	0.5
138	A-7	4						2	1	1	
21	OV-10	7		29	28			3	11.5	11.5	
23	A-10	5	1000	30				1	1	1	
		2189	243400	11141	28	181	123	394	736.25	486.5	250.7

Table C - 3

WEEKEND TANK/BRADLEY FIRING REQUIREMENT

(Non-AT Weekends)

	UNIT	REQUIREMENT		WEEKENDS REQUIRED (note 1)
1)	1-198th ARMOR (BN) M1	Table VI	(zero & calibration)	3
	1-198th ARMOR (BN) M1	Table VII	(practice for TT VIII)	2
	1-198th ARMOR (BN) M1	Table VIII	(actual crew qualification)	2
2)	2-198th ARMOR (BN) M1	Table VI	(zero & calibration)	3
	2-198th ARMOR (BN) M1	Table VII	(practice for TT VIII)	2
	2-198th ARMOR (BN) M1	Table VIII	(actual crew qualification)	2
3)	1-155 (MECH BN) M2 BRADLEY	Table VI	(zero & calibration)	3
	1-155 (MECH BN) M2 BRADLEY	Table VII	(practice for TT VIII)	2
	1-155 (MECH BN) M2 BRADLEY	Table VIII	(actual crew qualification)	2
4)	TRP A 98th CAV (CAV TROOP)	M1 Tank & M2 Bradley:		
		Table VI & VII	(zero/calibration & practice)	
		Table VIII	(actual crew qualification)	2
5)	1-108th CAV SQUADRON	Tank Table VI & VII		2
	(M60A3 TANKS)	Tank Table VIII		1
6)	CONTINGENCY	(See Note 2 for explanation)		2
	TOTAL	Total Weekends Required		28

NOTE 1. It is possible for units to fire on 2 or even 3 ranges simultaneously; however, the listed number of weekends required for each table is optimal, units generally require a greater number for a wide range of operational and administrative reasons. The weekends gained by simultaneous firing on multiple ranges approximate the weekends lost for other reasons.

NOTE 2. These two weekends needed as contingency in case one of the above units have crews who fail to complete gunnery requirements to standard and need additional range time in order to qualify. Also it must be taken into effect range time lost due to forest/range fires personnel unauthorized getting inside the tank safety fan and/or inclement weather, fog, etc., where direct fire weapons must shutdown when they cannot acquire their targets. In addition these weekends, if needed, would be utilized by either the 30th Armor Brigade from Tennessee or the 31st Armored Brigade, Alabama. Should they get cancelled from the ranges at installations they presently utilize, i.e., Ft Campbell KY. and Eglin AFB, FL. Note: Camp Shelby is the Mobilization Station for both the 30th and 31st Brigades. It also must be noted that if these two weekends were available after all the above contingencies did not happen, then these weekends would be utilized for battalions to utilize the CALFEX (Combined Arms Live Fire Exercise) range.

NOTE 3. These weekends (28) are not an increase. These are the number of weekends that have been utilized the last 5 years since the M1 Abrams, M2 Bradley vehicle came into National Guard units. These weekends will be scheduled around major (high use) hunting seasons.

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APPENDIX C

7. Proposed Weekend Firing Utilization of Camp Shelby

7 - Proposed Weekend Firing Utilization of Camp Shelby

The attached schedule depicts and explains why Camp Shelby needs to be able to close the tank safety fan for 28 weekends other than the weekends during annual training. Annual training is the period from 1 May to 31 August.

All the units depicted on the attached schedule are Mississippi units. Their requirement, i.e., the Firing Table, is stated and the number of weekends required to accomplish is placed beside the requirement. Note that just to fire, the units located in Mississippi take 26 weekends. This leaves two open/extra weekends for units who may have crews who for some reason did not qualify during their regularly scheduled training to fulfill the requirements. Note: A unit can encounter numerous problems, i.e., maintenance, weather/fog/smoke, range fires or just crews need additional practice in order to qualify. This causes a need for the two unencumbered weekends.

National Guard and Reserve Troops can not train for a complete month, like their Active Duty counterparts, and be able to complete all their training. National Guard and Reserve units can train only on weekends and two weeks during the summer (i.e. AT periods) to conduct the required training.

Weekend tank gunnery is more conducive toward effective training than tank gunnery conducted during Annual training periods. Tank gunnery during AT periods on Camp Shelby closes off all of 15 training areas, portions of 9 other training areas, 51 field artillery firing points, 5 mortar firing points, and 3 field artillery forward observer posts. This becomes a serious training detractor and prohibits full utilization of firing facilities and maneuver/bivouac area for non armor units which have to conduct AT training concurrently with tank firing. Further, Installation billeting and logistical support is not adequate to support weekend Armor units conducting tank gunnery and annual training housing requirements.

Conducting tank gunnery during weekend training is more environmentally efficient because it allows units to fulfill gunnery requirements during non growing seasons for perennial vegetation. This has the added advantage of minimizing damage to track maneuver areas in the fall, winter, and early spring. Thus, environmental rehabilitation costs also are minimized. By conducting tank maneuver during the growing season in AT periods, excessive maneuver damage can be repaired and some ground cover reestablished. Following the completion of AT periods, the Installation Directorate of Facilities Engineers can conduct a more cost efficient rehabilitation of the overall maneuver damage one time using cool season grasses. This procedure ensures that there is a vegetal cover in place during the perennial grasses dormant season.

Hunting is the greatest recreational use of the 17,000 available acres within the Tank/Bradley fan. The deer dog season is the highest concentration of this use. Tank gunnery during weekends is coordinated to minimize the impact to recreational use by attempting to conduct tank gunnery outside the deer dog season, which historically is the high pressure use period of the

entire hunting season. During weekend tank gunnery, the tank fan temporarily closes approximately 17,000 acres and (barring unpredictable delay) the fan is opened 95% of the time, no later than 2:00 AM on Sundays. Therefore, on weekends the tank fan is closed only on Saturdays, leaving Sundays open for recreational use. Conducting tank gunnery during weekends is the best and most efficient time period for the conduct of Tank/Bradley gunnery training and environmental management.

The National Guard is asking for 28 weekends for safety fan closure in order to conduct Tank and Bradley gunnery requirements. It must be noted that this is almost the minimum number, as one can compute from the task/hourly tables which are provided for each gunnery table. Problems which also occur during gunnery must also be recognized as time detractors for units on ranges. Some problems encountered regularly are as follows:

a. Fog. Note: Tanks and Bradleys are direct fire weapons. Crews must be able to see their targets to engage it. Also safety limits on the range - Range Control will close firing if range visibility becomes too obscure for firing vehicle to identify safety markers.

b. Targetry problems. Tank/Bradley targetry is mechanical. Malfunctions do occur which takes time to repair.

c. Firing vehicle malfunction. Crews must change vehicles due to malfunction in their assigned one.

d. Unauthorized personnel within the safety fan. Occasionally, personnel will venture inside the safety fan at which time firing is stopped until Range Control clears personnel from danger areas.

e. Range fires/forest fires. When fires start on ranges firing must cease until Range personnel extinguish the fire. Also there are fires which start off the range but inside the tank/Bradley safety fan. Either Military personnel or USFS personnel must get inside to extinguish these wild fires. Again range time is lost which must be made up.

f. Support personnel. These must be drawn from Companies not firing to support firing units. One additional factor that must be taken into consideration is the number of ranges available to conduct Tank/Bradley gunnery on. Presently Camp Shelby has the following ranges;

1. Range 45; Table VI, (due to be upgraded to an automated Table VII & VIII upon completion of the EIS).
2. Range 41; Table VI, VII, VIII.
3. Range 40; Table VI, VII, VIII.

At the present, Range 45 cannot support Tank/Bradley Table VII & VIII. Upon completion of the automated Table VIII upgrade on range 45 the potential exists to decrease some weekends, however the aforementioned gunnery problems could cancel this potential on occasions.

When one looks at the above range/table breakout the questions arise why cannot a Battalion fire 3 ranges simultaneously per weekend? Support personnel as mentioned in (f) previously must be taken into context. Personnel from Companies not conducting range firing must be tasked to support Companies that are undergoing range gunnery qualification ie, food, ammunition, fuel, recovery operations, range targetry set-up etc.

The following pages provide a detailed, and descriptive definition of how the 155th Armored Brigade is equipped, and a mathematical breakdown of firing requirements that illustrate the increase in time requirements needed. The reader is advised to keep in mind that the times presented in the following pages reflect only crew time, in a vehicle, on a range conducting gunnery qualification tasks. These times do not take into account the hours the unit has to spend drawing their Tanks, Bradleys, and support vehicles from storage sites on the main post and driving them to the range. Nor does this allow for the time the unit must spend in set up and takedown of range target equipment, turn in of equipment drawn, etc.The Army organizes it's units using a system called the "Table of Organization and Equipment" commonly referred to by the acronym TO&E. The equipment that a unit has available to conduct it's mission is classed on "series" of TO&E.

Prior to 1986, the 155th Armor Brigade was equipped under the "H" series TO&E. Tank crew gunnery qualification could be attained, with difficulty, on the weekends during April, May, and September, (12 weekends). With the Advent of force modernization of the 155th to the "J" series TO&E, it will be virtually impossible for this unit to qualify all crews required in the 12 weekends during the year. The absolute necessity of having 28 weekends to conduct this training is apparent, due to the fact that the "J" series TO&E armored units requirement for training is more than double that of the "H" series TO&E. An example of this is as follows:

COMMON CONFIGURATION OF AN ARMOR BRIGADE

(Under "H" series TO&E, prior to 1986)

		Vehicles
I.	2 ea. Armor Battalions	100-M60 tank
II.	1 ea. Infantry Battalion (Mech.)	50-M113
III.	1 ea Armor Cavalry Troop (CO.)	50-M113
IV.	2 ea. Scout Platoons (1 per Armor Battalion)	12-M113

The only vehicles under the "H" series TO&E that had a gunnery requirement (i.e. tank range gunnery qualification) were the 2 Armor Battalions that were equipped with M-60 tanks. The remainder of the Brigade had only crew-served and individual weapons to fire. The training time for qualification was significantly lower prior to 1986 than it has been since 1986.

An "H" series Armor Battalion has 3 companies, each having 16 M60 tanks for a total of 48 company tanks plus 2 battalion headquarters tanks for a sum total of 50 tanks per battalion.

Simple addition for the "H" series armored brigade would result in 100 tanks needing to conduct tank crew gunnery qualification firing. The M113 equipped units only had to qualify on the M-60 7.62mm and M-2 .50 caliber machine guns. Machinegun qualification can be accomplished on weekends without tank fans on Camp Shelby machine gun ranges.

The "J" series TO&E allocation per unit is as follows:

(Under "J" series TO&E, post 1986)

	Vehicles	
I.	2 ea. Armor Battalions	108-M1 tank
II.	1 ea. Infantry Battalion (Mech)	67-M2 Bradleys
III.	1 ea. Armor Cavalry Troop (Co.)	19-M3 Bradleys
IV.	2 ea. Scout Platoons (1 per Armor Battalion)	12-M3 Bradleys

A "J" series Armor Battalion has 4 companies, each having 13 M1 tanks for a total of 52 company tanks plus 2 battalion headquarters tanks for a sum total of 54 tanks per battalion. Simple addition for the "J" series armored brigade would result in 108 tanks needing to conduct tank crew gunnery qualification firing. This is a net gain of only 8 tanks over the total of the "H" series TO&E armored brigade tanks. However, the "J" series Mechanized Infantry Battalion, the Armored Brigade Cavalry Troop (similar to a Company), and the scout platoon for each Battalion (2 total) are equipped with the Bradley Fighting Vehicle. <u>These units are required to conduct Bradley vehicle crew gunnery qualification firing</u>.

Under the "J" series TO&E, the number of vehicles to fire a qualification gunnery exercise has increased by 106 vehicles. All tanks (M1) and Bradleys (M2/3) now have qualification gunnery requirements through table VIII. The training time for gunnery has in effect more than doubled because Bradley crews must qualify on tables VI, VII, VIII, as qualification includes all three tables.

The "J" series Bradley vehicle TO&E allocation per unit is as follows:

1 Mechanized Infantry Battalion having 5 companies, each having 13 Bradleys for a total of 65 Bradleys plus 2 battalion headquarters Bradleys for a sum total of 67 Bradleys per battalion.

1 Calvary Troop having 19 Bradleys.

1 scout platoon having 6 Bradleys in each Armor Battalion for a total of 12 Bradleys.

Simple addition for the "J" series Armor Brigade Bradleys would result in 98 Bradleys needing to conduct crew qualification firing. This results in the "J" series TO&E Armor Brigade having a net increase of 106 vehicles (98 Bradleys plus 8 additional M-1 Tanks) required to conduct crew gunnery qualification firing during weekend training on the 3 Camp Shelby Tank/Bradley gunnery ranges.

In order for a Armor unit to be qualified, each Tank/Bradley crew in the unit must perform live fire gunnery exercises on tank tables VI, VII, and VIII.

There are 812 hours of "weekend time" available at Camp Shelby derived from the 28 weekends requested to be used as defined below:

from 1:00 PM to 12:00 midnight on Friday .....= 11 hours.
from 8:00 AM Saturday to 2:00 AM Sunday.....= 18 hours.
a given time for a weekend at Camp Shelby .....= 29 hours. (best case)

28 weekends X 29 hours = 812 hours available.

The FM 17-12 Tank Combat Tables specifies time requirements for crews to perform firing tasks to be considered qualified. For a Battalion to qualify all crews in tables VI-VIII requires 290 hours, Whereas an individual company requires 74 hours.

A "J" series Armor Brigade has 2 Tank Battalions and 1 Mechanized Infantry Battalion to qualify. So, 3 X 290 = 870 hours to conduct required tasks.

In addition to these 3 Battalions, a "J" series Brigade has one Cavalry Troop (figured as a company), plus two each scout platoons (figured as a company) to qualify. So, 74 X 2 = 148 additional hours needed for a sum total of 1018 hours to conduct firing requirements. This can be represented as follows:

1018 hours (required)
- 29 hours (available hours per weekend)
= 35 weekends required
- 2 ranges for TT VI-VIII
= 17.55 weekends required (rounded to 18)

The 108th Armored Cavalry (equivalent to an Armor Battalion) also conducts tank crew gunnery qualification by company at Camp Shelby. Therefore, 74 hours X 3 Armor Companies this unit has = 222 hours divided by 29 weekend hours = 7.6 additional weekends required to qualify all crews in this unit. This can be represented as follows:

7.6 (108th weekends)
+ 18.0 (155th Armored Brigade weekends)
= 25.6 (weekends required)

(25.6 weekends can be rounded to represent 26 weekends)

26 weekends
+ 2contingency weekends for the 155th Armor Brigade/108thAC/CALFEX exercise
=28 weekends for the 155th Armored Brigade/108th AC.

The contingency weekends have, from past experience, been required in order to allow crews who failed gunnery qualification to be retrained to achieve the required standards; or, crews

having to return to conduct gunnery due to uncontrollable circumstances such as range fires or inclement weather delaying training.

In summary, the 155th Armor Brigade prior to 1986, only had 100 tanks to qualify and the 108th Armor had 48 tanks to qualify on 12 weekends on Camp Shelby tank ranges under the "H" series TO&E. When the 155th was upgraded to the "J" series TO&E, the number of vehicles more than doubled by 106 vehicles needing to qualify during weekend tank gunnery. Thus, requiring more than double the number of weekends to fulfill gunnery requirements. Additionally, the 108th Armor Cavalry has been upgraded with M60A3 tanks which require the same gunnery training requirements as does the 155th Armor Brigades M1 tanks and Bradley fighting vehicles.

See table 1, TOTAL TIME REQUIREMENTS FOR ARMOR UNITS on the following page, for a tabulation of total time required for an Armor Brigade to conduct gunnery qualification.

The tables that follow describe the time requirements needed to train "H" series Tank Battalion, and the "J" series Tank/Mechanized Infantry battalion.

TABLE 1. TOTAL TIME REQUIREMENTS FOR ARMOR UNITS

"H" Series TO&E (old) prior to 1986.

Tank Table VI
"A" (Day) 31 Hrs. per Co. = 94 Hrs. per Battalion
"B" (Night) 17 Hrs. per Co. = 51 Hrs. per Battalion
No movement time required.

Tank Table VII
"A" (Day) 6 Hrs. per Co. = 19 Hrs. per Battalion
"B" (Night) 6 Hrs. per Co. = 17 Hrs. per Battalion
Times reflect firing time plus appropriate move times.

Tank Table VIII
"A" (Day) 6 Hrs. per Co. = 18 Hrs per Battalion
"B" (Night) 6 Hrs. per Co. = 20 Hrs. per Battalion
Times reflect firing time plus appropriate move times.

"H" series Battalion total time = 219 Hrs.

"J" Series TO&E (presently) after 1986.

Tank Table VI
"A" (Day) 26 Hrs. per Co. = 103 Hrs. per Battalion
"B" (Night) 14 Hrs. per Co. = 56 Hrs. per Battalion
No requirements for vehicles to move.

Tank Table VII
"A" (Day) 10 Hrs. per Co. = 39.00 Hrs. per Battalion
"B" (Night) 7 Hrs. per Co. = 26.00 Hrs. per Battalion
Times reflect firing time plus appropriate move times.

Tank Table VIII
"A" (Day) 9 Hrs. per Co. = 35 Hrs. per Battalion
"B" (Night) 8 Hrs. per Co. = 31 Hrs. per Battalion
Times reflect firing time plus appropriate move times.

"J" series Battalion total time = 290 Hrs. per Battalion

Above data is computed from Field Manuals (FM) 17-12 for the M60 A1/A2 series tank and the M-1 tank. The M1 Tank, the M60A3 Tank and the Bradley Infantry Fighting vehicle all fire the "J" series time requirements. Where applicable, percent of hours given were rounded to the nearest common denominator. (ex. 6.33 hours = 6 hours)

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APPENDIX C

8. Training Area Usage at Camp Shelby

8 - Training Area Usage at Camp Shelby

Coding Structure for Training Area Usage

The following descriptions, A through S, characterize the potential uses of each of the 64 designated training areas of Camp Shelby. Table C-4 utilizes these codes to describe the typical uses which are made of each training area. The table also notes for how many days during 1986 and 1987 that area was assigned exclusively to a unit for training. These data, which represent the only recent years for which full information is available, do not fully capture shared use and transient use.

For example, a unit may practice advances, communications and other trtaining requirements while passing through, or along a training area on the roadway. No record will exist that the unit has "used" that training area. There are many instances in which use may be shared among several smaller units at the same time, especially for low impact exercises such as map reading and patrolling. Training Areas 42 through 63 are also used for overflight and nap-of-the-earth flight training by aviation units without a record being created that a unit has been assigned there. Certain types of special operations, convoy training and air assault training may take place on roads and corridors passing through or between numbered areas. Thus these data represent the <u>minimum</u> probable usage of the training areas involved.

Usage Code	Typical Uses
a.	Bivouac and Small Unit Tactics
b.	Convoy Training
c.	Medical Training
d.	Aviation Training
e.	Airborne Training
f.	Supply and Service Training
g.	NBC Training
h.	Patrolling
i.	Artillery Training
j.	Infantry ARTEP Training
k.	Engineeer ARTEP Training
l.	Mortar Training
m.	Engineer Brigade Training
n.	Land Nav Training
o.	Primary Leadership Training
p.	Water Purification Training
q.	Air Force Tactical Air Training
r.	Tracked Vehicle Maneuver and ARTEP Training
s.	Special Operations
t.	Vehicle Swim Operations

Description of Training Area Uses
(Letters Keyed to Previous List)

A. Bivouac and Small Unit Tactics:

Bivouac and small unit tactics are usually practiced on the company level. A company is made up of 100- 150 officers and enlisted personnel. Bivouac teaches the individual how to live, sleep, and carry out their duties in a field environment. Small unit tactics teach a company or smaller group such as platoon or squad the basic concepts of defensive and offensive tactics.

B. Convoy Training:

Convoy training teaches units to move over various types of roads under a variety of conditions. A convoy is usually made up of 20 to 25 vehicles. During convoy training, a unit is taught how to move during the day or night. An important part of this training is how to move through a hostile environment. This might be moving through a simulated chemical attack or enemy ambush.

C. Medical Training:

Medical training is carried out to provide hospital units with training on how to establish and maintain a field hospital; how to receive and evacuate casualties; and treat injured or ill individuals in a field environment.

D. Aviation Training:

In aviation training, Camp Shelby provides helicopter pilots with three "nap of the earth" courses that teach low altitude flying. Other training activities in this area include aviation support training which teaches transport of personnel and equipment from one location to another in support of ground units conducting a tactical training event. Further, aviation units conduct aviation sustainment training such as crew recertification to maintain flight proficiency for unit members.

E. Airborne/Airmobile Training:

Airborne training requires both personnel and equipment to be delivered to a location by parachute. This parachute training is conducted by parachute qualified soldiers jumping out of both fixed wing and rotary wing aircraft onto a drop zone. Parachute training also includes the parachute delivery of equipment such as equipment containers, wheeled vehicles and light armored vehicles.

Airmobile training requires that combat units be delivered to a location by helicopter. This training requires helicopter units to move combat unit personnel and equipment from one location to another, in support of a tactical training plan. Camp Shelby has one drop zone capable of supporting both airborne and airmobile training, and two smaller drop zones for airborne equipment only.

F. Supply and Service Training:

Supply and service training is carried out by units organized for these functions. They train to supply food, clothing, spare parts or major items to other units. These units also train to provide services in a field environment. These services include bath points, clothing repair or exchange, tent repair, bakery activities and decontamination of personnel and equipment after a simulated chemical attack.

G. NBC (Nuclear-Biological-Chemical) Training:

NBC training provides, in a simulated environment, each soldier with training on how to survive in a hostile NBC environment. During this training, the soldier is taught how to correctly wear protective mask and clothing; how to work in the mask and protective clothing; how to use various alarm systems; and how to defend themselves and survive a chemical attack.

H. Patrolling:

At Camp Shelby, combat units of squad or platoon size are trained in patrolling. This training includes day and night practice exercises. During this training, soldiers are trained in various information gathering methods; use of hand signals; use of various communication devices; and escape and evasion techniques.

I. Artillery Training:

Camp Shelby has 114 field artillery firing points. These firing points are designed to fire any artillery weapon in the Army inventory. Gun crews can train on weapons as large as the 8 inch howitzer, the largest gun currently available.

J. Infantry ARTEP (Army Training and Evaluation Program) Training:

Camp Shelby has 64 training areas that can be used for conduct of literally hundreds of different infantry ARTEP tasks. Mechanized infantry can also train here. The variety of terrain allows for training of infantry units as large as brigades, and down to smaller units, such as battalions, companies and platoons.

K. Engineer ARTEP Training:

Engineer units train on mobility, countermobility, and survivability ARTEP tasks. Examples of these tasks include road and bridge construction (mobility tasks), construction of an obstacle such as a tank ditch to prevent enemy advance (a countermobility task), removal of enemy obstacles to enhance the advance of friendly units, and construction of defilade firing positions to protect defending armored vehicles (a survivability task). Engineer units also train on live fire ranges to qualify unit members with personal (M-16 rifles) and crew weapons (machine guns, combat engineer vehicles).

L. Mortar Training:

Combat units, such as armor and infantry, have mortars assigned to battalions and companies which allow those units to provide their own indirect fire support in the accomplishment of a mission. Camp Shelby has 17 mortar firing points which allows units to train their mortar sections both day and night.

M. Engineer Brigade Training:

Camp Shelby has facilities to train large engineer units of brigade size. The training includes field exercises in road building, river crossing operations and battle field construction. This can include defilade fighting positions for tanks and infantry and preparing helicopter landing zones.

N. Land Navigation Training:

Camp Shelby provides land navigation training courses in which individual soldiers are taught to navigate from one point on the ground to another using maps and compasses. This training is also conducted at night.

O. Primary Leadership Training:

The Region III NCO (Non-Commissioned Officers) Academy and the Mississippi Military Academy are both located at Camp Shelby. These facilities are designed to provide officers and NCO's for the Mississippi National Guard. In primary leadership training individuals soldiers are given training in basic military leadership skills and confidence building. Part of this training includes functioning in various leadership positions in a platoon or company unit.

P. Water Purification/Water Distribution Training:

Camp Shelby has training facilities for special training in water purification and distribution. Operation Desert Shield/Desert Storm reinforced the importance of this type of training. At Camp Shelby, large logistical and supply headquarters can exercise all of their distribution and purification units by actually supporting other units in the field.

Q. Air Force Tactical Air Training:

Camp Shelby has two air-to-ground ranges that can provide all types of tactical fighter aircraft the opportunity to train. The ranges accommodate strafing runs up to dropping 500 pounds H.E. (High Explosive) bombs.

R. Track Vehicle Maneuver and ARTEP Training:

Armored and mechanized infantry units currently train at Camp Shelby on 15 tracked maneuver areas. These units conduct platoon and company level maneuvers such as traveling, traveling overwatch, and bounding overwatch in a movement to an objective to conduct live fire training on individual (M-16 rifle) as well as crew weapons such as machine guns and tanks.

S. Special Operations:

Camp Shelby is ideally suited for special operations units to conduct training. These type of units are normally no larger than 100 men and may be as small as 12 men. The training consists mainly of airborne/airmobile insertion and extraction, and long range reconnaissance and direct action mission (destroy a target).

T. Vehicle Swim Operations:

Lake Janney provides a location for training in vehicle swim operations. This training is primarily water crossing using the Bradley Fighting Vehicle and M-113 APC's as well as armored vehicle launched bridge training.

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APPENDIX C

9. Camp Shelby Mobilization Mission

9 - LEVELS OF MOBILIZATION AND CAMP SHELBY'S INVOLVEMENT IN OPERATION DESERT SHIELD/STORM

Reference FORMDEPS, VOL I (System Descriptions), Chapter 3 (The Process of Expanding the Force Structure), pages 3-1 and 3-2.

FULL Mobilization. Expansion of the active Armed Forces resulting from action by Congress and the President to mobilize all Reserve Component units in the existing approved force structure, all individual reservists, retired military personnel. This expansion includes the resources needed for their support to meet the requirements of a war or other national emergency involving an external threat to the national security. Upon Full Mobilization the following will occur at Camp Shelby:

1. Camp Shelby will become a Forces Command Installation.

2. 62 units National Guard and US Army Reserve (22,000+ personnel) will come to Camp Shelby.

3. The Organizational Structure of Camp Shelby will be a headquarters command, 6 provisional commands, and 33 subordinate units. Seven Brigade size units and various CS and CSS units that will require training support during mobilization. These units consist of: 631 FA BDE, 196 FA BDE, 155 AR BDE, 30 AR BDE, 31 AR BDE, 168 EN GP, and the 108th AR CAV SQD.

4. The present Installation Support Unit Table of Distribution and Allowance (TDA) will expand upon full mobilization from 258 military personnel to 1,741 military personnel and 446 civilian personnel for a total of 2,187 personnel.

5. Additional living quarters will be completed NLT M+20 by the Corps of Engineers. At present, Camp Shelby can only house 11,080 troops. Peak surge will place troop population at well over 22,000.

6. Under the Recapture Agreement with the Corps of Engineers, the COE will acquire an additional 149,000 acres in time to support the mobilization training plan. This increases the total Installation acreage to 283,820.

PARTIAL Mobilization. Expansion of the active Armed Forces resulting from action by Congress (up to full mobilization) or by the President (not more than 1,000,000) to mobilize Ready Reserve

Component Units, individual reservists and includes resources needed for their support to meet the requirements of a war or other national emergency involving an external threat to the national security. Upon partial mobilization the following will occur at Camp Shelby:

1. The Installation Support Unit PeaceTime TDA will be activated.

2. Camp Shelby will remain a State Operated Training Site but will also function as a Mobilization Station for 14,000 troops.

3. 37 units and 14,000 troops will mobilize at Camp Shelby. This will include 5 Brigade sized units.

Operation Desert Shield/Storm. During Desert Shield, Camp Shelby had selected units, not previously designated in the partial mobilization package, to mobilize at Camp Shelby. Camp Shelby's mission during Desert Shield was to receive, house, support, train and prepare for deployment, 12 units, National Guard and Reserve (over 4300 personnel) mobilized for Operation Desert Shield. During the final stages of Operation Desert Storm, Camp Shelby's mission was to demobilize the 155th AR BDE upon their return to Camp Shelby.

APPENDIX C

10. Camp Shelby Training Activities and Range Usage
(as presented in Training Facilities Final EIS)

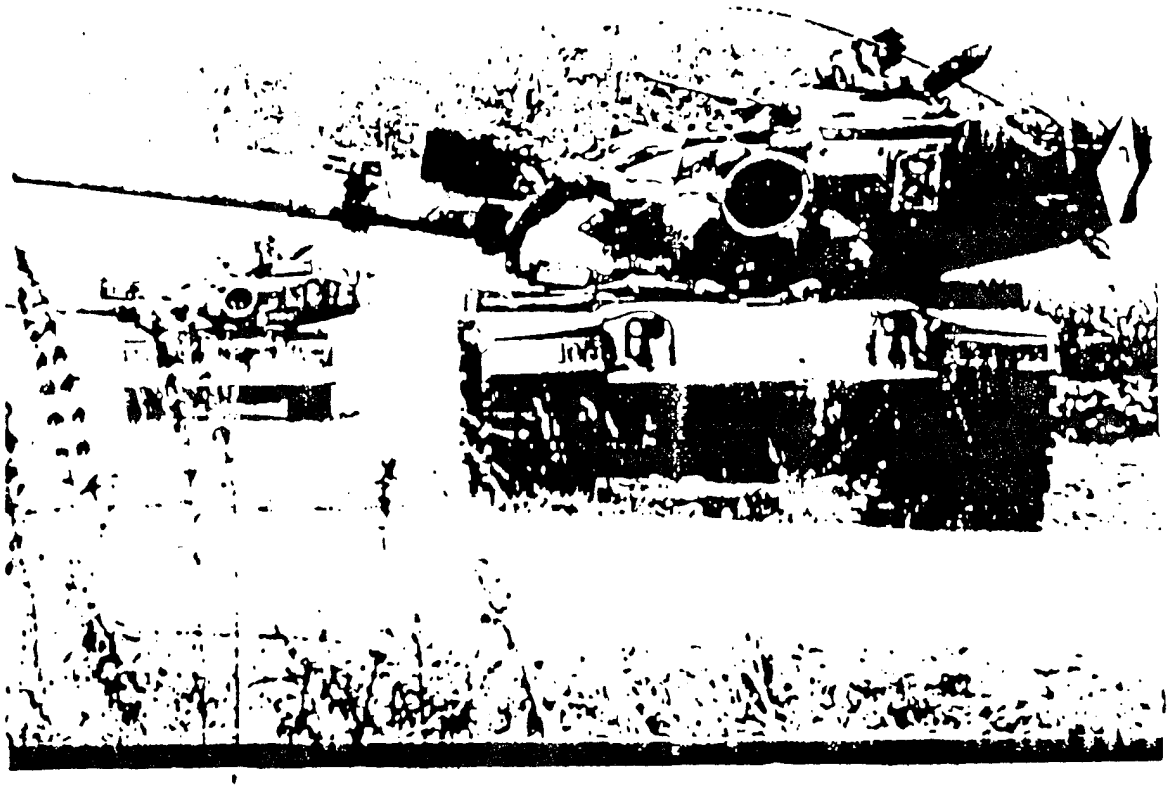
State of Mississippi Military Department

National Guard Bureau

CAMP SHELBY

Environmental Impact Statement

FINAL



Weatherford McDade, Ltd.

Planning Consultants • Landscape Architects

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2.2.6 Training Facilities

Training activities at Camp Shelby occur in either the cantonment area or the training/maneuver area, commonly referred to as the operational area. The cantonment area lies on the western edge of the installation approximately 1.5 miles from US Highway 49. The cantonment area is approximately 7,901 acres and contains the support facilities for the training mission of the installation. The training facilities located in the cantonment area are the non-firing type.

East and southeast of the cantonment area are the main training/maneuver areas for the installation. These areas provide the large land area needed for maneuvering, firing, or other field training activities.

Cantonment Area Training Facilities

Within the cantonment area are non-firing training areas and facilities. The Close In Training Area (CITA) is located here and offers a variety of training opportunities ranging from simulated loading facilities to physical training facilities. The Mississippi Military Academy is also located within the area as are other facilities utilized for officer and NCO type training. Other facilities available are a gas chamber, an NBC (Nuclear Biological Chemical) training facility, a TOW/Dragon tracking range, a Mobile Conduct of Fire Trainer (MCOFT) for training tank crews and a Training Set Fire Observation (TSFO) facility for training forward observers for indirect fire weapons.

The Operational Area

The Operational Area extends south and east from the cantonment area. Firing ranges, the impact area, proficiency courses, maneuver areas, tracked vehicle maneuver areas and bivouac sites are contained within this area. The operational area is approximately 126,919 acres. Of this total, the impact area for ranges comprise approximately 4,600 acres. An additional safety zone surrounding the impact area and comprising approximately 8,900 acres is closed to public use. The majority of weapons firing ranges are located within this 8,900 acres.

The live fire ranges provide training support for firing of all weapons types with the exception of the redeye missile and certain types of munitions. Individual ranges and their use are discussed in section 2.2.8.

Within the installation boundary are 92 artillery firing points and 17 mortar firing points. These points are utilized by field artillery units with weapons ranging in size from 105 mm (4.1") to 203 mm (8"), mortars range in size from 60 mm (2.3") to 106 mm (4.2"). There are 10 field artillery firing points (series 500) on the east side of State highway 29. These are generally used by the larger artillery guns (203 mm) for the longer firing distance to the impact area.

There are engineer training areas available, Lake Janney is utilized for water related engineer training. Two demolition areas are available as are engineer rigging and land-mine warfare training areas. One float bridge area, three Bailey Bridge areas, one field fortification area, a POL training area, an amphibious training area and six water supply training areas are available to engineer units.

There are 64 individual training areas within the Camp Shelby operational area. With the exception of the Close in Training Area (CITA), formerly designated as Training Area 5, all areas are designated with a letter or number and cover the entire installation area. Some training areas are designated as maneuver areas for tracked vehicles with a "T" prefix. Table 2.2.6-1 indicates the numbers of training areas designated for tracked vehicles.

During IDT periods, maneuver activity in training areas is coordinated with the U.S. Forest Service District Ranger on a monthly basis. Coordination is not necessary during Annual Training periods from May to September. Training areas are requested by a unit commander in advance of the scheduled training activity. The area is then allotted to a unit by the Training Site Commander.

For annual training activities a plan for use of areas is developed during pre-camp site reconnaissance so that terrain characteristics may be adapted to meet the needs of training plans.

Excavation in all training areas is allowed for two man foxholes and normal bivouac site activities such as pit latrines and grease pits. Excavations are required to be backfilled upon completion of training. Larger excavations are allowed in training areas provided approval is granted by the post engineer prior to excavation.

Training area maps at a scale of 1:50,000 are available to individual units for identification and location of the areas. The boundaries of training areas may be revised periodically as management and training needs require.

Drop Zone

The Drop Zone (DZ) is an open area approximately 460 acres in size. It averages 2,500 feet in width and 8,000 feet in length and is used as a landing zone for airborne drops of troops and equipment.

Helicopter Landing Areas

Located at Hagler Army airfield and three outlying locations, helicopter landing areas are utilized by aviation units and infantry units in the transportation and deployment of troops from helicopters.

Bridge Training

The engineer units use Lake Janney for training in erecting and launching of portable bridges.

Tracked Vehicle Maneuver Areas

Specific maneuver areas are designated for use by tracked vehicles. Most are sized to provide the maneuver needs of company sized units. Training needs have changed over the years. Battalion sized areas are now required, causing the need to combine some of the company sized areas. Boundaries of tracked vehicle maneuver areas are marked with orange blazes to contain vehicles. Generally these areas are either cleared of all large vegetation or thinned to a 24' x 24' spacing of trees.

The table below indicates those maneuver areas designated for use by tracked vehicles.

TABLE 2.2.6-1
TRACKED VEHICLE MANEUVER AREAS

T-16	T-33
T-17	T-38
T-19	T-40
T-21	T-43
T-23	T-44
T-25	T-47
T-27	T-49
T-28	T-54

The Future Consolidated Tank Maneuver Area has not been assigned a number.

Special Use Areas

Camp Shelby utilizes an ammunition supply point (ASP) located southeast of the cantonment area. This facility is fenced and manned year round. Storage of all types of conventional ammunition and explosives used at Camp Shelby is provided at the ASP. Magazines, used to store ordnance are spaced approximately 80' apart for safety. The magazines have heavy gauge corrugated metal roof structures which are earth covered for safety purposes. There are 15 large and 5 small magazines. The large magazines are 24' x 60'and accessible with a forklift for storage of the heavier types of ordnance. The small magazines are 19' x 40' and have smaller entry openings which require hand loading. Exterior storage is provided by field storage units which are 21' x 42' concrete pads with an earth berm on 3 sides. A maximum of 250,000 pounds of ammunition is allowed in each of the magazines.

The U.S. Forest Service has designated some areas as Off Limit areas for protection of sensitive vegetation areas, endangered plants and wildlife species. Streams and wetlands are protected by a 200' buffer of undisturbed vegetation on each side of the stream or wetland. Pine tree plantations are signed for an initial growth period (usually 10 years) to protect new seedlings. Some areas are signed and in some cases fenced to prevent entry or damage to the habitat of endangered species. Other special use areas include 4,600 acres for the common impact area, 8,900 acres for

the buffer zone around the impact area and small parcels of land which are restricted because of private ownership or other reasons.

2.2.7 RANGE AND FIRING FACILITIES

Camp Shelby has range facilities available for use by all Army National Guard units. Ranges are available for familiarization firing and qualification firing of weapons systems ranging in size from the 5.56 mm rifle to the 8-inch howitzer. Firing ranges are available for individual and crew operated weapons, artillery and mortar firing, anti-tank weapons and use of demolition charges.

There are 92 field artillery firing points available for full batteries of any caliber from 105 mm to 203 mm (8-inch). Of the 92 artillery firing points, 10 are located east of highway #29. These are the 500 series firing points which are used for firing the 8" howitzers They are located on a ridge east of Cypress Creek Swamp to provide an adequate range from the impact area. If fired at closer ranges to the impact area they must be elevated to a high angle. This requires closure of the restricted air space up to a maximum altitude of 29,000 feet. Altitude closure is based on the angle of elevation of the artillery weapons.

There are 17 mortar firing points within the present boundary of the installation accommodating mortars from 60 mm to 107 mm. Two of the mortar firing points are used only for illumination, they are located at ranges 41 and 45. No high explosive (HE) rounds are fired from ranges 41 and 45.

Firing points are located within maneuver areas and their use must be well coordinated to avoid conflicts with other training activities. They fire into a common impact area 4,000 meters wide and 4,000 meters deep. The impact area is surrounded by a large buffer zone comprised of the various safety fans required by ranges around it. Eight observation posts overlook the impact area.

There are non-firing range facilities at Camp Shelby. The Training Set, Fire Observation (TSFO) is a computerized facility used for training artillery forward observers and scouts. Utilizing panoramic projections of color slides to depict

actual terrain, the projection coordinates with topographic maps of the terrain shown. It is used to teach map reading and terrain orientation as well as observation of indirect fire.

Lasers are utilized with weapon systems throughout the ranges and training areas. Non-eyesafe lasers are utilized only on those ranges which can be barricaded and closed from access. All approved non-eyesafe laser systems must be utilized inside the barricade areas of the weapon system's surface danger zone.

The current tank ranges have the capability to support one full armored brigade in a firing mode during annual training.

Infantry training areas include ranges for fire qualification in all current infantry weapons including the M-60 and 50 caliber machine guns. There are 288 M-16 firing points, 27 pistol firing points, four 25-meter rifle ranges, one field firing range and one record firing range. In addition, the TSFO facility houses a computerized M-16 rifle trainer which simulates all aspects of rifle marksmanship.

2.2.8 RANGE DESCRIPTIONS

The following information identifies the various live fire ranges utilized at Camp Shelby on a permanent year round basis. Locations of ranges are designated on Figure 2.2.8-1.

4-A Used for demolition training with charges no larger than 1/4 pound. One demolition area is available for daylight training only.

6-A Used for demolition training with charges up to 320 pounds with the large tank fan closed. There are 5 demolition areas that allow training ranging from obstacle clearing to rapid runway repair. Maximum charge allowed is 320 pounds. This range also has bunkers, work tables, mess shed and ammunition berm available.

10-A Used as a scaled TOW (tube launched, optically tracked, wire-guided anti-tank missile) and Dragon (same as TOW except man-portable) tracking range for use with the training set only. This is a non-fire range.

12-A Used for 90 mm recoilless rifle firing on one firing line. Capacity is variable.

12-B This range is used for M-18 Claymore, 5.56 rifle and 7.62 machine gun familiarization; capacity is variable.

13-A Used to fire the TOW. One firing point is used with a 32 troop capacity for day use only.

13-B Used to fire the Dragon. One firing point is available with a 32 troop capacity for day use only.

14-A Used for Artillery direct fire with the 155 mm and 203 mm (8") howitzers. Capacity is 2 artillery battalions during the day and 1 during the night.

14-B Used for familiarization with the .50 caliber and 7.62 mm machine guns fired from one firing line; capacity is variable.

18-B Used as the Tank Platoon battle run. Weapons fired are the 105mm main gun, .50 cal. and 7.62 mm machine guns and 5.56 mm rifle. One firing lane is used with a day or night capacity of 4 platoons. High explosive ammunition may be fired from firing points 7-11.

18-M Used for Table V firing of the M2/M3 Bradley Fighting Vehicle. Weapons fired are the 7.62 machine gun and the 5.56 rifle. One firing lane is available with 3 stationary firing positions and 3 stabilized battle runs.

19-A Used by the Combat Engineer Vehicle for firing the 7.62 mm Coaxial machine gun. One firing lane is available with 4 firing points and a daily capacity of 5 crews.

19-B Used by the Combat Engineer Vehicle for firing the 165 mm main gun and the .50 cal. machine gun. The range has 2 firing points available with a capacity of 5 crews per day or night.

40-B Used for tank crew combat firing tank tables VII and VIII. Weapons used are the 105mm main gun, .50 cal. machine gun and 7.62 coaxial machine gun. Six stationary firing positions, 1 battle run (7.62 mm coaxial machine gun only) and a Table VI berm are available. Range capacity day or night is 12 crews. No high explosive ammunition is used on this range.

40-E/G Used for tank crew combat firing tank tables VII and VIII. Weapons used are the 105mm main gun, .50 caliber machine gun and 7.62 coaxial machine gun, M1-LFR and M60-A3 (AN/VVG-2) Laser Range Finder. Two stabilized battle runs, four stationary firing positions and a Table VI berm are available. This range generally receives the highest use of all the ranges at Camp Shelby. Capacity is 12 crews, day or night. No high explosive ammunition is used on this range.

40-C Mechanized Infantry squad carrier course for firing the .50 caliber and 7.62 mm machine guns. There are 6 stationary firing positions available with a capacity of 8 crews per day or night.

40-M Used for Table V firing of the M2/M3 Bradley Fighting Vehicle. Weapon fired is the 7.62 mm coaxial machine gun. Two stabilized battle runs, 5 stationary firing positions and a Table VI berm are available.

40-O Used for gunnery training (table VI) and zeroing on the M2/M3 Bradley Fighting Vehicle. Weapons fired are the 25 mm main gun and 7.62 mm

coaxial machine gun. Firing is conducted from the Table VI berm only. Capacity is 12 crews, day or night.

40-P Used for the M2/M3 Bradley fighting vehicle tables VII and VIII. Weapons fired are the 25 mm main gun, 7.62 mm coaxial machine gun and 5.56 rifle. Two stabilized battle runs, five stationary firing positions, one squad dismount firing line and a Table VI berm are available. The range has a capacity of 12 crews per day or night.

41-A Used for tank crew combat firing, tables VI. Weapons used are 105mm main gun, 7.62 mm coaxial machine gun. Firing is conducted from the Table VI berm only. No high explosive ammunition is used on this range. A Mortar Firing Point is available for illumination only, all illumination rounds must land in the dedicated impact area. Range capacity is 12 crews day or night.

41-B Used for tank crew combat firing tank tables VII and VIII. Weapons used are 105 mm main gun, .50 cal. and 7.62 mm coaxial machine guns. One battle run, five stationary firing positions, and a Table VI berm are available. No high explosive ammunition is used on this range. Mortar Firing Point is available for illumination only, all illumination rounds must land in the dedicated impact area. Capacity is 12 crews, day or night.

41-C Used for firing .50 cal. and 7.62 mm machine guns, ground mounted only. Five firing positions and a moving target are available. Capacity per hour during the day is 10 troops and 6 troops per hour during the night.

41-E/G Used for tank crew combat firing tank tables VII and VIII. Weapons used are 105 mm main gun, .50 caliber, 7.62 mm coaxial machine guns, and M1-LRF and M60-A3 (AN/VVG-2) Laser Range Finder. One stabilized battle run, five stationary firing positions and a Table VI berm are available. No high explosive ammunition is used on this range. Mortar Firing Point is available for illumination only, all illumination rounds must land in the dedicated impact area. Capacity is 12 crews, day or night.

41-M This range is used Table V firing of the M2/M3 Bradley Fighting Vehicle. Weapon fired is the 7.62 mm coaxial machine gun. Two stabilized battle runs, 6 stationary firing positions and a

Table VI berm are available. Target arrays are moving cart types for 1 firing point. Mortar Firing Point is available for illumination only, all illumination rounds must land in the dedicated impact area. Capacity is 12 crews, day or night.

41-O Used for gunnery training (Table VI) and zeroing on the M2/M3 Bradley Fighting Vehicle. Weapons fired are the 25 mm main gun and the 7.62 mm coaxial machine gun. Firing is conducted from the Table VI berm only. Mortar Firing Point is available for illumination only, all illumination rounds must land in the dedicated impact area. Capacity is 12 crews, day or night.

41-P Used for firing the M2/M3 Bradley Fighting Vehicle Tables VII and VIII. Weapons fired are the 25 mm main gun and the 7.62 mm coaxial machine gun and 5.56 mm rifle. Two stabilized battle runs, six stationary firing positions, one squad dismounted firing line and a Table VI berm are available. Mortar Firing Point is available for illumination only, all illumination rounds must land in the dedicated impact area. Capacity is 12 crews, day or night.

42-A Used for a combat pistol qualification course. Weapons fired are the .22, .38 and .45 caliber pistols. Range capacity for day use is 96 troops.

42-B This range is utilized for training mechanized infantry squads in a dismounted setting. Weapons utilized are the 7.62 mm machine gun, 5.56 mm rifle, 40 mm grenade launcher (practice ammunition only), Light Anti-tank Weapon (35 mm sub-caliber only) and M-18 Claymore mine. Range capacity per day or night is 3 squads.

43-A This range is the Machine gun transition course for ground mounted .50 caliber and 7.62 mm machine guns. There are 5 firing points are available for the .50 cal. and 10 firing points for 7.62 mm machine guns. Range capacity is 50 troops per day.

43-B This range is used for the zero of the 105mm main gun, .50 caliber and 7.62 mm vehicle mounted machine guns. There is 1 firing line available. Capacity is variable.

44-A Used for firing .50 caliber and 7.62 mm machine guns, ground mounted only. This range has

21 firing points; target boots are located 10 meters from the firing line. Range capacity per day is 105 troops.

45-A This range is used for firing Tank Table VI. Weapons used are the 105mm main gun, .50 cal. and 7.62 mm coaxial machine guns. Firing is conducted from the Table VI berm only. No high explosive ammunition is fired on this range. A Mortar Firing Point is available for illumination only, all illumination rounds must land in the dedicated impact area. Capacity is 12 tank crews day or night.

45-B This range is used for firing tank Tables VII and VIII with the M60-A1 main battle tank. Weapons used are the 105mm main gun, .50 caliber and 7.62 mm coaxial machine guns. There are 7 stationary firing positions and a Table VI berm available. No high explosive ammunition is fired on this range. A Mortar Firing Point is available for illumination only, all illumination rounds must land in the dedicated impact area. Capacity is 12 crews, day or night.

45-C Used for .50 caliber and 7.62 mm machine gun familiarization for vehicle mounted guns only. Firing is conducted from the Table VI berm only. Capacity is variable.

45-O This range is used for gunnery training (Table VI) and zeroing on the M2/M3 Bradley Fighting Vehicles. Weapons fired are the 25 mm main gun and 7.62 mm coaxial machine gun. Firing is conducted from the Table VI berm only. A Mortar Firing Point is available for illumination only, all illumination rounds must land in the dedicated impact area. Capacity is 12 crews, day or night.

46-A Used for firing the 66 mm Light Antitank Weapon (LAW), 40 mm grenade launcher and 35 mm sub caliber LAW practice rounds. 12 firing points are available. Range capacity per day is 128 troops.

46-B Used for firing the 40 mm grenade launcher, practice ammunition only. Range capacity per day is 128 troops, with 12 firing points available.

46-C Used for firing the 14.5 mm artillery training round from the M-31 artillery training device. Capacity is variable.

47-A Used as a field fire qualification range for the 5.56 mm rifle, this range has 35 firing points. Range capacity is 350 troops per day.

47-B Used for 90 mm sub-caliber and tank Tables I, II and III. The range has 4 firing points and a moving target available with a capacity of 32 troops per day.

47-C This range is used for firing the .50 caliber and 7.62 mm machine guns and the 5.56 mm rifle. There are 30 firing points available, with target boots located at 10 meters for .50 caliber machine gun 10 meter range and at 25' meters for the 25 meter 5.56 mm rifle qualification. Daily capacity is 150 troops.

48-A This range is used for record fire qualification for the 5.56 mm rifle. With 12 firing points available the daily capacity is 96 troops.

50-A Used for record firing or familiarization with the .22, .38 and .45 caliber pistols. There are 15 firing points available with target boots. Daily capacity is 120 troops.

50-B Used for record firing with the 5.56 mm rifle and familiarization with the 7.62 mm rifle and the 12 gauge shotgun. There are 50 firing points available with 25 meter target line. Capacity is 250 troops per day.

50-C Used for qualification firing with the 5.56 mm rifle and familiarization with the 7.62 mm rifle and the 12 gauge shotgun. There 100 firing points available with the 25 meter firing line. Capacity is 500 troops per day.

50-D This range is used for qualification firing with the 5.56 mm rifle and the 12 gauge shotgun. There are 50 firing points available with the 25 meter target line. Capacity is 250 troops per day.

186-A Used to fire the Helicopter door gunner's course with 7.62 mm machine gun. Direction of fire is north into the impact area. Approach may be from the east or west. For safety, this range must be scheduled when nearby ranges are not used.

201-W Used as an Air-to-Ground range by the Air National Guard with scoring capability for strafing, dive bombing and skip bombing. Weapons

used are 20mm and 30mm cannon, practice bombs and 2.75" rockets. High explosive ammunition is authorized.

202-E Used as an air-to-ground range by the Air National Guard with scoring capability for strafing, dive bombing and skip bombing. Weapons used are 20 mm and 30 mm cannon, practice bombs and 2.75" rockets. High explosive ammunition is NOT authorized for this range.

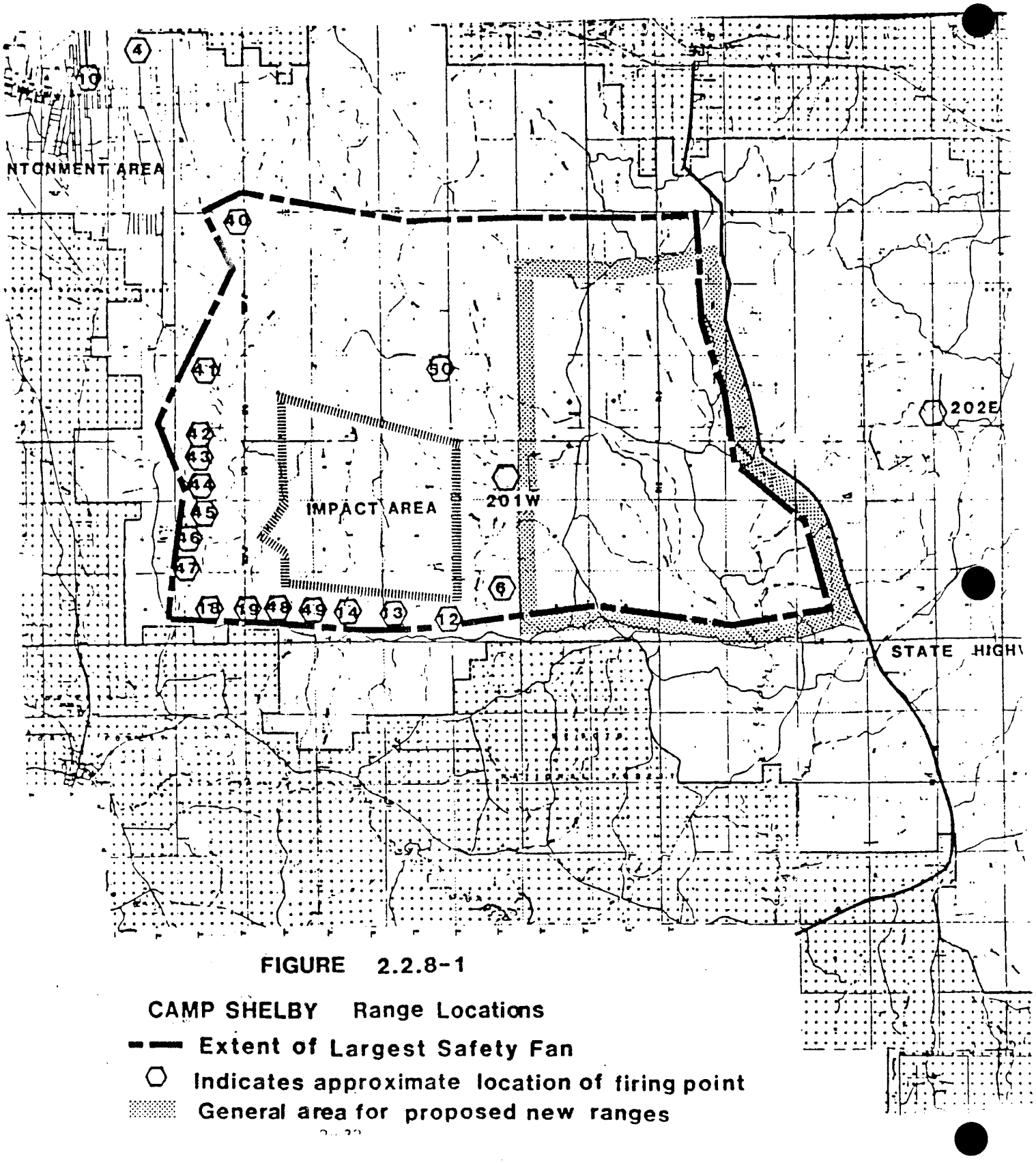


FIGURE 2.2.8-1

CAMP SHELBY Range Locations

Extent of Largest Safety Fan

Indicates approximate location of firing point

General area for proposed new ranges

2.2.9 RANGE UTILIZATION

Utilization of ranges during a typical year at Camp Shelby and the number of rounds fired at each range is reflected in the following chart.

RANGE	# OF DAYS UTILIZED	TYPE OF AMMO AND RNDS FIRED
4-A DEMO.	9	16.5 lb. TNT 61 lb. Dynamite 26.25 lb. C-4 4 BLAST CAPS
6-A DEMO.	24	1,183 lb. C-4 347 lb. TNT 280 lb. Dynamite 190 lb. Bangalore
10-A	-	
12-A	4	(14) 90 mm
12-B	31	(60,319) 5.56 mm (35,567) 7.62 mm (92) Claymore
13-A	5	(11) TOW
13-B	3	(5) Dragon
14-A	2	(90) 155 mm
14-B	1	(1,600) 7.62 mm (2,200) .50 cal.
18-A	7	(13,060) 5.56 mm (16,900) 7.62 mm (10,400) .50 cal.
18-B	2	(6,720) 5.56 mm (5,000) 7.62 mm (2,500) .50 cal.
19-A	3	(7,000) 7.62 mm (18) 165 mm
19-B	5	(100) .45 cal. (3,275) .50 cal. (99) 165 mm
18-E	-	

18-M	5	(1,880) 5.56 mm (19,500) 7.62 mm
40-B	137	(85,380) 7.62 mm (34,050) .50 cal. (3,283) 105 mm
40-C	1	(30) .50 cal.
40-E	4	(23,373) 7.62 mm
40-M	1	(9,600) 7.62 mm
40-O	1	(1,380) 25 mm (2,870) 7.62 mm
41-A	20	(2,107) .50 cal. (826) 105 mm
41-B	5	(2,050) 7.62 mm (5,405) .50 cal. (681) 105 mm
41-C	13	(10,452) .50 cal. (1,200) 12 gauge (653) .45 cal. (31,700) 7.62 mm
41-E	4	(4,885) .50 cal. (6,675) 7.62 mm (201) 105 mm
41-M	1	(8,250) 7.62 mm
41-O	1	(975) 25 mm
41-P	6	(21,250) 7.62 mm (6,954) 25 mm (2,700) 5.56 mm
42-A	29	(47,831) .45 cal. (9,086) .38 cal. (450) .22 cal.
42-B	2	(12) M-18 Claymore
43-A	55	(511,415) 7.62 mm (98,120) .50 cal. (5,660) 5.56 mm (250) .45 cal. (75) 12 gauge

43-B	7	(11,175) .50 cal. (3,900) 7.62 mm (76) 105 mm
44-A	30	(155,231) 7.62 mm (32,192) .50 cal.
45-A	15	(1,550) .50 cal. (599) 105 mm
45-B	7	(4,490) 7.62 mm (7,285) .50 cal. (891) 105 mm
45-C	6	(25,450) .50 cal.
46-A	59	(2,033) 35 mm (409) 66 mm (9,233) 40 mm
46-B	21	(6,216) 40 mm
46-C	1	(125) 155 mm
47-A	36	(222,119) 5.56 mm (7,560) .22 cal. (5,850) 7.62 mm
47-B	-	
47-C	17	(31,104) 7.62 mm (19,686) 5.56 mm (252) .30 cal. (2,200) .50 cal.
48-A	24	(7,871) 7.62 mm (76,631) 5.56 mm (500) .45 cal.
50-A	0	
50-B	9	(40,071) 5.56 mm (19,640) .45 cal.
50-C	10	(2,091) .22 cal. (37,339) 5.56 mm (68) .45 cal. (920) .30 cal. (3,200) 7.62 mm (977) 12 gauge
50-D	3	(16,180) 5.56 mm (2,050) 12 gauge

50-E	1	(5,920) .45 cal.
186-A	1	(6,900) 7.62 mm
AIR TO GROUND RANGES		
201-E	128	*(35,450) 20 mm *(128,090) 30 mm
201-W	5	*(12,756) 25# bomb *(630) 500# bomb

*Combined totals for air to ground ranges.

2.3 Operational and Training Activities

2.3.1 Operational Activities

Camp Shelby, as stated in the mission statement for pre-mobilization status, provides administration, training and logistical support to National Guard units. It must also be prepared to expand and operate as a Forces Command (FORSCOM) installation upon mobilization. Camp Shelby performs mobilization and deployment planning for the mobilization station and participates in exercises designed to test or train for mobilization and deployment.

The primary function of the Camp Shelby Training Site is to provide the necessary facilities and support for all units training at the installation. This function obligates the installation to provide billeting, mess facilities, health care, administration, procurement for and storage of supplies. In addition it provides community facilities such as recreational, religious and shopping services. Camp Shelby offers its facilities for temporary housing during times of emergency such as evacuations from the gulf coast due to hurricane activity or other regional emergency needs.

2.3.2 Training Activities

Training activities at Camp Shelby occur in either the Cantonment Area or the training and maneuver area, known as the Operational Area. The cantonment area lies on the western edge of the installation approximately 1.5 miles from US Highway 49. The cantonment area is approximately 7,901 acres and contains the support facilities for the training mission of the installation. The training facilities located in the cantonment area are the non-firing type. East and southeast of the cantonment area are the main training/maneuver areas for the installation. These areas provide the large land area needed for maneuvering, firing, or other field training activities. Training activities at Camp Shelby are underway throughout the year. National guard, Army reserve, Air National guard, Seabee, ROTC and Marine Reserve Units train during various times of the year. The New Equipment Training (NET) team uses the maneuver and range facilities for training personnel on M1 and M60-A3 tanks.

Units which have training facilities or support equipment located at Camp Shelby are listed below:

30th Armor Brigade
31st Armor Brigade
40th Ordinance Detachment (EOD)
83rd Field Artillery (Army Reserve)
106th FWD Support Battalion
108th Calvary Squadron
114th Field Artillery
117th Field Artillery
155th Armor Brigade
181st Field Artillery
223rd Engineer Battalion
890th Engineer Battalion
Mississippi Military Academy
NGB Region III NCO School
Organizational Maintenance Shop (OMS) #6

Equipment packages totaling as much as 50% of equipment assets for some units are located at the MATES complex. These units are the 30th Armor Brigade of Tennessee and the 31st Armor Brigade of Alabama; the 1st of the 108th Armored Calvary Squadron and the 155th Armor Brigade of Mississippi; 1st and 4th Battalions of the 114th Field Artillery, the 3rd of the 117th Field Artillery of Alabama, the 1st of the 181st FA of Tennessee and the 3rd of the 83rd Field Artillery (Army Reserve); 223rd and 890th Engineer Battalions. Camp Shelby offers the location to store equipment and the necessary land area for training of these types of units.

Armor, armored calvary, field artillery and mechanized infantry units require large land areas for firing and maneuver exercises. Concurrent training by all four types of units plus the various necessary support units increases the land area needs. Camp Shelby has sufficient land area (owned or under permit) to carry out the training and maneuver exercises required by the armored calvary and armor units. Due to the layout of the ranges around the impact area, tank firing can take place jointly with field artillery firing. Some field artillery firing points must be closed due to tank range safety fans. Most tracked vehicle maneuver areas are within tank safety fans and must be closed when tank safety fans are closed.

In addition to ground based units, Camp Shelby is utilized by aviation units and Air National Guard units from locations in Mississippi and adjacent states.

Training Mission

Camp Shelby is utilized as a training facility for annual training, inactive duty training, weapons qualification, Command post exercises (CPX), Field training exercises (FTX) and other miscellaneous training activities. The majority of training activity takes place during Annual Training which occurs during the summer season between May and August. Training activity does take place throughout the year in the form of Inactive Duty Training (IDT) or weekend training. National Guard units. Army Reserve, active Army, Air National Guard and Seabee units utilize the installation throughout the year.

The types of units training at Camp Shelby include armor, armored calvary, aviation, engineer, field artillery, infantry, medical, military police, special forces, support and supply, transportation, headquarters and quartermaster.

Training activities are goal oriented in reference to the Army Training and Evaluation Program (ARTEP) training tasks. A unit must perform various ARTEP training tasks in order to remain proficient and ready for mobilization. The ARTEP manual defines for each commander the specific tasks his unit must perform in combat. It also indicates the conditions under which his units must accomplish those tasks and the standards which the unit must meet to insure combat readiness.

Mission tasks for each unit vary according to the type of unit and the readiness objective for the unit as specified in specific war plans. The highest level of readiness is expressed as Readiness Condition 1 or REDCON 1. REDCON 2 and 3 describe different levels of readiness, and REDCON 4 means that a unit is not ready for deployment. REDCON 5 level indicates that a unit cannot be deployed due to constraints imposed upon the unit by the Department of Army.

ARTEP tasks are performed at varying time cycles. Some tasks may be necessary to perform on an annual basis while others are performed every 3 years.

Map Exercises (MAPEX)

MAPEX's are low-cost, low-overhead training exercises that portray military situations on maps and overlays that may be supplemented with, or replaced by, terrain models and sand tables. MAPEX's allow commanders to train their staffs to perform essential integrating and control functions to support their decisions under simulated wartime conditions. MAPEX's may be employed by commanders to train the staffs at any echelon-
-to function as effective teams
-to exchange information
-to prepare estimates
-to give appraisals
-to make recommendations and decisions
-to prepare plans
-to issue orders
-to be proficient in integration of all branch elements of the teams

Tactical Exercises Without Troops (TEWT's)

TEWT's are low-cost, low-overhead exercises conducted in the field on actual terrain suitable for training units for specific missions. Using few support troops, TEWTs are used by commanders to train subordinate leaders and battle staffs at any echelon:
-to analyze terrain
-to employ units according to terrain analysis
-to emplace weapon systems to best support the unit's mission
-to plan conduct of the unit mission
-to coach subordinates on the best use of terrain and proper employment of all combat arms CA, CS, and CSS assets

Command Post Exercises (CPX)

Command post exercises are conducted at garrison locations or in the field. Conducted under simulated battlefield conditions CPX is used to train subordinate leaders and staffs to function as effective teams in command functions. Specific areas of CPX training are designed to improve exchange of information, prepare estimates, appraisals, plans, issue orders, reconnoiter, select and occupy locations, establish and employ communications, and displace headquarters and command posts.

Situational Training Exercises (STX)

The use of situational training exercises (STXs) should be considered in the development of an exercise. They teach the "best" or preferred way to accomplish a task and are a standard way in which a task should be executed. They are developed by the service schools to teach the doctrinally preferred way to perform a specific mission. STXs can facilitate training through the application of standardized tactical formations and employment. Thus, they should be considered in planning and preparing for an exercise, whenever appropriate. Planning begins immediately after the decision has been made to conduct an exercise. The planning steps listed below are used to prepare for an exercise. Specific exercise may omit some. These steps are generally sequential; however, some may be performed simultaneously.

-preparing an exercise directive
-assigning responsibilities for planning
-conducting research
-preparing a supporting plan schedule
-preparing an outline plan
-conducting a reconnaissance
-completing the exercise support plans
-preparing the scenario
-preparing and issuing the operations plan (OPLAN)
-publishing the letter of instruction (LOI)
preparing the terrain
-conducting a rehearsal

Command Field Exercise (CFX)

The CFX is an FTX with reduced combat unit and vehicle density, but with full command and control, CS and CSS elements. The CFX allows the full-up employment of certain assets such as the signal battalion, the CEWI battalion and the target acquisition battery (TAB). CFXs are not simply scaled-down FTXs. They are, in fact, excellent vehicles for training commanders and staffs with certain full-up systems together information, to provide communication links, and to develop intelligence. CFXs provide real-time operations over actual distances with appropriate logistical support. They are driven by schedules of events or by controlled OPFORs operating under the exercise director. CFXs are less expensive than FTXs. Yet they provide equal training value for training of the staff. They may be the single best way to train inter-systems linkages for

full-up integration of all brigade and above assets. Commanders should use CFXs to sharpen unit skills in such areas as:
-fire support
-re-supply procedures
-rear area combat operations (RACO)
-COSCOM interface
-CEWI collection, interpretation, and dissemination procedures

Field Training Exercises (FTX)

Units training at Camp Shelby during Annual Training will operate under simulated combat conditions. These field exercises are intended to exercise command and control of all echelons in battle functions against an actual or simulated opposing force. Tactical situations are employed in which one or more units participate, often requiring movement and communications over long distances. FTX training does not use live fire, it is used to move and maneuver units realistically, to employ organic weapons systems effectively, to build teamwork and cohesion, plan and coordinate supporting fire and logistical activities. Many units will establish bivouac sites in training areas and conduct all training activities from the bivouac site.

Fire Coordination Exercise (FCX)

FCXs are medium-cost, reduced-scale exercises that can be conducted at platoon, company/team and battalion/task force levels. The purpose of FCXs is to exercise the command and control skills of the leadership of the unit through the integration of all organic weapon systems, as well as indirect and support fires. Sub-caliber devices are substituted for service ammunition to permit fire planning and simulated employment of all weapon systems available to support the commander in the execution of his assigned mission. FCXs should stress target acquisition. FCXs present target arrays and target information to player units, placing commanders and leaders in realistic battlefield situations. Targets controlled mechanically and electronically appear at the appropriate places and times according to the scenario. Commanders employ FCXs to train subordinate leaders to integrate and distribute direct and indirect fire systems so that the optimum ranges as they become vulnerable to engagement. FCXs should be fast moving, with several weapons systems engaging multiple targets

simultaneously as targets enter optimum engagement ranges. FCXs should challenge the skills of commanders, subordinate leaders, crews of direct fire weapons, FDC personnel and forward observers. They facilitate training in the effective use of organic weapon systems, employment of supporting weapon systems and target acquisition systems. FCXs require players to react to fluid battlefield situations by promptly applying supporting and organic fires against changing target arrays.

Live Fire Exercise (LFX)

LFXs are high-cost, resource-intensive exercises in which player units move or maneuver and employ organic and supporting weapon systems using full-service ammunition with attendant integration of all CA, CS and CSS. LFXs can provide maximum training benefits through multiple iterations. These iterations, each including an AAR, normally occur in the following sequence:
-a dry run conducted to review the unit SOP and battle drills
-an AAR to discuss actions on this dry run
-a second run with a reduced amount of ammunition to show the complexities of fire and maneuver coordination
-an AAR to discuss actions on this second run
-a third run with full ammunition to reinforce previous training and to build confidence
-an AAR to discuss actions on the third run
-a fourth iteration, preferably with ammunition, conducted at night or during limited visibility
-other iterations using ammunition saved by crews/units to sustain and attain proficiency for new or unqualified crews/units

Combined Arms Live Fire Exercise (CALFEX)

The CALFEX is the CAPSTONE exercise in the training hierarchy - tying together the requirements and the resources of the close combat heavy leader. This exercise is conducted after leaders and units have previously demonstrated the ability to execute the CFX, FTX, FCX, and LFX. A combined arms live-fire exercise (CALFEX) trains units to perform primary combat missions in a realistic, live-fire environment. Supplementary missions and a wide range of supporting tasks can be integrated into the exercise.

2.3.3 Firing Activities

Training activities involving live ammunition are closely monitored to insure the highest level of safety for the surrounding public as well as the troops in training. The Camp Shelby Range Regulations state proper precautionary measures which must be carried out. It further states the ranges and the type ammunition which may be fired on each range. The Range Control Officer is in charge of all scheduling of ranges. Scheduling of ranges for inactive duty training is accomplished at an annual scheduling meeting normally conducted in the spring of the year for the following Fiscal Year. Additions and deletions to the schedule are coordinated directly with the Range Control Officer on a first come first serve basis. Scheduling of ranges for AT is accomplished by procedures outlined by the functioning Troop Command Headquarters for the respective AT period.

Over the past 3 years the use of firing ranges, averaged 280 days out of 365. Weekends were utilized an average of 42 out of the available 52.

Weather conditions do not inhibit firing unless the weapon equipment or shell fuses are affected by moisture or electrical storm conditions. When weather conditions reach a point where they pose a threat to troop safety, firing activity ceases until favorable conditions again prevail. Illumination rounds and pyrotechnics are restricted from use during dry weather when fire potential is high.

Closed Areas at the Installation

Dedicated Impact Area
This provides an impact area for artillery rounds and is approximately 4,000 meters square. The impact area is in use throughout much of the year as all types of units train on weekends (IDT) in addition to Annual Training (AT). Its central location allows ranges to be positioned around its perimeter. Safety fans for each range cover the potential area a stray round or ricochet might travel from a range firing point. These safety fans extend into the impact area. The impact area is closed due to the potential hazard of unexploded rounds and the obvious danger from firing activity. A buffer zone of approximately

8,900 acres is located around the impact area which provides an extra margin of safety and control over access into the impact area.

Tank Safety Fan
The largest land area closed at one time is the tank main gun safety fan. Muzzel velocity of the rounds fired and the width of the target array require an extensive safety fan when tanks are firing the main gun. Use of the tank firing ranges is on the increase as Camp Shelby is a Mobilization and Training Equipment Site (MATES) and units come from many of the surrounding states for tank training and firing.

M60A3
Camp Shelby became the location for expanded training in 1986 for fielding of the M-1 and M60A3 tanks and the Bradley Fighting Vehicle. As a result, the main gun safety fan is closed for approximately 305 days annually. This 5-year program will be completed in 1991.

Air-to-Ground Ranges
Air National Guard units and Air Force Reserve units from Keesler Air Force Base and surrounding states utilize the air to ground ranges. Activities include skip bombing, aerial gunnery and rocket firing. Firing activities on the East and West air to ground ranges occur on a regular basis, on an average of 5 days a week between September and May. As weather conditions and training needs permit, the air to ground ranges may be utilized several times per week. When other firing ranges are in use the Range Control Officer may close the West air-to-ground range and direct air traffic to the East air-to-ground range.

2.3.4 ARTEP Training Activities at Camp Shelby

ARNG units use Camp Shelby during Annual Training as well as weekends throughout the year. Units such as field artillery, armor, military police, armored cavalry, medical and engineer units use the installation and its various training facilities to meet Army Training and Evaluation Program (ARTEP) objectives.

Army Training and Evaluation Program (ARTEP) mission tasks are necessary to train U.S. Forces to detect identify and defeat the enemy. Some ARTEP exercises are held for a unit once every 2 or 3 years, others are held on an annual basis. Such exercises are necessary

to assess and develop the ability of a unit to survive and win on the battlefield. The ARTEP provides combat training objectives for year-round use by a unit. An entire unit must meet all of its collective ARTEP standards within the specified time period to qualify for 'go' status (if unable to perform it's ARTEP tasks the unit receives a 'no-go' status).

ARTEP tasks are classified in two categories; firing tests and tactical tests. Firing tests develop proficiency at weapons use and handling while tactical tests develop maneuver and strategy abilities. ARTEP training tasks are designed specifically to meet the individual needs of a particular type of unit.

The following narrative briefly discusses the ARTEP tasks of some of the units training at Camp Shelby. Units are grouped into one of three categories: Combat Arms, Combat Support and Combat Service Support. Units categorized as Combat Arms include Armored Cavalry, Armor, Field Artillery, and Mechanized Infantry. Under the Combat Support category are Combat Engineer, Special Forces, Military Police, and Medical units. Classified as Combat Service Support are Area Support Group, Collection and Classification, Engineer Detachment, Transportation, Quartermaster, Service and Supply, Maintenance and Headquarters units.

COMBAT ARMS

The Combat arms units are those involved directly with actual combat situations.

Armored Cavalry

The armored cavalry squadron is a combined arms combat maneuver force trained to identify the enemy, fight and suppress his weapons. Its mission is to provide security and perform reconnaissance for the unit to which it is attached. It must also engage in offensive, defensive, delaying and economy-of-force operations as required. An armored cavalry unit consists of a mixture of tanks, armored personnel carriers, TOW missiles, mortar carriers, cargo carriers, howitzers, jeeps and trucks. The concept behind the highly mobile armored cavalry unit is a faster turnaround for support. The armored cavalry must be mobile and produce high fire power in order to engage and overcome enemy armored units which may have the advantage of superior numbers. In order to engage the enemy and win, the unit must utilize maneuver tactics and the element of surprise. A primary capability of an armored cavalry unit is to perform route, zone, area reconnaissance, screening, hasty

defense and economy of force. As a result, the unit requires a large area to conduct this type of training. Usually there is an air cavalry unit training in conjunction with an armored cavalry squadron. The air cavalry unit will provide air support to offensive and defensive operations.

Typically the armored cavalry unit will require large training areas due to the need to deploy platoons laterally. This requires movement into areas away from roads. Deployment configurations are similar for all of the tactical movements. The major consideration is a need for large maneuver areas, all of which is passable by tracked vehicles.

Potential impacts from armored cavalry training activities include soil erosion, disruption of wildlife habitat, destruction of ground cover vegetation, and reduction of water quality with sediments from soil erosion. Other impacts include fuel spills and spills or overflow from sanitary latrine facilities at bivouac sites.

Armor

The mission of an armor unit is to close with and destroy the enemy using fire, maneuver and shock effect. Generally an armor unit will consist of tanks, mortar carriers, and armored personnel carriers (APC's). Some armor units include a detachment of attack helicopters. High fire power and mobility allow the armor unit to successfully exploit supporting fire and attack/counterattack under fire. The ARTEP tasks require proficiency in three areas, move, attack and defend.

Training activities include movement/maneuver tactics and gunnery training. Movement training requires tank crews to maintain tactical formations during maneuvers and be capable of changing into other formations as required by tactical situations, terrain or vegetation. Formations are the wedge, vee, echelon (left or right), column and line. Two other formations, the coil and the herringbone are utilized for non-moving purposes. Tank crews are also trained to maneuver over various types of terrain such as steep slopes, ditches, and water elements. This type of training takes place only in designated areas where mitigation measures will reduce impacts to an acceptable level. Due to the maneuver limitations of tanks they are most effective in open or lightly wooded rolling terrain where speed and firepower are most

useful. Training areas for tanks and other tracked vehicles at Camp Shelby are selected and managed for these characteristics.

Gunnery training for the M1 main battle tank and the M-60-A3 consists of firing the 105 mm. main gun, 7.62 mm. coaxial machine guns, the 50 cal. machine gun and the lazer rangefinder. This training takes place on ranges 13, 18, 40, 41, 43 and 45. Weapons training includes firing from fixed points or while the vehicle is moving, depending on the particular requirements of the ARTEP task.

Since the majority of armor movements are conducted with surprise tactics in mind, concealment is necessary. This requires movement through wooded areas away from main roads. Bivouac locations are generally not restricted but left to the discretion of the unit commander. Bivouac areas are usually camouflaged with vegetation cut from understory shrubs and small hardwood trees. Maneuver activities at Camp Shelby are limited to training areas specifically designated and marked for tracked vehicles or designated assembly areas. These training areas are designated with a T prefix on the training area maps (i.e. T-43). Training areas for armored personnel carriers are separate from but adjacent to tank maneuver areas.

The armor unit presents the highest potential for adverse impacts to soil, wildlife habitat and vegetative resources during off-road movements due to the maneuver requirements for a large number of tracked vehicles. The tracks on such vehicles have a harmful effect on vegetation and soil in maneuver areas, especially during a turning maneuver when the tracks cut into the vegetative cover and expose areas of bare soil. Destruction of standing vegetation may result from movement through thickly wooded areas or during times when visibility is limited. Other potential adverse impacts include fuel spills and spills or overflows from sanitary latrine facilities at bivouac sites. Noise impacts may result from firing activities or helicopter flights over off-post areas.

Field Artillery

The mission of a Field Artillery unit is to provide artillery fire to directly support maneuvering units. ARTEP tasks require movement in day or night, often with limited visibility. Equipment utilized by a field artillery unit includes trucks, towed howitzers (105 and 155 mm), self propelled howitzers (155 and 203 mm) and ammunition/cargo carriers. The self propelled howitzers and cargo carriers are tracked while the

other vehicles are wheeled. Field artillery units generally train as a battery of 6 guns with the necessary support equipment. Currently some battalions are being upgraded to 8 gun batteries for increased firepower.

Training operations for an artillery unit are to move to an established firing point, fire a specified number of rounds then move rapidly to another firing point. Emphasis is placed on mobility for a field artillery unit due to the potential of enemy units detecting and firing on a position held for a long period. Firing is carried out at designated firing points around the impact area which have been surveyed and clearly marked for proper alignment and direction to the target. Prior to firing on a target gun crews are required to request clearance from the Range Control Officer. Movement of artillery units is on established roads and firing points.

The potential for off-site impacts comes from the high energy noise levels produced during artillery firing. These impacts have the greatest significance on weekends and at night, as other daytime noise sources such as vehicular traffic and manufacturing activities have decreased in intensity. The self propelled guns and cargo carriers are tracked vehicles and present a potential for disruption of vegetative cover and soils if they venture off the gravel surfaced areas at the various firing points and bivouac areas. Fires are a potential hazard resulting from firing activity.

Infantry

The mission of an infantry unit is to close by means of fire and maneuver to destroy, capture or repel enemy assault by fire, close combat and counterattack. Lacking a large number of tracked vehicles, an infantry unit is capable of maneuvering over all types of terrain and under any climatic condition. The infantry is also capable of participating in motorized, airborne or amphibious operations.

Infantry units offer the least potential for impacts on the resource base as training does not require a great number of vehicles, tracked or otherwise. Bivouac sites may have potential fuel spills or overflows of latrine facilities. Bivouac sites are not limited to specific locations.

Mechanized Infantry

The mechanized infantry must be capable of engaging the enemy to destroy, capture or repel. Accomplishment of this mission depends upon the combined use of surprise elements, superior maneuverability and accuracy. Equipment in such a unit consists of tracked personnel carriers, TOW missiles, trucks, trailers, recovery vehicles, command carriers and self propelled mortar carriers.

Training activities vary widely for mechanized infantry battalions. Units should be capable of maneuvering over most types of terrain to seize and hold positions, provide antitank protection and conduct patrol activities. Ability to negotiate different types of terrain is essential, therefore competence must be attained for traversing steep grades, vertical obstacles, ditches and fording water obstacles. Training for air-mobile assaults, breaching of mine fields and chemical decontamination is also necessary. These training and maneuver activities are conducted in designated areas where mitigation measures will reduce impacts to an acceptable level.

Potential impacts from a mechanized infantry unit include disruption of soils and vegetation, potential fuel spills and spills or overflows from latrine facilities and site modifications required for bivouac operations.

Aviation

The mission of an aviation unit is to provide aviation support, navigation aids, air warnings, air transportation, reconnaissance and terminal control facilities to other units requiring such support. Fixed wing aircraft range from small to medium size craft capable of troop/utility/cargo hauling. Helicopter aircraft types are attack, observation and cargo.

Transportation units which utilize the large sky-crane helicopters generally bivouac in the cantonment area or at Hagler airfield. Units with the UH-1 Huey helicopters may bivouac at the airfield or at remote locations, depending on training needs.

Impacts resulting from an aviation unit training at Camp Shelby are primarily noise related. Such impacts will occur when aircraft approach residential or

recreation areas adjacent to the installation. Potential impacts may result from fuel spills and site modifications for bivouac activities.

Combat Engineer

The mission of a combat engineer unit is to provide support through fortifying positions, breaching, clearing or constructing obstacles. A Combat Engineer unit is terrain oriented to enhance the effectiveness of friendly weapons systems and decrease the effectiveness of enemy weapons. Mission objectives are to increase the mobility of friendly forces, impede the mobility of enemy movement, provide protective shelters and fight as infantry when necessary. The combat engineer unit will conduct training to prepare for the planning, design and construction of support facilities such as bridges, roads, sanitary facilities, utilities and command posts as well as repair and maintenance of such.

Vehicles used by a combat engineering unit consist of 25 ton semi-trailers, trailers and tractor trucks for towing. Other equipment utilized are portable bridge systems, portable batch mix plants for concrete or asphalt, potable water systems, and survey equipment. The Combat Engineer Vehicle (CEV) is also utilized by an engineer unit. This vehicle is essentially an M-60 tank with a 165 mm main gun for firing at structures from a close range. Construction equipment includes armored bridge launchers, cranes, patrol graders, bulldozers and forklifts. Other specialized earth moving equipment is utilized as necessary.

The unit is responsible for supporting other units through the planning, design and construction of stream crossings, fortifications, obstacles, bunkers and utilities.

Impacts resulting from the training activities of engineer units are soil erosion, vegetative cover destruction, disruption of wildlife habitat and reduction of water quality.

Special Forces

Special forces units are trained to infiltrate behind enemy lines with a high degree of concealment. Their mission is to plan and conduct unconventional warfare operations and to infiltrate and ex-filtrate areas by land, sea or air. Equipment includes trucks, trailers and other types of transportation vehicles depending on the terrain and method of infiltration (parachuting, swimming, rappelling, etc.).

Special forces units utilize the drop zone, mortar ranges and demolition ranges at Camp Shelby as well as small arms ranges. Training activities are infantry related and large equipment is generally not required. Vehicle maneuvers are very limited as movement is primarily by foot.

Environmental impacts resulting from special forces training are limited to the site modification necessary for bivouac sites.

COMBAT SUPPORT UNITS

Combat support units are indirectly involved with actual combat situations as their mission is to provide support to a combat arms unit. Such missions include providing medical facilities, communications, transportation and engineer/construction functions.

Military Police

The military police (MP) unit's mission is to provide military police combat support to a division. Vehicles in an MP unit will consist of HMWV's (High Mobility Multipurpose Wheeled Vehicle), CUCV's (Commercial, Utility, Cargo Vehicle), 1/4 ton trucks and 1 1/4 ton trucks with trailers. ARTEP activities for a military police battalion include performance of staff functions to support an MP unit, conducting of tactical day/night displacement and movement, planning and supervision of security operations at a critical facility and the planning and directing of vehicular movements. MP units must be trained to take part in active defense while accomplishing their assigned mission. The MP battalion must be capable of holding, processing and transporting Prisoners of War (POWs) in combat situations. In addition, the MP unit must be prepared to defend against attacks on secured areas by heavily armed terrorist groups.

Potential impacts as a result of training by an MP unit include potential fuel spills and overflows from latrine facilities and site modifications required for bivouac sites.

Combat Support Hospital

The combat support hospital provides hospitalization for all classes of patients within a geographic area. Specific functions include patient treatment, surgery, laundry, medical supply and patient administration.

Training activities involve the establishment of a field hospital, field laundry and field shower. The laundry and shower facilities produce approximately 3,000 gallons of waste water per day. Operation of utility packs requires JP-4 fuel which is stored in fuel tankers or fuel bladders surrounded by earth berms.

Disposal of the waste water from showers and laundry locations presents a potential environmental impact as does fuel leakage from storage containers.

COMBAT SERVICE SUPPORT UNITS

The Combat service support units have the least amount of involvement with actual combat situations. Missions involve supply, service, administration, and maintenance. Within this category are the units providing support, materials and service. Such units generally contain semi-trailers, cargo trailers, tractor trucks, fuel trucks, forklifts and cranes. Mission tasks, equipment needs and personnel skills are widespread and relate directly to the type of service support provided by the unit. During Annual Training (AT) service support units generally move to a location and remain at that location for the duration of the AT period.

Potential impacts from training activities include spills of oil, fuel or solvents, disposal of wastewater, destruction of vegetation, excavation of waste disposal pits and overflow of latrine facilities at bivouac sites.

Area Support Group

The mission of an Area Support Group is to command and control all assigned and attached service support units. This unit must plan and direct the provision of direct support, logistic support and map supply of units located in or passing through the communications zone for which it is responsible. It must control and coordinate physical security and rear area combat operations activities within its assigned area. Training activities include movement, field sanitation, NBC operations, medical support coordination and various support services monitoring.

Potential environmental impacts are the site modifications necessary for bivouac operations.

Collection and Classification

The mission for a collection and classification unit is to establish and operate a facility for the receipt, inspection, segregation, disassembly and preservation of serviceable or un-serviceable material and equipment.

Potential environmental impacts involve the proper disposal of non-recyclable materials.

Engineer Detachment-Utilities

This type unit is responsible for providing engineer construction, utilities and electrical power teams for specialized support to various facilities. Training activities include unit movement operations, security operations, horizontal and vertical construction operations.

Quartermaster Units

These units are responsible for transportation of bulk fuel and the preparation and operation of fuel system supply points for issue and receipt of fuel. The unit is responsible for the preparation of berm sites around fuel storage facilities to contain fuel spills should one occur. Training activities include the receipt and issue of fuel supplies, night operations, NBC defense operations, convoy operations and practice of preparing berm sites.

Potential impacts from training activities are the disruption of vegetative cover and soil erosion from preparation of berm sites and the potential of fuel spills and site modification associated with bivouac operations.

Service and Supply Units

The mission of a service and supply unit is to provide the means and location for troops and units to requisition, receive, store and issue supplies. Services are also provided in the form of laundries, baths, mess, utilities, and various construction operations.

Potential environmental impacts from training activities include the disposal of waste water, waste materials and the site modification necessary for bivouac operations.

Maintenance Units

The mission of a maintenance unit is to provide direct support maintenance and repair parts supply for mechanical, armament, communication and construction equipment to non-divisional units in a corps area. Maintenance is carried out on tracked and wheeled vehicles, engineer equipment and other related military equipment.

Potential environmental impacts from training activities involve spills of petroleum based products or solvents, typical site modification required for bivouac operations and soil/vegetation impacts from heavy traffic activity in repair and maintenance areas.

Headquarters Units

Mission requirements for a headquarters unit calls for providing command, tactical, administration, training and technical operational supervision of attached maintenance units. ARTEP requirements require this type of unit to operate in a field environment during AT. Perimeter defense is established making use of individual fighting positions and machine gun emplacements.

Environmental impacts anticipated from training activities of service support units are associated with site changes required for bivouac areas such as vegetation disruption, soil compaction, and soil erosion. Other potential impacts may result from fuel spills, waste disposal, spills of solvents or preservatives, overflow from sanitary latrine facilities and wastewater disposal.

Signal Units

The mission of a signal unit is to plan, provide, and maintain communication systems between command posts and units and provide non-tactical photographic services. Equipment needs are primarily for light to medium size trucks and trailers.

Impacts caused from training activities involve those related to site modification from normal bivouac operations.

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APPENDIX C

11. Camp Shelby Regulations

The attached regulations are those sections of the Camp Shelby Regulations which govern those activities conducted on the base which potentially affect the environment or other conditions which are a subject of the EIS. They include the General Regulations, Annex C - Range Regulations, Annex G - Environmental Protection and Annex S - Safety.

The attached only include those sections of the Camp Shelby Regulations which have been referenced in the text.

HEADQUARTERS
TRAINING SITE CAMP SHELBY
MISSISSIPPI ARMY NATIONAL GUARD
CAMP SHELBY, MISSISSIPPI
JANUARY 1992

*CAMP SHELBY REGULATION

Effective January 1992

CAMP SHELBY REGULATION

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*This regulation supersedes regulation dated January 1991

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CHAPTER 1

GENERAL

1-1. GENERAL:

a. Regulations:

(1) This regulation prescribes policies and procedures relative to Camp Shelby and its operations as a Training Site. Camp Shelby is a state owned and operated training site established for the purpose of training active and reserve component soldiers and units of the armed services. Information contained herein applies to all individuals and organizations utilizing the facilities at Camp Shelby during the Annual Training period (1 May - 1 Sep).

(2) Regulations regarding Other-Than-Annual Training are covered in the CSTS Weekend Training (WET) Guide, published and issued by the DPTM.

(3) Regulations regarding the use of Camp Shelby as a State Owned Mobilization Station (SOMS) are covered in the Camp Shelby Mobilization and Operational Planning System (CSMOPS) regulation.

(4) Regulations regarding the use of Camp Shelby as an Emergency Evacuation Center are covered in the CSTS Evacuation Center Plans.

b. The Adjutant General of Mississippi is responsible for the year-to-year operation of Camp Shelby. The Training Site Commander/Manager operates the Training Site under the supervision of TAG-MS.

1-2. DEFINITIONS:

a. Whenever the term "Camp Commander" is used in this regulation it shall refer to the Adjutant General of Mississippi or his designated representative.

b. The term "Training Site Commander" refers to the Camp Shelby Training Site Manager.

c. The term "Troop Commander" is used in this regulation to refer to the Senior Commander present for training. ARNG troops from different states and USAR troops present during an Annual Training period will report to the Senior Commander representing their state or reserve component. When this condition exists the Camp Commander will coordinate details incident to Camp functions with these Senior Commanders.

d. Logistical Support Operations (LSO) Headquarters: A support Group or equivalent type headquarters, which plans, coordinates, executes, and supervises combat service support for units attending Annual Training.

CHAPTER 2

COMMAND RESPONSIBILITY

2-1. THE CAMP COMMANDER: The Camp Commander has overall responsibility for all entities/activities/organizations training on CSTS during Annual Training (A.T.) periods, and for the duty and training assignments of the Camp Headquarters staff and detachment. During A.T., the Camp Commander and his staff are overall responsible to maintain and prescribe administrative control of the reservation, Federal and State property not issued to troops, and other administrative matters not routine to troop training and discipline. The routine day-to-day operation of the Camp Shelby Training Site is delegated from the Camp Commander to the Training Site Commander.

2-2. THE TRAINING SITE COMMANDER: The Training Site Commander is also responsible for specific day-to-day operations during Annual Training. Specific responsibilities of the Training Site Commander are as follows:

a. Employment, control, and work assignments of all seasonal civilian personnel.

b. Control and supervision over all vendors and concessions.

c. Issuance of directives and orders pertaining to the operation of the Camp Shelby Reservation.

d. Control assignment of quarters.

e. Issue regulations designed to promote safety and especially to prevent fires. Conduct investigation of and require reports of fires and other incidents and insure compliance of all occupants with such regulations.

2-3. THE TROOP COMMANDER: The Troop Commander is responsible for unit training and discipline. Specifically these responsibilities are:

a. Troop training and routine troop administration to include troop discipline, on & off the reservation, except as provided in paragraph 2-4.

b. Interior guard, range guard, including guard over areas as required by the Camp Commander.

c. Protection, police and care of buildings/areas under his control.

d. Maintenance of all equipment issued or assigned to his organizations from Camp facilities for use during training.

e. Prescribing uniforms for troops under his command and/or control.

f. Troop Safety Program.

2-4. LSO COMMANDER: The LSO Commander exercises operational control over units assigned a site support mission (excluding MP's/THC, Medical).

2-5. COMMAND RELATIONSHIP IN TROOP STRUCTURE:

a. Camp Commander: Exercises command over elements of the MSARNG; operational control over certain Site Support units (MP's/THC,Medical) not aligned with LSO or Troop Command, and effects coordination for utilization of facilities and Site Support missions with Troop Command.

b. Training Site Commander: Reports to the Camp Commander. Responsible for all routine day-to-day training site operations (See also Chapter 16, this Regulation).

c. Active Component Control Headquarters: Officer in Charge appointed by 2nd US Army Commander to exercise administrative control over all Active Army and RC augmented personnel on TDY at CSTS during annual training (AT); exercise operational control over all Active Army and RC TDY tour personnel at Camp Shelby other than Army Readiness Region/Group personnel, Unit Advisor, and 2USA Evaluators; coordinate the administrative and logistical support required for all Active Army and RC TDY tour personnel with the Camp Commander, Training Site Supervisor and USP&FO-MS.

d. Troop Commander: Senior Commander of Combat/Combat Spt elements in training. Exercises command over those elements normally assigned from his State/ARCOM/MACOM to him at home station, and operational control over others attached by Second US Army for AT.

e. Logistical Support Operations (LSO) Commander: The headquarters designated by Second US Army which has responsibility for the planning and execution of certain service support missions. He exercises command over normally assigned units and operational control over those units performing a site support mission (excluding MP's/THC, Medical).

f. Command Relationships Wire Diagram: (See page 2-4).

2-6. PRE-CAMP CONFERENCES:

a. A Pre-Camp Conference will be conducted for each Annual Training period (conference dates are annotated in the CSTS AT Schedules).

b. The designated Troop Commander will conduct the pre-camp conference for the assigned period. Questions regarding actual conduct of the conference should be directed to CSTS staff.

c. The Training Site Commander will make available the Post Theater (Bldg 1490), the Service Club (Bldg 1480) and other required facilities for each conference.

d. The Camp Commander will select conference dates and coordinate start times with the various Troop Commanders. Normal start time is 0900 hours. Changes to dates/times are coordinated with the Camp Commander.

e. The Troop Commander will publish all conference information to the troop units. The conference agenda will be coordinated with the Camp Commander and the Training Site Commander.

2-7. ANNUAL TRAINING (AT) SCHEDULING:

a. AT Scheduling is managed by the Camp Shelby Training Site - Director of Plans, Training and Mobilization (DPTM).

b. The DPTM, in coordination with MS-DOT-T and 2nd Army, coordinate all activities associated with scheduling.

c. Final approval for any scheduling activity will be coordinated through DPTM.

d. Scheduling for Other-Than-Annual-Training (ie.,IDT), will be coordinated through DPTM - Range Control.

e. Questions regarding scheduling should be directed to:

(1) Annual Training - DPTM Operations/Training Officer
(CML) (601) 584-2768
(DSN) 921-2768

(2) W.E.T. - DPTM-RC Operations Officer
(CML) (601) 584-2709
(DSN) 921-2709

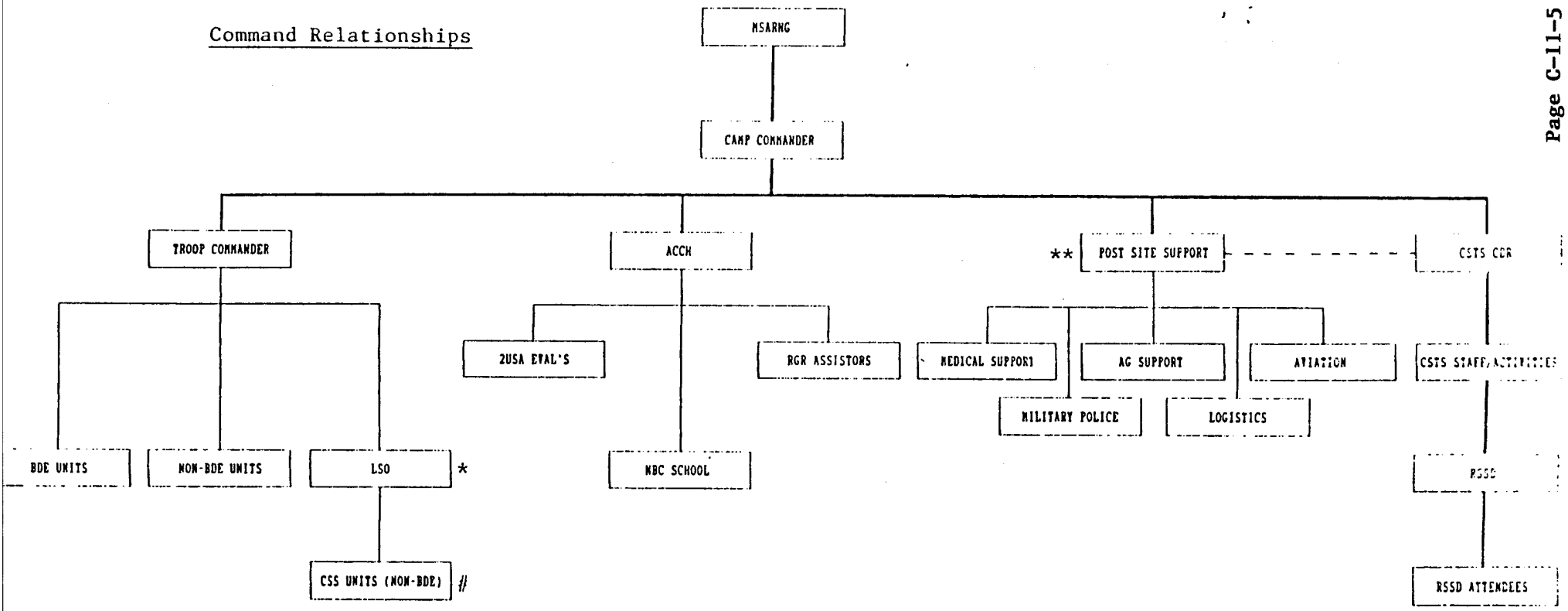
(3) Schools - Regional Schools Support Detachment
(CML) (601) 584-2900
(DSN) 921-2900

- Mississippi Military Academy
(CML) (601) 584-2319
(DSN) 921-2319

Camp Shelby Training Site,

Annual Training,

Command Relationships



——— Command & Control

- - - Coordination

* 167 COSCOM Conducts COSSTAR Organization & Exercise Programs

\# Could Be Required To Perform Post Site Support Functions

** Certain Functional Areas Normally Performed In a Manday or Split AT Status

CHAPTER 3

PERSONNEL AND ADMINISTRATION

3-1. ADMINISTRATION:

a. Publications and Blank Forms: Publications and blank forms (AR's and NGR's) are not available. Units will provide publications and blank forms required. All forms and publications published by Camp Shelby are available for distribution by request to the Training Site Headquarters, Bldg 1001.

b. Reproduction/Copying Service: Duplication machines and copying machines are not available at Bldg 1001. Units should coordinate these services with Troop Command.

3-2. POSTAL SERVICE:

a. Building 2490 is designated as the Camp Shelby Post Office during Annual Training periods. For Other-Than-Annual-Training periods, mail is received in Room 122, Bldg 1001.

b. Personnel conducting training should leave their complete mailing address with their families and friends to aid in delivery of mail and referral of telephone calls. To expedite mail distribution, the following example of a mailing address is furnished:

PFC JOHN A. DOE	Rank, Name
000-00-0000	SSN
Co A, 1st Bn (m), 155th Inf, MSARNG	Unit Designation to Include
Camp Shelby, MS 39407-5500	USAR or National Guard

c. Each unit commander will appoint Unit Postal Personnel in accordance with the current Army Regulations.

d. Mail pick-up and distribution will be in accordance with instructions issued by the AG Postal Unit Commander/Troop Command.

3-3. POST LOCATOR:

a. Locator Service is the responsibility of the AG Postal Unit Commander/Troop Command. Locator service will be provided from Bldg 2490/2400.

b. A prepared roster must be submitted to Locator Service. Roster must include each individual's name, grade, SSN, organization and home address. Roster must be in alphabetical sequence. Submit roster to the Postal Unit Commander upon arrival of the advanced detachment or NLT within one (1) hour of main body arrival at CSTS.

c. Locator Service during AT off weeks will be coordinated through CSTS Admin Asst, Bldg 1001, Room 122, phone #2700. During other-than-At periods, contact CSTS Range Control, phone #2709 or GSO, phone #2540.

3-4. MORALE, WELFARE AND RECREATION (MWR):

a. Post Exchanges. Camp Commander will publish location and hours of operation (Main PX - Bldg 2600; Mini PX - Bldg 6521).

b. Identification Certificate: Personnel using PX facilities must show identification upon request.

c. Request for mobile PX will be directed to the Manager, A&AFES, Camp Shelby, Bldg 2600, ext 2349.

d. EM/Service Club [Recreation Center] (Bldg 1480 - phone #2397): Operating hours and activities will be published in the Daily Bulletin.

e. Swimming: A junior olympic size swimming pool is located near the NCO Club and Recreation Center. Users must provide their own swimming apparel. This is the only authorized swimming facility at Camp Shelby.

f. Hunting: Hunting is prohibited within the boundaries of the Camp Shelby cantonment area.

g. Fishing: Personnel possessing a valid Mississippi fishing license are authorized to fish in any lake on the reservation. (Also see para 3-11)

h. Picnic and Party Areas: Picnic and party areas are available. These areas will be reserved by contacting the Post Special Services Officer (Bldg 6606, phone 2540).

i. Religious Activities: The Camp Chapel is available for religious activities only. Religious services will be announced in the Daily Bulletin.

j. Visits of Relatives and Friends:

(1) The establishment of a specific day as "Governor's Day" or "Visitor's Day" during the AT period is authorized. Designation of the date and activities to be conducted is the prerogative of the Troop Commander. Activities of this nature will be coordinated with the Camp Commander.

(2) Employment of dependants of unit personnel in dining facilities or other appropriate activities in accordance with pertinent Army Regulations & the attendance of minors at "Governor's Day" or "Visitor's Day" activities is not precluded. See also Para 3-13, Chapter 3.

k. Camp Shelby Officers' Club Inc:

(1) All officers and warrant officers attending Annual Training at Camp Shelby are eligible to join the Officers' Club (Bldg 2100).

(2) Dues are $5.00 for company grade and warrant officers and $8.00 for field grade officers. Each commander will appoint an officer to collect these dues.

(3) The dues, along with a roster of officers will be submitted to the secretary-treasurer of Camp Shelby Officers' Club Inc., (address: CSTS Officers Club Assn, Camp Shelby, MS 39407-5500), three weeks prior to departure for Annual Training. Membership cards will be issued to unit by the secretary-treasurer in sufficient time in order that all officers will have them in their possession prior to arrival at Camp Shelby.

l. Non-Commissioned Officers' Club:

(1) Non-Commissioned Officers grade E-5 and higher and Specialists are encouraged to join and support this activity. Dues are $3.00 which entitles the NCO to use the facilities of the club.

(2) The secretary of the NCO Club will be available to personnel upon arrival at Camp Shelby to render any assistance desired during the period. Membership can be obtained by application to the club secretary for payment of the required dues (Ms. Shelton, phone 2714).

m. Package Store Sales (Class VI):

(1) All military personnel must be at least 21 years old & have either an ID card or Package Store Privilege Card for purchases.

(2) Privilege cards are available for issue at no charge from Class VI Store Manager, Camp Shelby, MS.

(3) Full-time civilian employees (non-military) of CSTS may also obtain a privilege card from the Class VI Store Manager.

n. Theater hours of operation & admission cost are announced by AAFES Manager, CSTS, Bldg 2600, ext 2349 & published in the Daily Bulletin.

3-5. PETS: Pets are not allowed.

3-6. PUBLIC INFORMATION OFFICE: A public information office is located in Bldg 866. A dark room and facilities (not supplies) for developing film are available. Necessary arrangements for the use of this building will be made with the Housing Officer. See also Chapter 14.

3-7. Billeting: (See Annex D, Section II)

3-8. STAFF DUTY OFFICER: Each unit conducting training at CSTS will maintain a duty officer during non-duty hours, including Saturday, Sunday, and holidays. Names will be furnished to next higher headquarters.

a. Each SDO will be sufficiently briefed by their local command element on specific duties. CSTS requires that each unit provide their SDO with written instructions for contingencies.

b. Emergencies (calls/incidents) will be handled as expeditiously as possible. The unit of assignment for affected individual(s) will respond in such cases and also notify higher command. If the call/incident is significant in nature and/or will affect CSTS, the Camp Commander will be notified and Chapter 7 of this regulation will be consulted for appropriate action.

3-9. SAFETY: Units down to & including company/detachment will appoint a safety officer and have an accident prevention program in effect.

3-10. NON-APPROPRIATED WELFARE FUND:

a. Welfare fund distribution and accountability will be in accordance with AR 215-1.

b. Welfare dividends are authorized to be paid to reserve component units attending Annual Training at Camp Shelby, provided their strength is not used by another service to compute dividends.

c. Requests for dividends will be submitted to the Camp Shelby Central Post Fund. All request must be submitted to Building 1001, Room 219 by the third day of the Annual Training period.

3-11. LAKE GLENN D. WALKER AND DOGWOOD LAKE:

a. Persons authorized to use facilities:

(1) Active and retired Mississippi National Guard members and their immediate family (spouse, dependent children, parent, grandchild, grandparent).

(2) Active and Reserve component personnel

(3) Retired military personnel

(4) Civilian employees of the Mississippi National Guard

(5) Other personnel as approved by the Camp Commander

b. Disposal of Refuse: All garbage, sewage, foodstuffs, paper and other waste material will be placed in containers designated for such purposes.

c. Pavilions: All pavilions and picnic shelters will be used on a reservation basis only. Reservations will be made thru billeting at Building 6606.

d. Vehicles: All motor driven vehicles will be kept on roads or parking areas.

e. Fishing:

(1) License requirements: Active and retired military personnel, to include National Guard and Reserve, who hold a valid Military ID card are not required to have a license. All others authorized to use these facilities must have a valid Mississippi Fishing License.

(2) Equipment: All legal equipment can be used except trot lines, snag lines, and any type of net or trap (dip nets are allowed).

(3) Catch Limits:

a. Bass - five (5) per person per day

b. Bream - twenty five (25) per person per day

c. Channel Catfish - three (3) per person per day

d. Other - no limit

f. Boating:

(1) Compliance to all State Boat and Water Laws is required.

(2) Only trolling motors will be used (no gasoline motors regardless of horsepower).

g. The above regulations are in addition to and supplement all State laws, which are in force and are made a part hereof.

h. Anyone disobeying the above laws and regulations will be suspended from these facilities.

3-12. CAMPSITE REGULATIONS:

a. Purpose: This regulation establishes policies and procedures for the operation of campsites and recreation vehicles at Lake Glenn D. Walker.

b. Operation: The campsites are operated under the direction of the Training Site Commander by the Special Services Foreman. They are open to authorized personnel only.

c. Eligibility and Priority of use:

(1) National Guard/Reserve personnel assigned to and training at Camp Shelby.

(2) Active Component personnel assigned to Camp Shelby.

(3) Retired military personnel.

(4) Civilian employees of the Mississippi National Guard.

(5) Other personnel as authorized by the Training Site Commander.

d. Standards of Conduct:

(1) Each person is responsible for his/her own safety. Parents are responsible for the safety and conduct of their children.

(2) No individual will endanger other personnel through negligence or unsafe actions.

(3) Disorderly conduct is strictly prohibited. Personnel conducting themselves in an inappropriate manner will be restricted from using the facilities. All personnel will be expected to abide by these regulations and the directions of the Special Services Foreman or other law enforcement officials of Camp Shelby.

(4) Pets must be kept on a leash not to exceed six (6) feet.

(5) Public nudity or disrobing is prohibited.

e. Control:

(1) The Special Services Foreman will insure that all personnel are aware of and abide by prescribed safety regulations.

(2) Recreation personnel will be on duty during the hours of operation to insure compliance with this regulation. The Special Services Foreman or Camp Shelby Security Personnel are authorized to require any individual not complying with this regulation, to leave the facility.

f. Campsite Use:

(1) No person shall occupy a campsite in excess of seventeen (17) days consecutively.

(2) Persons under seventeen years of age are not permitted to stay overnight unless accompanied by parent or guardian.

(3) Quiet hours shall be in effect from 2200 hours to 0600 hours each day.

(4) All campers shall be responsible for the cleanliness of their campsite during camping and upon departure.

(5) Trash will be placed in plastic bags and deposited in designated containers.

(6) Check-in time is 1200 hours to 1630 hours on the first day of occupancy. Check-out time is by 1200 hours on the last day of occupancy.

(7) Camp Site rates are $5.00 per hook-up day (or night) and will be paid in advance at time of reservation.

(8) No outside lights other than camper lights shall be used.

g. Reservations:

(1) Reservations must be made within forty-five (45) days of the first day of occupancy. Request will be accepted by mail, telephone, or in person at the Special Services Foreman's Office from 0800 to 1600 hours (Bldg 6606).

(2) All reservations must be claimed by 1630 hours on the first day of occupancy.

(3) Specific campsites cannot be reserved; however, if a specific location is desired on arrival it will be made available if it is not already taken, and it will accomodate the camping equipment.

(4) Request for adjacent facilities will be honored subject to availability.

(5) Campsites which have not been reserved and those for which cancellations have been received will be available on a first come, first served basis.

3-13. EMPLOYEES:

a. All domestic employees of the units, civilian employees of Camp Shelby, including National Guard Technicians, will comply with this regulation while on the premises of Camp Shelby.

b. The employers will insure by means of medical report that all such personnel handling food are free from communicable diseases.

c. Civilians may be employed as domestics of KPs and taken to Camp; however, each unit so doing must make its own arrangements for housing, feeding, and paying.

CHAPTER 4

HONORS AND PROTOCOL

4-1. HONORS: The Troop Commander will be prepared to render honors to persons as may be required.

4-2. CAMP FLAG: The Troop Commander will provide a detail each day to raise and lower the Camp Flag and fire the salute gun (Bldg 2400).

4-3. COURTESY CALLS: Officers are expected to observe the customs of the service regarding accepted social practices, including courtesy calls. The following courtesies are expected of officers on duty at Camp Shelby:

a. The Troop Commander desires each command/group/brigade and higher commander to make an official call at his office at the earliest opportunity following arrival at Camp Shelby. Appointment will be made directly with the aide-de-camp or Troop Command G-1.

b. The Camp Commander desires the Site Chief Evaluator to make an official call at the earliest opportunity following his arrival at Camp Shelby.

c. The Camp Commander will receive all other individuals who desire to call. Appointments may be made directly with the aide-de-camp, Camp G-1 or the Chief of Staff.

4-4. ARRIVAL OF OFFICERS:

a. Officers reporting to Camp Shelby for duty with units will sign the officer's register maintained by the appropriate headquarters.

b. All Active Army, short tour RC personnel, and civilian representatives of Army activities will sign the register located in the office of the Active Army Control Headquarters, Bldg 803.

CHAPTER 5

DISCIPLINE, LAW AND ORDER

5-1. JURISDICTION:

a. The Camp Shelby Military Reservation is within the jurisdiction of the Adjutant General of Mississippi. The criminal laws of the State of Mississippi are in effect within the boundaries of Camp Shelby.

b. Whenever a civilian is suspected of an unlawful act, he will be reported to the Military Police who will detain the suspect until he can be turned over to the appropriate civil authorities.

5-2. PROVOST MARHSAL:

a. A Camp Provost Marshal will be designated by, or with the consent of the Camp Commander. The officer so designated will have responsiblity for all Provost Marshal activities specified in the Camp Shelby Provost Marshal Regulations (Annex P), to include operational control of Military Police personnel assigned to Post, Camp and Station duties. He will insure appropriate coordination with other staff officers.

b. MP support is required during the AT cycles and during special operational periods (ie., mobilization). These activities are conducted IAW Annex P under the guidance of the Camp Provost Marshal (usually a representative from CSTS-DPTM-PMO). Security operations during other-than-AT periods will be performed by the full-time CSTS Security Staff (CSTS-DFE-SCTY).

c. Annex P provides guidance for minimum Military Police support required at Camp Shelby. When personnel or equipment shortages prohibit such support, the Provost Marshal will notify the Camp Commander prior to the AT period in order that the shortages may be corrected or the support requirements adjusted.

5-3. CONFINEMENT: Camp Shelby does not have an approved confinement facility nor is it satellited on any other military installation for this purpose.

5-4. SOLICITORS AND VENDORS:

a. Personal canvass of individuals or organization by agents, sales people, representatives of charitable organizations, or solicitors wil be permitted only when specifically authorized by Training Site Headquarters. When authorized, these activities will be conducted only by appointment, with the approval of individual concerned, and will not be permitted in offices or barracks.

b. Organizations desiring to conduct business operations on this installation will be issued a permit by the Training Site Supervisor when approved by the Camp Commander.

c. Military Personnel as Commercial Agents:

(1) Military personnel will not act as agents, salespeople, vendors, or commercial representatives.

(2) Military personnel will not engage in commercial enterprises which are in any way in competition with facilities of the Army/Air Force Exchange which involve use of quarters or other government permises as a place from which to operate such business.

5-5. OFF LIMIT PREMISES AND BUSINESS ESTABLISHMENTS: Personnel will not enter the premises or establishments declared "off limits".

5-6. RESTRICTIONS AND CONTROLLED SUBSTANCES:

a. The use or possession of controlled substances (narcotics and pharmaceuticals) as specified in the "Mississippi Uniform Controlled Substances Act of 1971" as amended, is prohibited except when authorized under the direction of appropriate medical authorities.

b. Approval for continued use and possession of prescribed controlled substances must be obtained from a Medical Corps Officer within twenty-four (24) hours of arrival at Camp Shelby.

c. The possession of privately owned firearms on the Military Reservation is prohibited.

5-7. LEGAL ASSISTANCE: There will be a staff judge advocate on duty at Camp Shelby as a member of the Camp Commander's staff.

5-8. CLAIMS: The Commander of each detached unit, separate battalion, regiment or equivalent unit, and each higher headquarters will designate on orders a commissioned officer as a claims officer. If practicable, he should be experienced in the conduct of investigations and have had legal training. Claims officers will be guided by the provisions of AR 27-20 w/changes and any other applicable regulations.

5-9. MISSISSIPPI IMPLIED CONSENT LAW:

a. Effective 1 July 1983, this law provides for chemical test or tests for motorists suspected of operating a motor vehicle upon the public highway, roads and streets of the State while under the influence of any substances which has impaired the driver's ability to operate a motor vehicle, or has a .10% or more by weight volume of alcohol in the operator's blood as shown by such test. However, the test or tests may be administered only at the direction of any highway patrol officer, sheriff or duly commissioned deputy sheriff, police officer of an incorporated municipality when such officer has reasonable grounds and probable cause to believe that a person was driving or controlled a motor vehicle upon the public streets, or highways of this State while under the influence of

intoxicating liquor or other substance which impairs such person's ability to operate a motor vehicle.

b. The operation of a vehicle on the streets or highways as above stated gives the consent of the operator to such test or tests, the officers having probable cause and on reasonable grounds shall inform such person that his failure to submit to such test or tests shall result in the suspension of his privilege to operate a vehicle of 90 days if not previously convicted of such operation, and one year if previously convicted. Anyone so arrested shall be immediately informed, after being booked, that he has the right to make a telephone call for requesting legal advise or medical assistance.

c. Due to the limited authority to adminster test or tests, any National Guardsman suspected of operating a motor vehicle on the public streets of Camp Shelby, Mississippi, should be tested under the direction of the sheriff or deputy sheriff of the appropriate county of this State.

d. For informational purposes, rules for obtaining evidence in a suspected DUI case for those military personnel subject to the Uniform Code of Military Justice is summarized at Appendix 1 to this chapter.

APPEN I

RULES FOR OBTAINING EVIDENCE IN A SUSPECTED DWI CASE

(Body Specimen and Behavioral Tests for Evidence)

TYPE OF TEST/ EVIDENCE:	CAN BE CONDUCTED OR OBTAINED WITH CONSENT:	WITHOUT CONSENT:	SHOULD BE CONDUCTED/ OBTAINED BY
1. Behavioral tests requiring active cooperation of accused (includes walking a line, touching nose, picking up a coin, recitation of alphabet, etc.)	YES - But ONLY when request is preceded by advisement of Art 31/counsel rights. (See suggested rights warning attached.) Observations will be recorded on DD Fm 1920, Alchoholic Influence Report.	NO	Military Police (MP)
2. Blood alcohol (taking of blood samples)	YES - Suspect needs only to be informed that he does not have to consent. No Art 31/ counsel warning required.	YES - But only if ordered by Post Cdr in accordance with traditional search and seizure probable cause standard. (See Note 1)	Medical Personnel (MC)
3. Other body fluids (specimens involving intrusion into body, including urine samples)	YES - But only when request is preceded by advisement of Art 31/counsel rights. (See suggested rights warning attached)	NO - See Note 2	Medical Personnel (MC)
4. Breathalzer	YES - Same as 3 above	NO - Same as 3 above.	Military Police (MP)
5. Other biological specimens (not involving intrusion into body or voluntary act by donor) (See Note 3) (Includes hair samples, fingernail scrapings, dried fluid like blood or semen from skin surface, etc.)	YES - Suspect needs only to be informed that he does not have to consent; No Art 31/ counsel warning required.	YES - But only if ordered by Post Commander in accordance with traditional search and seizure probable cause standard. (See Notes 1 and 2)	Medical Personnel (MC)

EVIDENCE:	WITH CONSENT:	WITHOUT CONSENT:	OBTAINED BY
6. Recorded observations (includes odor of breath, steadiness of gait, coherence of speech, clarity of speech, appearance of pupils and eyes, appearance of face, orientation, etc.)	YES - This does not require consent or authorization.	YES - This does not require consent or authorization	MC or MP (See Note 4)

NOTES:

1. The taking of blood or biological specimens not involving an intrusion into the body or volitional act are treated as a search. The order of a competent commander (post commander) is treated as the equivalent of a search warrant, and in issuing the order he is acting as a magistrate. Medical personnel will take samples in compliance with that order unless compelling medical reasons exist to not do so.
2. Biological specimens may not be taken or examined solely at the request of and for the use of civilian law enforcement authorities.
3. The specimens contemplated here will seldom, if ever, be relevant to a suspected DWI situation. They are included, nevertheless, to complete the chart of available test for criminal evidence.
4. Use all available evidence whenever possible. As an example, even where a blood sample has been obtained, MP and MC personnel should also make and record whatever physical observations are possible under the circumstances.

ATTACHMENT 1 TO APPENDIX 1 OF CHAPTER 5

I am (NAMES, RANK, and TITLE). I am investigating the offense of driving a motor vehicle under the influence of intoxicating liquor, of which you are suspected. You are advised that under the provisions of Article 31, Uniform Code of Military Justice, you have the right to remain silent; that is, to say nothing at all. Moreover, you have the right to not engage in physical actions that I will request you to perform, your performance of which may lead to the conclusion that you are intoxicated. Any statement that you make, oral or written, or your performance of physical activity at my request may be used against you in a trial by court-martial or other judicial or administrative proceedings. Furthermore, you have the right to consult with a lawyer. You have the right to have a lawyer present during this interview. You may obtain a civilian lawyer of your own choosing at your own expense or, if you wish, you will have appointed a military lawyer for you free of charge. You may request a lawyer at any time during this interview. If you decide to answer any questions or perform physical activity without a lawyer present, you may stop the questioning or the activity at any time. Do you understand your rights as I explained them to you? (IF THE ANSWER IS NO, EXPLAIN THAT WHICH HE DOES NOT UNDERSTAND.) Do you want a lawyer?

CHAPTER 6

SECURITY

6-1. GENERAL: The protection and safeguarding of property, equipment and information is a function of command. Standard procedures as prescribed by law and regulation will be applied positively to insure the highest standards of security.

6-2. PHYSICAL SECURITY:

a. Civilian security guards and night watchmen, in permanent employment at this Camp, are responsible to the Training Site Commander and are not subject to direction by military personnel. However, the Commander of Troops/LSO Commander will coordinate the internal security of the Camp, where necessary, with these guards through the Training Site Commander.

b. Live ammunition will be issued to sentries of the guard only by order of the Training Site Commander. When such action is considered to be necessary, the Training Site Commander will provide written justification to the Camp Commander specifying authorization, location, etc. Live ammunition will be issued to sentries of the guard only if written approval by the Camp Commander is granted.

c. Organization and unit commanders are responsible for protection of equipment, buildings, areas, installed property and related items issued to them.

d. Specific measures will be taken to preclude the loss of weapons and ammunition. Weapons may be stored in unit arms rooms at the discretion of the commander and IAW AR 190-11. Be advised that many of the arms rooms/unit orderly rooms are NOT equipped with JSIIDS and thus not monitored by Post Security. It is recommended that units store their weapons chained in weapons rack and guarded 24 hours a day.

6-3. DOCUMENT SECURITY AND SECURITY OF INFORMATION:

a. The provisions of AR 380-5 apply in any case where classified defense information is on-hand at this camp.

b. Security containers are not available for issue and, if needed, must be furnished by the organization or unit concerned.

c. Reports of compromise of information and violations of security requirements or espionage laws will be initially processed by the Commander with subsequent arrangements for continuing investigations and actions beyond the period of residency prior to departure from the Camp.

d. Usage of automated data processing equipment for storage and printing of classified information will not be permitted until proper accreditation is received from accreditation authority.

6-4. CRYPTO SECURITY: There are no approved facilities on the Camp for the storage of cryptographic items. Containers (safes) must be brought from home stations or other assets.

6-5. SUBVERSION, ESPIONAGE, AND SABOTAGE: AR 381-12 (FOUO) with CONUS Army supplements applies. The Camp Commander will be informed immediatelyof any indications of attempted subversion or espionage as defined in mandatory military instructions dealing with this subject. Each Commander will be alert to situations of this nature and will be prepared to respond with an objective of precluding or limiting adverse effects.

6-6. THREATCON MEASURES:

a. Camp Shelby Training Site responds to all guidance for uniform implementation of security alert conditions.

b. The four (4) THREATCONS (above Normal) are Alpha, Bravo, Charlie, and Delta.

c. Specific information regarding THREATCON's is found in:

(1) AR 525-13

(2) NGR 500-5

(3) MSARNG PAM 530-1

(4) CSMOPS

(5) Contact CSTS-DPTM, ext. 2768.

CHAPTER 7

REPORTS

7-1. ACCIDENTS AND UNUSUAL INCIDENTS: Camp Headquarters will be promptly informed of important and unusual incidents occuring at Camp Shelby or adjacent areas or involving military personnel on or off Camp Shelby. All accidents should be reported IAW Annex S - Safety. Unusual incidents to be reported immediately include:

a. Accidents involving aircraft.

b. Civil disturbances.

c. Accidents, fires and explosions (Range fires will be reported in accordance with Camp Shelby Range Regulations).

d. Death of military personnel on or off Camp Shelby.

e. Training accidents.

f. Theft or disappearance of government property (particularly arms and ammunition).

g. Incidents that will cause adverse effect upon public relations.

h. Incidents concerning civilian personnel and/or their property.

7-2. STRENGTH REPORTING:

a. Consolidated Strength Report: Troop Command will submit in duplicate to the Training Site Manager, Bldg 1001 - Room 246, a consolidated strength report. This report will be due at 1000 hours Monday and Wednesday of each week of Annual Training. This report will reflect strength figures current as of the date submitted. Strength figures will be reported on Training Site Form 61 (See Appendix 1 this chapter).

b. Seventh Day Strength Certificate: Troop Command will submit to the Training Site Manager, Bldg 1001 - Room 246, a certificate reflecting the strength for the seventh (7th) day of Annual Training period. Training Site Form 62 will be utilized for this strength certificate (See Appendix 2 this chapter).

7-3. MAINTENANCE REPORTS: (Information TBP)

CONSOLIDATED ENGTH REPORT

CAMP SHELBY, MISSISSIPPI

DATE _____

Page ____ of ____ Pages

	ASSIGNED STRENGTH				ACTUALLY PRESENT				ATTACHED PERS ARNG				ATTACHED PERS ACTIVE ARMY				ATTACHED PERS USAR				TOTAL PRESENT			
	OFF	WO	EM	AGGR	OFF	WO	EM	AGGR	OFF	WO	EM	AGGR	OFF	WO	EM	AGGR	OFF	WO	EM	AGGR	OFF	WO	EM	AGGR

TSF 61

HEADQUARTERS_____TROOP COMMAND
CAMP SHELBY, MISSISSIPPI

CERTIFICATE: I CERTIFY THAT THE BELOW LISTED STRENGTH FIGURES ARE CORRECT FOR THE "AT" PERIOD_____ THRU_____19____. FIGURES ARE BASED ON THE 7TH DAY OF ANNUAL TRAINING.

COMPONENT	ACTUALLY PRESENT	ARNG ATTACHED	USAR ATTACHED	ACTIVE/AGR ATTACHED	TOTAL
ARNG (List by States)					
ALABAMA ARNG					
MISSISSIPPI ARNG					
TENNESSEE ARNG					
ARNG					
ARNG					
ARNG					
ARNG					
ARNG					
ARNG					
ARNG					
USAR (List by Units)					
ACTIVE COMPONENT (List by functions)					
ARR					
SITE SUPPORT					
ACCH					
AFFILIATED					
PARTNERSHIP					
CAPSTONE					
MITs					
DACs					
OTHER					
OTHER (Explain)					
TOTAL					

DATE:_____ SIGNATURE:_____

FTS FORM 62R (Revised 15 Nov 1988)

(THIS FORM HAS BEEN REDUCED FOR PUBLICATION)

Blank forms may be obtained from Training Site DRM - 2691

CHAPTER 9

TRAFFIC CONTROL

9-1. GENERAL:

a. Traffic policies contained herein apply to the normal flow of traffic on the reservation. The control of traffic within Camp Shelby will be directed by the designated Camp Provost Marshal. Special situations requiring temporary deviations therefrom will be covered by special instruction from Camp Headquarters.

b. When entering Camp Shelby, the driver subjects himself and his vehicle to search while on the reservation, by the Military Police.

c. The Military Police may inspect or cause to be inspected for mechanical condition, any vehicle that is operated at the Camp. He may, if necessary, impound, exclude or remove from the reservation any vehicle that is used as an instrument in a crime, suspected of being stolen, found abandoned or improperly parked.

d. Seat belts must be worn by all occupants of any vehicles operated on Camp Shelby.

9-2. MECHANICAL SAFETY STANDARDS: All motor vehicles operating on the reservation must be in good repair and meet the mechanical safety standards.

9-3. EMERGENCY VEHICLES: Authorized emergency vehicles are ambulances, fire trucks, military police vehicles and others designated by the Camp Commander. They will be appropriately equipped with a flashing light and/or siren.

9-4. OBEDIENCE TO TRAFFIC CONTROL DEVICES: Drivers will comply with traffic control devices, except deviations permitted emergency vehicles.

9-5. SPEED LIMITS:

a. Posted speed limits on the Camp Shelby Reservation apply to both military and civilian vehicles.

b. Where no speed limit signs are posted the maximum speed will be 25 MPH.

c. Vehicles will reduce speed to 10 MPH or less when meeting or passing troops in formation on roads and streets.

d. Tactical vehicles will not exceed 45 MPH.

9-6. RESTRICTED AREAS:

a. No vehicles will pass signs stating "NO VEHICLES ALLOWED BEYOND THIS POINT".

b. No parking will be allowed on road shoulders, except for emergencies.

c. No convoy will be halted within a distance of 12 miles from the city limits of Hattiesburg, nor will they be halted within a 12 mile radius of the entrance to Camp Shelby.

d. Stopping of convoys on Grapevine Road between Forrest Avenue and Barron Point is expressly prohibited, except in cases of extreme emergency.

e. No wheel or track vehicle will be operated on Hagler Army Airfield without authorization of the Airfield Commander. Those vehicles authorized to operate on the Airfield will be properly marked IAW AR 746-5.

9-7. PARKING:

a. Parking of Civilian Vehicles: The parking of all civilian vehicles will be confined to those areas identified for them by the Camp Engineer.

b. The Stopping or Parking except to avoid traffic congestion or in compliance with a traffic order or device in any of the places listed below is prohibited:

(1) Within fifteen (15) feet of a fire hydrant.

(2) Within twenty (20) feet of an intersection.

(3) Along side any vehicle (double parking) except in angle parking where permitted.

(4) Where prohibited by official signs.

(5) Upon lawns or in grassed areas.

(6) At dining facilities except when loading or unloading.

9-8. OPERATION OF VEHICLES:

a. Crossing road intersections between vehicles in a moving convoy is prohibited.

b. "U" turns are prohibited.

c. The driver of a vehicle emerging from an alley, driveway, unmarked street or building shall stop such vehicle immediately before approaching.

d. Drivers of vehicles on approach of authorized emergency vehicles will, at the sound of siren, horn bell or other warning device, pull to the right hand curb and stop, clear of any intersection and remain in such position until the emergency vehicles has passed, except when otherwise directed by traffic police.

e. During hours of darkness all drivers will switch to parking lights when approaching entrance gates to Camp Shelby.

9-9. PEDESTRIANS TO OBEY TRAFFIC CONTROL DEVICES: Pedestrians shall obey all traffic control devices.

a. Pedestrians shall have the right-of-way at all intersections and crosswalks.

b. Pedestrians, including small troop details, shall use sidewalks and where not available, shall walk on the left side of the road, facing traffic.

c. Troops marching in column have the right of way over all other traffic except emergency vehicles and shall march on the right side of the road as near the curb as possible.

d. Unit Commanders will be responsible for safe movement of foot troops on roadways and will:

(1) Have flank guards halt traffic from all directions when crossing roadways or intersections.

(2) Use flank movements to cross roadways.

(3) Avoid heavily traveled roadways whenever practical.

9-10. ACCIDENTS:

a. The driver of any vehicle involved in an accident will stop immediately as close to the scene as possible without obstructing and will:

(1) Render or secure such first aid as necessary.

(2) Report accident to military police, giving his or her name, rank, SSN, organization and location of accident. In case of civilian personnel, the above will apply with the exception that the place of employment and address will be given instead of rank, organization and SSN.

(3) Thereafter remain at the scene until released by Military Police.

b. The driver of any vehicle which is involved in an accident will give his name, address, and vehicle license number, and exhibit his operator's license upon request to any person injured, to any occupant of vehicle collided with, or to any person acting for such persons. He shall render all possible assistance to any injured person.

c. The driver of any vehicle which has collided with an unattended vehicle, will immediately stop, leave in a conspicuous place in the other vehicle a written notice containing his name and address and statement of the circumstances and notify Military Police.

d. The driver of a vehicle involved in an accident will immediately report the accident to the Provost Marshal's Office, giving his name, address (organization in the case of military personnel, place of employment in case of civilian personnel), and will thereafter remain at the scene until relieved by the Military Police.

e. When driver of a vehicle is physically unable to report as required in subparagraph 9-10d above, and there is another person in the vehicle, such person will make, or cause to be made, said report.

f. Accident reports will be prepared and submitted IAW appropriate regulations and information contained in Annex S - Safety.

9-11. REGISTRATION OF PRIVATELY OWNED VEHICLES: Each owner of a privately owned vehicle operated at Camp Shelby is responsible for registering the vehicle with the Camp Provost Marshal (Bldg 704) in the manner prescribed by the PM.

9-12. TRACKED VEHICLE:

a. All bridges on the Camp Shelby Reservation will be crossed at low speed.

b. At track/wheeled wash point area on Warehouse Avenue, vehicles will stay on roads and off road shoulders to prevent damage to water pipes.

c. Tracked vehicles are restricted from all areas North of Forrest Avenue and all areas West of 5th Street and North of Andrews/Warehouse Avenue. Restricted areas are marked.

d. Tracked vehicle columns will be preceded and followed by a wheel vehicle. Lights of all vehicles will be turned on during movement. Black out driving columns will have an additional lead and trail vehicle well to the front and rear of columns to warn any approaching traffic of the blacked out column. Refer to Annex C, Section A, para. 9-e for further guidance.

e. At any time a tracked vehicle crosses a street or road that is not blocked, traffic guards will be posted to control oncoming traffic.

f. All tracked vehicles will have a commander as well as a driver at any time the vehicle is preparing to move or is moving. Those vehicles having the capability of intercommunications between the commander and driver will have this communication in operation.

g. Track vehicles moving into and away from wash points will have a ground guide to precede them.

h. Track vehicles in Camp Shelby cantonment area will utilize intersection pivot pads for turning.

9-13. CONVOY MOVEMENTS:

a. Convoy movements will be conducted under the provision of the 55 series of regulations, pamphlets and manuals governing movement of troops

and material by motor transport. Drivers will be trained, tested and will carry on their person proof of licensing. Safety measures will be given top priority. The procedures for requesting authority to move troops and material and the method of granting such authority is contained in subsequent paragraphs.

b. Forms: The following forms are available and should be stocked by units for use in requesting movement authority: DD Fm 1265, Request for Convoy Clearance (TM 55-312) and DD Fm 1266, Request for Special Hauling Permit (AR 55-162). Proper completion of forms is essential. Recommend use of AGO Form 753 (See Appendix 1, this Chapter) as a checklist guide to assist in document preparation.

c. Administrative Convoys: All request for administrative motor convoy clearance will be submitted to the Troop Command utilizing DD Fm 1265. If a special hauling permit incident to oversize and/or overweight equipment is required, the request will be submitted on DD Fm 1266. Request must be submitted to arrive in the office of the Troop Command NLT 15 days prior to the anticipated move.

(1) Camp Shelby, MS:

a. Approving authority. Camp Shelby, MS operates under the Troop Command concept. The Troop Command is the approving authority for administrative motor convoy moves into Camp Shelby and for returns to home station. The Troop Command issues instructions at pre-camp conference concerning the method and suspense date for submission. Units have the responsiblity for obtaining this information on their own initiative should the Troop Command fail to disseminate instructions. The Troop Command will receive, edit, and modify as required, data from units and will issue a consolidated movement table confirming movement approval.

b. Procedure. All military units, active or reserve component, convoying to Camp Shelby will submit DD Fm 1265 to the appropriate Troop Commander NLT 45 days prior to beginning of encampment unless advised differently by the Troop Command. A copy of the DD Fm 1265 will be provided the MS-DOL-DMC for information purposes. In the event the Troop Command is the MS Army National Guard, DD Fm 1265 will be submitted directly to:

Military Department
State of Mississippi
ATTN: MS-DOL-DMC
P.O.Box 5027
Jackson, MS 39296-5027

In the event a unit is scheduled to attend AT at Camp Shelby, but does not intend to arrive by military convoy, the TC Officer, USF&FO-MS or the appropriate Troop Command will be advised by letter.

(2) Line Hauls approved by Troop Command:

a. Training stations other than Camp Shelby, MS. Units concerned will comply with station SOP for scheduling convoys into that station. If a DD Fm 1265 is required by the training station, a copy will

be furnished to the Trp Cmd for information. If clearance for special hauling is required, submit DD Fm 1266 directly to the Trp Cmd NLT 3 days prior to the anticipated move.

d. Special Instructions:

(1) All convoys arriving VIC Camp Shelby will be routed around the Hattiesburg Business District by way of I-59 and US 98 bypass. See Appendix 2, this chapter for convoy routing map.

(2) The North Gate (Lee Ave off US 49) will not be used by convoys arriving at Camp Shelby, but may be used for departing convoys. East Gate (Lee Ave off US 98) and South Gate (South Gate Road off US 49) will be used for convoy entry or departure.

(3) No convoys will be scheduled to depart Camp Shelby except during daylight hours.

(4) Any night move outside of AT period, must be coordinated with Range Control. Refer to Annex C, Section A, para 9 for further guidance on convoy movement in training areas.

9-14. MISCELLANEOUS:

a. Vehicles shall not be operated with more than three (3) persons in front seat or so loaded as to obstruct the driver's view to the front, sides, or rear, or to interfere with his control of the driving mechanism.

b. No person will throw or deposit upon any roadway any glass bottles, glass, nails, wire, tack cans or any substance likely to injure any person, animal, or vehicles upon such roadway. Any person who drops or permits to be dropped or thrown on any roadway any destructive or injurious material, will immediately remove or cause it to be removed.

c. Persons removing a wrecked or damaged vehicle from a roadway shall be responsible for the removal of any glass or other injurious substances dropped therefrom.

d. Whenever the load on any vehicle extends to the rear four feet or more beyond the bed of body of such a vehicle, there shall be displayed at the extreme rear of the load a red light or lantern during hours of darkness, or during daylight hours a red flag or cloth not less than twelve (12) inches square and so hung that the entire area thereof is visible to the driver of any approaching vehicle.

e. Motorcycles, motorscooters, and other motorized two wheeled vehicles will not be operated on Camp Shelby unless the operator is wearing a crash helmet of the type and design inspected and approved by the American Association of Motor Vehicle Administrators.

f. Operators of military vehicles will be dressed in appropriate military uniforms. Violators will be stopped by the Military Police. Exceptions to this are CSTS civilian employees operating installation motor vehicles.

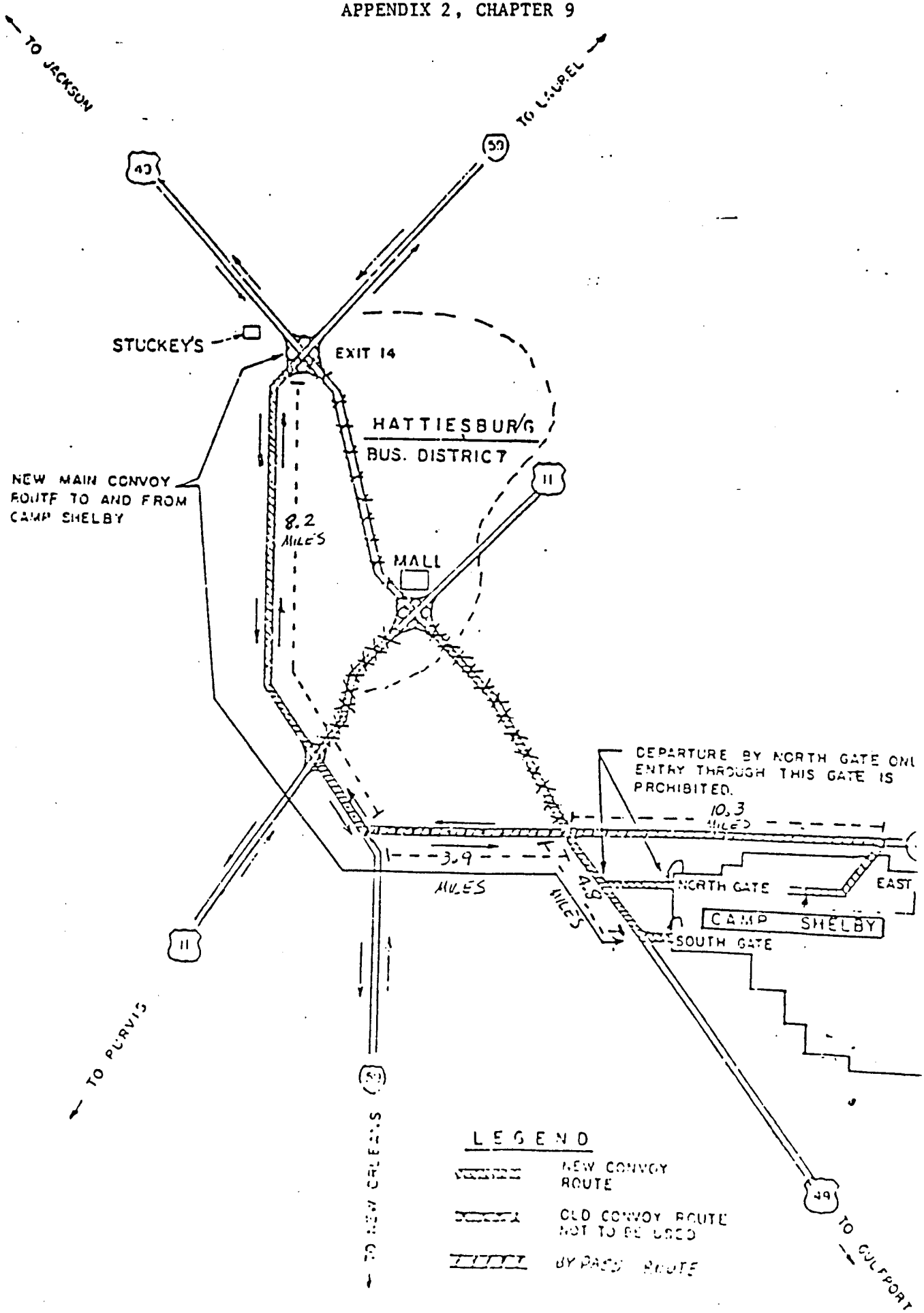
MILITARY DEPARTMENT, STATE OF MISSISSIPPI, MS-DOL-DMC, POST OFFICE BOX 5027, JACKSON, MISSISSIPPI 39296-5027

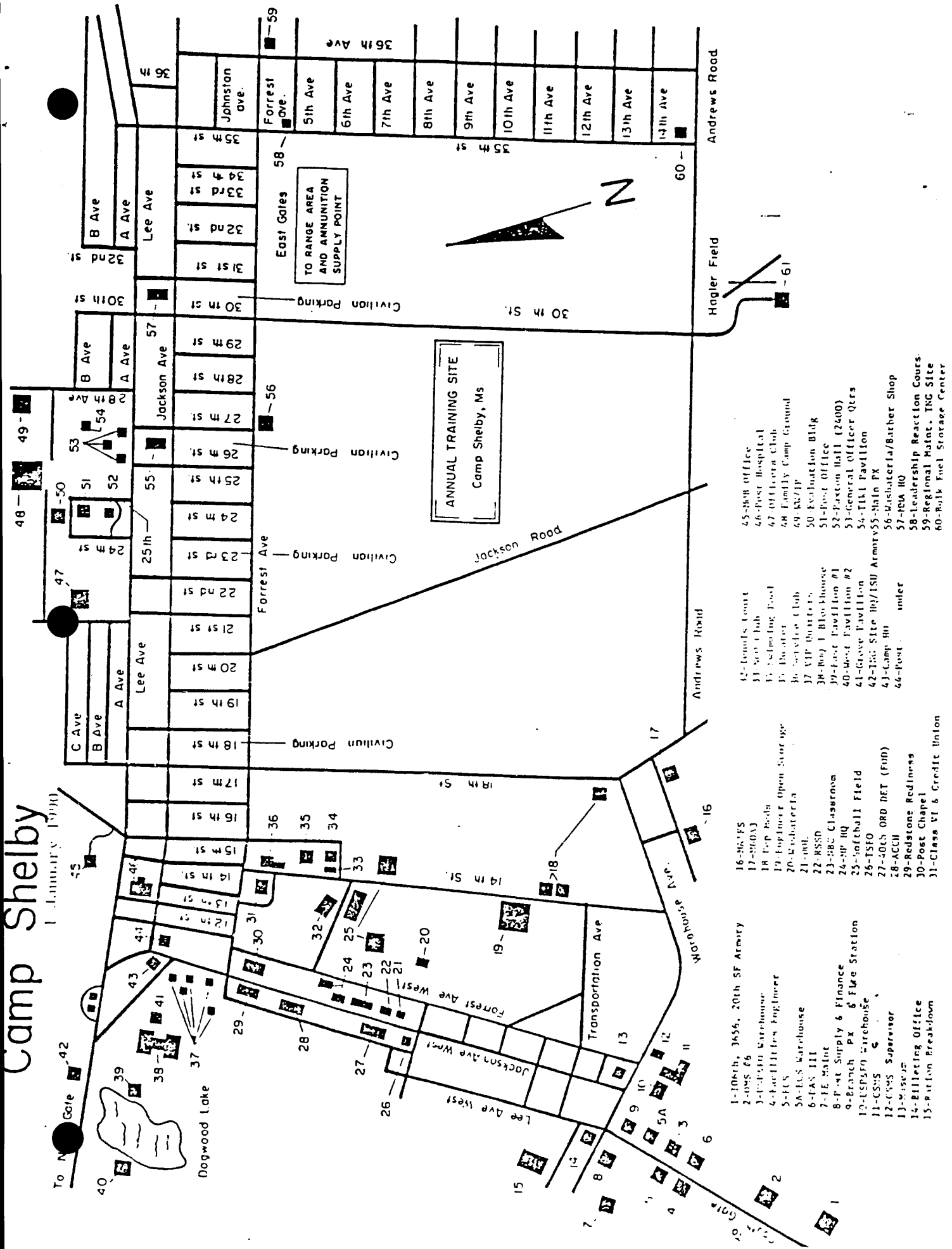
TO: _____ DATE: _____

_____

X	BLOCK	ITEM REQUIRING CORRECTION
		ATTACHED DD FORM(S) 1265 RETURNED FOR CORRECTION AND RESUBMISSION AS SPECIFIED BELOW.
	1	ENTER COMPLETE UNIT DESIGNATION TO INCLUDE UIC.
	2	ENTER COMPLETE HOME STATION ADDRESS TO INCLUDE 9-DIGIT ZIP CODE AND PHONE NUMBER(S).
	3	ENTER RANK/NAME OF CONVOY COMMANDER. IF NOT FTM, INCLUDE RANK/NAME OF FTM KNOWLEDGEABLE IN REQUEST.
	4	ESTIMATE NUMBER OF PERSONNEL TO BE IN CONVOY. MUST BE MINIMUM OF 2 PER VEHICLE.
	5	ENTER LOCATION WHERE MOVE BEGINS.
	6	ENTER LOCATION WHERE MOVE ENDS.
	7A	ENTER DATE/TIME GROUP (DATE/TIME/MONTH/YEAR) MOVE BEGINS. (EXAMPLE: 210900 OCT 87)
	7B	ENTER DATE/TIME GROUP (DATE/TIME/MONTH/YEAR) MOVE ENDS. (EXAMPLE: 072145 OCT 82)
	8	ENTER RATE OF MARCH. MUST NOT EXCEED 45 MPH FOR CONTROLLED ACCESS HIGHWAYS OR 40 MPH OTHERWISE.
	9	ENTER NUMBER OF PRIME MOVERS. INCLUDE MODEL # AND OFF-ROAD RATED TONNAGE. INDICATE TOWED EQUIP AS 'W/TRAILER.'
	10	ENTER TOTAL NUMBER OF PRIME MOVERS INDICATED IN BLOCK 9.
	11	ENTER TOTAL NUMBER OF VEHICLES OVERSIZE, OVERWEIGHT OR CARRYING HAZARDOUS CARGO. IDENTIFY EACH IN BLOCK 20. SUBMIT DD FORM(S) 1266 IF OTHER THAN '0' IS ENTERED.
	12A	NUMBER OF SERIALS: ENTER '1'.
	12B	TIME INTERVAL BETWEEN SERIALS: ENTER 'N/A'.
	13A	ENTER NUMBER OF MARCH UNITS. (25 VEHICLES PER MARCH UNIT MAXIMUM) MUST NOT EXCEED 8 MARCH UNITS PER CONV
	13B	ENTER TIME INTERVAL BETWEEN MARCH UNITS. (5 MINUTES MINIMUM) IF ONLY ONE MARCH UNIT, ENTER 'N/A'.
	13C	ENTER PASS TIME IN LOWER R-HAND CORNER OF BLOCK 9. (3 MINUTES PER MARCH UNIT PLUS INTERVAL(S) BETWEEN EACH)
	14	ENTER PROPOSED ROUTING IN CHRONOLOGICAL ORDER ALONG WITH CARDINAL DIRECTION OF TRAVEL (N, E, S, W)
	15	ENTER ETA AND ETD AT STATE LINES, MAJOR ROAD JUNCTIONS, MAJOR BRIDGES, TUNNELS, METROPOLITAN AREAS, SP, RP, HALT SITES, RON SITES OR OTHER CRITICAL POINTS. MUST INCLUDE MOTOR POOL SP OR RP IF TRAVELING TO CP SHELBY. (ENTER ALL TIMES IN LOCAL 'SIERRA' TIME. IF CONVOY CROSSES TIME ZONE(S), INDICATE TIME ZONE FOR EACH TIME.)
	16	ENTER BRIEF GENERAL DESCRIPTION OF CARGO.
	17	CHECK 'YES' IF EXPLOSIVES ARE TO BE TRANSPORTED. ENTER COMPLETE DETAILS. OTHERWISE, CHECK 'NO'.
	18	'YES' WAS CHECKED IN BLOCK 17. STATE WHY EXPLOSIVES CANNOT BE TRANSPORTED COMMERCIALLY. OTHERWISE, ENTER 'N/A'
	19	CHECK 'YES' IF LOGISTICAL SUPPORT IS REQUIRED AT RON SITE(S) AND COMPLETE LOWER PORTION. 'N/A' OTHERWISE.
	20	ENTER EXPLANATORY REMARKS. IDENTIFY WHETHER MOVE IS ADVANCE PARTY, MAIN BODY, REAR DETACHMENT, ETC.
	21	ENTER REQUESTING UNIT DESIGNATION.
	22	LEAVE BLANK.
	23	TYPE OR PRINT NAME, GRADE AND TITLE OF REQUESTING OFFICIAL.
	24	LEAVE BLANK.
	25	ENTER DATE SIGNED BY REQUESTING OFFICIAL.
	26	ENTER SIGNATURE OF REQUESTING OFFICIAL NAMED IN BLOCK 23.
	27	LEAVE BLANK.
	28	LEAVE BLANK.
		OTHER:

AGO Form 753 (ASD USE ONLY) (27 Feb 91)


TO JACKSON
TO LAUREL
49
59
STUCKEYS
EXIT 14
HATTIESBURG
BUS. DISTRICT
11
NEW MAIN CONVOY ROUTE TO AND FROM CAMP SHELBY
8.2 MILES
MALL
DEPARTURE BY NORTH GATE ONL
ENTRY THROUGH THIS GATE IS PROHIBITED.
10.3 MILES
3.9 MILES
4.9 MILES
NORTH GATE
EAST
CAMP SHELBY
SOUTH GATE
TO PURVIS
TO NEW ORLEANS
LEGEND
NEW CONVOY ROUTE
OLD CONVOY ROUTE NOT TO BE USED
BY PASS ROUTE
TO GULFPORT


Camp Shelby
ANNUAL TRAINING SITE
Camp Shelby, Ms
East Gates
TO RANGE AREA AND ANNUNITION SUPPLY POINT
Hagler Field
Andrews Road
Jackson Road
Forrest Ave
Civilian Parking
Transportation Ave
Warehouse Ave
Forrest Ave West
Jackson Ave West
Lee Ave West
Dogwood Lake
Johnston ave.
Lee Ave
Jackson Ave
B Ave
A Ave
C Ave
30th St
31st St
32nd St
33rd St
34th St
35th St
36th Ave
5th Ave
6th Ave
7th Ave
8th Ave
9th Ave
10th Ave
11th Ave
12th Ave
13th Ave
14th Ave
25th
1-10th, 36th, 20th SF Armory
2-105 FG
3-[illegible] Warehouse
4-Facilities Engineer
5-EOD
5A-EOD Warehouse
6-EAC III
7-EE Maint
8-Post Supply & Finance
9-Branch PX & Fire Station
10-USPFO Warehouse
11-CSMS
12-CMS Supervisor
13-Museum
14-Billeting Office
15-Ration Breakdown
16-MCRS
17-MWR
18-Rec Bldg
19-Engineer Open Storage
20-Bachelorette
21-[illegible]
22-RSSB
23-BBC Classroom
24-MP HQ
25-Softball Field
26-TSFO
27-40th ORD DET (FMD)
28-ACCH
29-Redstone Redliners
30-Post Chapel
31-Class VI & Credit Union
42-Family Court
43-Golf Club
44-Swimming Pool
45-BOB Office
46-Post Hospital
47-Officers Club
48-Family Camp Ground
49-KP/PP
50-Evaluation Bldg
51-Post Office
52-Paxton Hall (2400)
53-General Officer Qtrs
54-Tiki Pavilion
55-Main PX
56-Washateria/Barber Shop
57-MDA HQ
58-Leadership Reaction Course
59-Regional Maint. TNG Site
60-Bulk Fuel Storage Center
61-Hagler Field
Gate
To N
Page C-11-33

CHAPTER 10

TRAINING OPERATIONS

10-1. GENERAL: Training is a function of command and is the primary purpose for the existence of this Camp. The concept is that the commanders' estimate considers the Camp facilities assigned or allotted for training of his unit and subsequent training management by the Commander will insure attainment of training objectives with the least expenditures of time, effort, and resources with safety of primary concern.

10-2. MANAGEMENT OF TRAINING AREAS:

a. During the period 15 May through 31 August, Camp Shelby is utilized by National Guard and USAR units undergoing Annual Training. Camp Shelby is available for training during other time periods except for during the deer seasons where the Mississippi Department of Wildlife Conservation allows the use of dogs for hunting. This is normally the last two weeks of November, the last two weeks of December, and the first two weeks of January. See paragraphs b and c below for scheduling procedures.

b. Scheduling Procedures - Annual Training Periods:

(1) Scheduling of all Ranges, Firing Points, Training Areas and Training Facilities will be approved by the AT Period's Troop Command.

(2) NLT 1 December of each year, DPTM, Camp Shelby will mail an LOI, current AT Range and Training Area Matrix, and necessary blank forms to each Troop Command. This LOI will outline scheduling procedures to include any special instruction.

(3) Each Troop Command will task their subordinate AT units to submit all range, firing point, training area, and training facility request for the AT period back to Troop Command. These request should be submitted to Troop Command on an ATS Form 47 (Request for Ranges/Firing Points/Training Areas/Facilities). Troop Command will then consolidate these requests, resolve conflicts if necessary, and reflect these requests on the Range and Training Areas Matrix.

(4) This matrix (with supporting ATS Form 47's) will be brought to the AT Period's Pre-Camp conference, at which time, representatives from Range Control will be available at the training break out to assist in resolving any questions/conflicts that still exists.

(5) A cut-off date will be established sixty (60) days prior to the start of the AT period for all scheduling done by Troop Command. After this date, all scheduling will be done through Range Control, and Range Control may, at its discretion, allow other units not associated with the AT period to use ranges/facilities not already scheduled on the matrix. Troop Command will furnish an updated copy of matrix to Range Control by the scheduling cut-off date.

c. Scheduling Procedures - Weekend and Other Than AT Periods: See Section A, Para 5, Camp Shelby Regulations (Annex C - Range Regulation) for procedures.

d. All digging/excavation larger than two-man foxholes must be approved by Facility Engineers prior to training. All digging/excavation must be performed and rehabilitated IAW Annex G, Camp Shelby Regulations.

10-3. TRAINING INVOLVING LIVE AMMUNITION:

a. Established ranges and firing points designed to comply with regulations governing firing of live ammunition (AR 385-63) are defined in Annex C, (Range Regulation) this regulation, published separately. Live ammunition may be fired only on these ranges and firing points, unless other areas are specifically approved for that purpose by the Camp Range Control Officer.

b. The Range Control Officer is stationed at the Range Control Center (Coordinates: BK 935-479, Map MS 1:50,000, New Augusta Sheet). The Range Control Officer will:

(1) Enforce the provisions of the Camp Shelby Range Regulations.

(2) Post range barricades.

(3) Issue pertinent items of equipment.

(4) Open ranges and firing points, grant clearance to fire when requested, close ranges and firing points, cause firing to cease when a need indicates, and clear ranges and firing points.

c. Prior to entering on or using any range, including impact and danger areas, coordination will be effected with the Range Control Officer. Additionally, user personnel must be knowledgeable of the Camp Shelby Range Regulations and DA Regulations, Field and Technical Manuals, and by their personal conduct, demonstrate such knowledge.

d. Camp Shelby Restricted Airspace (R-4401) encompasses all live fire positions utilized on the reservation. The boundaries of R-4401 are displayed on maps located at Hagler AAF, Main Dispensary, and the Range Control Center. Aircraft will not enter the R-4401 without authority from the Range Control Center. Only those aircraft with valid reasons will be granted permission to enter R-4401 and land at approved landing points. Prior to take-off from landing point, aircraft must call Range Air Control and obtain permission to lift-off and exit Restricted Airspace. All necessary information - boundaries, entry/exit points, and procedures, etc., will be given to all pilots or can be obtained at the three (3) above listed locations.

10-4. SPECIFIC INFORMATION REGARDING TRAINING AREAS/FACILITIES: (See Annex C - Range Regulations)

10-5. DAILY TRAINING BRIEFS: A brief showing the exact location and a summary of planned activities for each unit will be compiled and issued daily covering the following day. Information will be collected and consolidated within the chain of command for publication by the Troop Commander.

10-6. TRAINING AIDS:

a. Maps - Procurement of maps covering the area is found in Annex D, Logistical Support Procedures, this regulation, which is published separately.

b. Training Aids: A Training-Audiovisual Support Center Annex (Bldg 622) has been established to accomplish training aids support. Units desiring assistance in this area can have their training aids representative coordinate with the TASC representative at ext 2520, bldg 622.

10-7. FREQUENCY ALLOCATIONS: Radio frequencies are allocated by TAG-MS. Forward requests to or contact:

Mississippi Military Department
MS-DOT-O
P.O. Box 5027
Jackson, MS 39296-5027
Phone: (DSN) 637-6315/316
(CML) (601) 949-6315/316

10-8. POLICE OF RANGES AND TRAINING AREAS:

a. A continuing neat and orderly appearance, maintenance of high standards of sanitation and proper disposal of refuse, debris or residue will be assured by actions and orders within the chain of command.

b. Police of training areas will include adjacent roads, road shoulders, ditches and the immediate areas on the opposite side of the road if the area is unassigned.

c. Troop Commander is overall responsible to insure that all roads, road shoulders, road ditches and adjacent areas are adequately policed.

10-9. CLEARANCE FOR POLICE OF RANGES AND TRAINING AREAS:

a. The Camp Range Control Officer will provide for inspection and release of units using ranges on daily basis.

b. Units will be released from responsibility for training areas based on inspection and final acceptance of the area at the conclusion of the training period. Where an area is occupied by a unit during the early phase of camp and another unit subsequently is to occupy the area, the senior headquarters that has operational control over both units will provide for appropriate clearance of the first unit.

c. The assignment of an area, whether used or not, constitutes assignments of responsibility of the area.

d. Each succeeding higher headquarters must clear subordinate units and subsequently request clearance from the next higher headquarters.

10-10. OPERATION OF CAMP SHELBY RAPPELLING TOWER:

a. Purpose and scope. This regulation provides a general standard for the safe operation and use of the Camp Shelby Rappelling Tower. Prescribes the general precautions to be observed and procedures to be followed by units using the Rappelling Tower.

b. Request Procedures. See Annex C (Range Regulations), Section A, Para 5 for request procedures.

c. Equipment Required. Equipement utilized in the conduct of rappel training from the Camp Shelby Rappel Tower is the responsibility of the using unit. At a minimum, the equipment will consist of the following:

(1) Nylon climbing rope, 120 foot length, NSN 4020-00-931-8793 (commercial substitutes may be utilized provided they are seven-sixteenths of an inch in diameter and have a tensile strength of 3,840 pounds).

(2) A double rope will be utilized on all rappels.

(3) All rappellers must wear a kevlar helmet with chin strap fastened, BDU shirts must be tucked tightly into the trousers. Personnel are prohibited from rappelling with only the T-shirt on as upper garment as the T-shirt has a tendency to become entangled in the rappellers snaplink. Gloves are also required.

(4) No more than four personnel (2 rappellmasters and 2 rappellers) will be on the tower platform at any time. All rappellmasters must wear safety lines at all time while on the platform.

(5) A qualified medic with suitable evacuation vehicles will be present during all rappel training.

(6) All personnel must successfully demonstrate their ability to conduct wall rappels from the tower prior to conducting rappels from the helicopter simulator side of the tower.

d. Personnel Requirements and Responsibilities: Prior to the commencement of rappel tower training, the unit commander will insure that qualified rappellers are appointed in the following positions and that each individual is totally familiar with his duties and responsibilities:

(1) Principal Trainer. This individual has primary responsibility for operation of the tower and associated training. He will insure through performance oriented training that all rappellers receive instruction in the preparation of rappel seats as well as attachment of snaplink to the rappel seat and the proper hook-up method to the rappel rope. He will also brief all assistants on the contents of this regulation and insure implementation throughout the training phase.

(2) Assistant Trainers (Rappellmasters). Two assistant trainers

will be positioned on the tower platform. They have primary responsibility for the hook-up to the rappelling rope of each rappeller and will physically check each rappellers rappel seat and hook-up prior to the conduct of the rappel. They also have primary responsibility for securing of the rappelling ropes so the anchor knot will not work itself loose when alternating tension and slack are applied.

(3) Ground Safety Personnel (Belayman). Two personnel will be appointed to perform this duty, one for each rappel installation. Their primary responsibility is to brake rappellers that lose control during descent; this is done by walking away from the tower with the running ends of the rope thereby taking the slack out of the rappel rope.

(4) Safety Officer. Has overall responsibility not only for the safe conduct of training, but also for inspection of equipment and rappelling tower itself. He also insures that medical support is on-station and conducts his inspection as outlined in Appendix 1, this chapter.

e. Inspections and Certification of Rappelling Tower. Inspection of the Camp Shelby Rappelling Tower will be conducted as follows:

(1) Safety Officers of using units will conduct inspections of the tower prior to conducting rappel training.

(2) The Facility Engineer Officer of Camp Shelby will conduct a structural inspection annually and certify the tower for rappel training.

f. References: Section II of Appendix F, of Change 1/2 to FM 57-38, dtd 2 Jul 70, Pathfinder Operations.

APPENDIX 1

RAPPEL SAFETY OFFICER CHECKLIST

1. Tower Inspection

____ Access. Ladder - Insure that ladder is adequately secured to the structure and that ladder supports are not rotten or broken.

____ Platform Guard Rails - Insure that rails are sturdy and would in fact prevent an individual from accidently falling off the tower.

____ Anchor Point - Insure that the anchor point is securely affixed to the structure. Upon installation of ropes to the anchor point, check to insure that the knot will not work itself loose, again test the anchor point.

____ Platform and Wall - Check to insure that they are dry, clean and free of hazards.

____ Structural Lumber and Timbers - Check for any visible cracks or deterioration.

**Any discrepancies detected during the tower inspection will be reported to the Camp Shelby Facilities Engineer and the State Safety Officer. If any discrepancy is found and is considered a safety hazard to personnel training, the tower will be closed to training until the discrepancy is corrected.

2. Equipment Inspection

____ Snaplinks - Check the gate for spring pressure and proper locking, insure that gate locks under tension. Inspect all snaplinks to be used.

____ Gloves - Inspect for serviceability, gloves with holes in them will not be used.

____ Rappel Ropes - Carefully inspect each rappel rope for excessive wear and frayed, cut, mildewed or rotten spots. If such spots are located, the rope will not be used for rappelling, but may be used as sling ropes provided the defective spots are cut out.

____ Sling Ropes - Same inspection as for rappel ropes.

_____
(Safety Officer Signature and Rank)

_____
(Date)

PASSENGER MANIFEST

Name (last & initials)	Grade	SSN	Unit Assigned

11-A-1-2

CARGO / BAGGAGE

Description	Dimensions	Weight

AGO FORM 21
27 APR 90 (Local Reproduction Authorized)

CHAPTER 11

AVIATION

11-1. GENERAL:

a. HAAF is non-operational throughout the year, except during summer camps (usually 1 May - 1 Sep). Any air traffic during other-than-AT periods is controlled through Range Control.

b. An SAO representative will be on site for all AT periods.

c. All aviation support is requested through the State Aviation Office (SAO) using AGO Form 21 (See attached).

d. Any non-military aircraft passengers will be approved only by TAG-MS and these individuals must sign a MSARNG Aviation Release Form.

11-2. CIVIL AIRCRAFT USING HAGLER ARMY AIRFIELD: All civilian aircraft using Hagler AAF must comply with AR 95-15 dated 15 Jul 83. No civil aircraft will be landed at Hagler Army Airfield without prior approval. Request for approval should be submitted to the Camp Commander, Camp Shelby, ATTN: Camp Aviation Officer and will include the following:

a. Make and model of aircraft

b. Color of aircraft

c. Number of people on board

d. Time and date of arrival

e. Length of stay

f. Reason for requesting use of field

g. Two-way radio communication capability

11-3. SPECIFIC INFORMATION REGARDING AVIATION:

a. Annex T - Aviation

b. Annex C - Range Regulation

c. Hagler Army Airfield (HAAF) SOP

d. MS-AO Policy Letter (9-90), dated 26 Apr 90

e. AR/NGR 95-3

f. State Aviation Office (SAO): (DSN) 637-6297 or (CML) (601) 949-6297

AVIATION SUPPORT REQUEST

_____
Date

FROM _____ THRU _____

THRU _____ TO _____

TYPE MISSION
NGR 95-3

OPERATIONAL
Para 3-2

OSA
Para 3-6

SPECIAL
Para 3-4

PURPOSE _____

_____

ITINERARY

Date	Depart	Time	Arrive	Time	POC & Phone

PASSENGER MANIFEST

Name (Last & Initials)	Grade	SSN	Unit Assigned

Additional Passenger & Cargo/Baggage Manifest (reverse side)

TYPE AIRCRAFT _____ Crew Available YES ___ NO ___ Crew TDC Code ____

OSA FLIGHTS: I certify this mission is priority _____ and PUJC Code _____

REMARKS: _____

_____

( ) MISSION APPROVED
( ) MISSION DISAPPROVED

_____
Trng Cmd Cmdr/CofS/Div Chief

_____
OSA Validator/Date

_____
Aircraft Coordinator/Date

AGO FORM 21
27 APR 90 Electronic Reproduction Authorized

Mission
Accomplished

CHAPTER 12

LOGISTICS

12-1. GENERAL:

a. This chapter provides guidance, coordinating instructions and designates responsibilities for all activities involved in logistical support for units participating in Annual Training (AT) at CSTS.

b. The policies and procedures outlined in this base regulation and in the Logistics "Annex D" apply to all units performing AT at CSTS.

12-2. RESPONSIBILTIES:

a. The Camp Command Logistics Officer has overall responsibility for ensuring that adequate logistical support is provided for the AT period. Additionally, the Camp Command Logistics Officer resolves any logistical problems that might occur between the Troop command, the Active Component Control Headquarters or the Camp Shelby Training Site (CSTS).

b. The Troop Command G4 has the responsibility to ensure that adequate logistical support is provided to all units under the operational control of the Troop Command. In the event the Troop Command G4 has exhausted all means within his power to resolve an issue with no result, he should elevate the issue to the Camp Command Logistics Officer.

c. The CSTS Director of Logistics (DOL) has the responsibility to provide all of the logistical support within his capacity. The CSTS DOL has a limited staff with limited resources.

d. The Active Component Control Headquarters (ACCH) has the responsibility to provide logistical support to the 2USA Evaluators, Redstone Readiness Group Assistors, the NBC School and assigned personnel.

e. The Logistical Support Operation (LSO), when so requested by CSTS, has the responsibility to provide Combat Service Support (CSS) units to support the AT period. Additionally, the LSO exercises operational control over the CSS units and ensures that they have a valid training mission during the AT period. The LSO operates as a major command element under the operational control of the Camp Commander.

12-3. LOGISTICAL SUPPORT:

a. The CSTS-DOL provides Class I, III (Fuel only) and V support; janitorial and single/food service items; dining facility equipment; a laundry contract for linens and cooks' white uniforms; and medical supplies for the Troop Health Clinic. The CSTS-DOL is also responsible for billeting, special services, telecommunications and medical coordination.

b. Maintenance support is provided by a DS maintenance company during AT periods. This DS maintenance company is under the operational control

or the LSO. The Combined Support Maintenance Shop (CSMS) can provide back-up DS maintenance for the DS maintenance company if prior arrangements are made.

c. Transportation is not a full-time function of the CSTS DOL and there is no TMP. Units must coordinate transportation requirements with Troop Command or their respective USP&FO/ARCOM.

d. There is no Consolidated Dining Facility at Camp Shelby, MS. Units must feed themselves. Units without organic capability must coordinate with Troop Command to satellite with another dining facility or have their respective USP&FO/ARCOM contract to feed them.

e. The CSTS-DOL has no equipement available to loan. Units may request to borrow equipment from the Mobilization and Training Equipment Site (MATES), the Equipment Concentration Site (ECS) or from the USP&FO-MS. To obtain equipment from MATES, ECS, or USP&FO-MS refer to Annex D.

f. Annex D provides detailed information on all CSTS-DOL functions.

12-4. VEHICLE WASHING:

a. General:

(1) The Troop Command for each AT period is responsible for vehicle washing.

(2) Facilities Available: Vehicle wash racks are located in all Motor Pools except 7, 8, 11 and 12. Additionally, there is a 96 point central tank wash facility located adjacent to the MATES equipment park on Warehouse Avenue. Vehicle washing is prohibited in all other areas.

(3) The requirement to clean all vehicles and equipment during a short time period at the end of each training encampment places an extremely heavy load on washing facilities. During this period, the available washing facilities are adequate only if all concerned practice maximum cooperation and efficiency in their use.

b. Use of Motor Pool Wash Racks:

(1) Hose Issue: Standard 5/8 inch hose is the only size to be used at motor pool wash racks. These hoses are available for issue at the PCS Whse on an as-needed basis and may be retained for the entire AT period.

(2) Priority of Use: The battalion (or equivalent) headquarters that draws a motor pool with a wash rack will establish priorities and coordinate the use of the wash rack.

(3) Turn-In: The wash rack, including the grease trap and sand pit, will be cleaned by the user prior to turn-in.

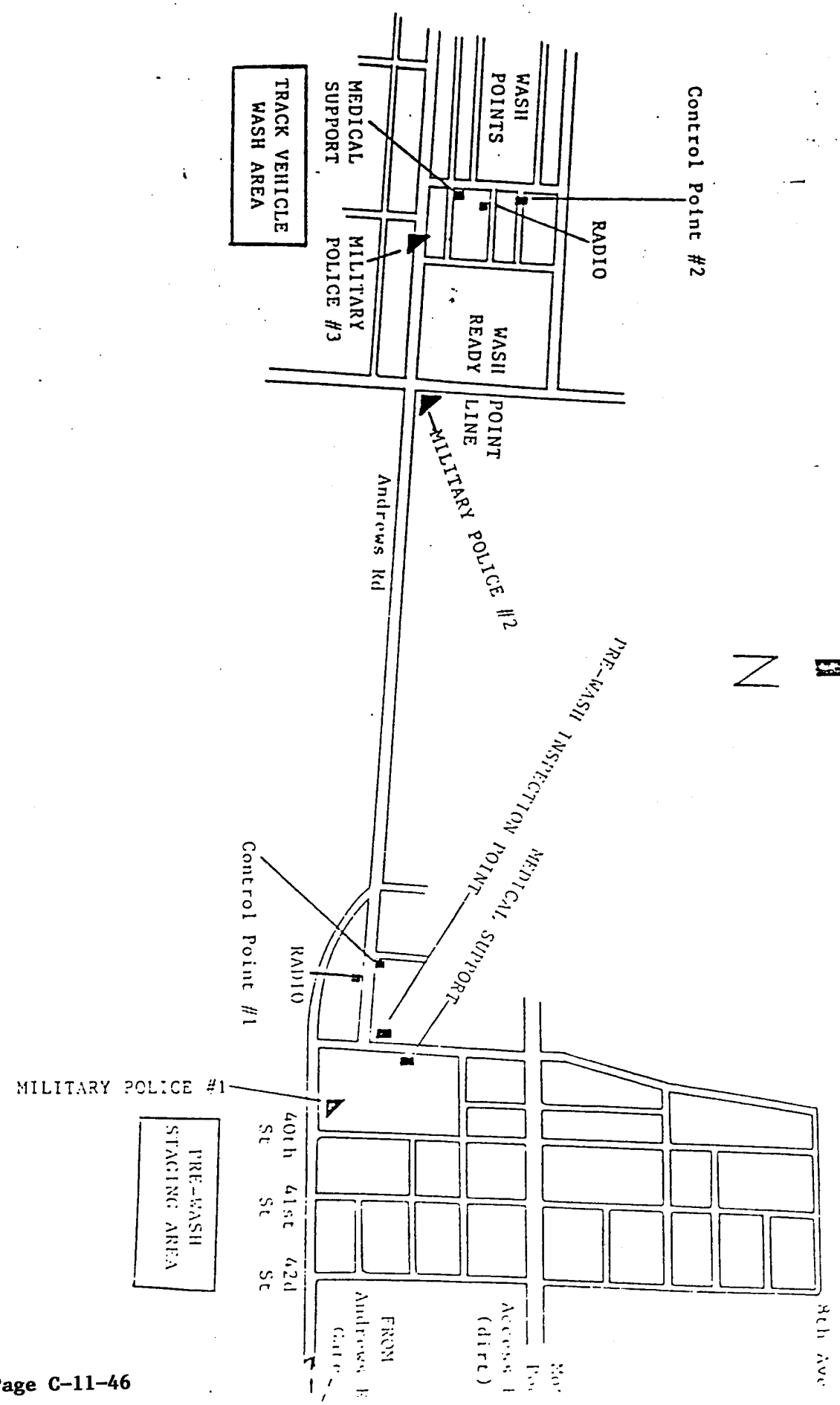
c. Use of Tank Wash Area. A central tank wash facility is located on Warehouse Avenue adjacent to the MATES equipment park. This facility has

96 wash points, each equipped for a high pressure, 1-1/2 inch diameter hose. There is also one 5/8 inch hose bid for every two wash points

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ensure that appropriate technical inspection (borescope, pullover gauge, exercising, etc) has been performed and recorded by quailified support maintenance personnel within the 90 days preceeding the day the weapon is to be fired.

b. The Section Chief, Crew Chief or other personnel designated by the Company/Battery/Troop Commander will ensure that rounds fired are accurately recorded each day on the DA Form 2408-4 for each weapon. They will also ensure that support level inspections (borescope and pullover gauge) required by TM 9-1000-202-14, as a result of rounds fired, are requested and performed.



TRACK VEHICLE TURN-IN ROUTE

CHAPTER 13

RESOURCE MANAGEMENT

13-1. GENERAL:

a. The purpose of this chapter is to establish policy, provide guidance, and place responsibilities for all users of Camp Shelby during Annual Training (AT).

13-2. BUDGETING:

a. Army National Guard (ARNG): ARNG Commanders, operating through proper channels, must identify AT requirements to their United States Property and Fiscal Office (USP&FO). Valid requirements will be included in the National Guard Bureau State Operating Budget (SOB) which is formulated during the April - May time frame for the next fiscal year.

b. United States Army Reserve (USAR): USAR Commanders, operating through proper channels, must identify AT requirements to their Major US Army Reserve Commands (MUSARC). Valid requirements will be considered in the Command Operating Budget Estimate (COBE). Because the COBE is prepared two (2) years in advance, prior planning becomes extremely important.

c. Department of Defense (DoD) - other than ARNG and USAR: Other DoD units/activities will accomplish necessary budgetary planning using established channels and procedures.

13-3. FUNDING SUPPORT:

a. Responsibilities:

(1) National Guard States (NGS): Each NGS having units present during any regular AT period must have a USP&FO representative present to be responsible for purchasing, contracting and paying invoices from vendors and contractors for obligations made in support of their respective state.

(2) Major US Army Reserve Commands (MUSARC): MUSARC's will support their USAR units through use of the DD Form 448 [Military Interdepartmental Purchase Request (MIPR)]. MIPRs will be processed and accounted for as delineated in Annex D.

(3) Other DoD Activities: All other DoD activities will support their units/activities through use of DD Form 448 (See ANNEX D).

(4) Fort Rucker, Alabama: Fort Rucker will provide funding to support the Active Army Component Control Headquarters (ACCH) and Logistical Support Operations (LSO). Fort Rucker will also provide necessary funds to finance the Imprest Fund operations in support of long-haul missions.

(5) Camp Shelby Training Site Director of Resource Management (CSTS-DRM): The CSTS-DRM will provide funds for normal Base Operations (BASOPS) support associated with operations and maintenance of real property facilities, including utilities.

13-4. REIMBURSABLE SUPPORT: Reimbursable materials, supplies, and services may be obtained from the Camp Shelby Training Site provided:

a. Requested items or services are authorized and funded on an approved Military Interdepartmental Purchase Request (MIPR) (DD Form 448).

b. Requested items are available from federal or state stock at Camp Shelby, or items can be purchased through local procurement procedures.

c. Requested services can be performed by in-house labor (See ANNEX D for details on reimbursable support).

13-5. IMPREST FUND: The Imprest Fund will be used to make travel advances and travel settlements that are associated with long-haul missions. Emergency casual payments will not be made from the Imprest Fund. Emergency leave requirements will be handled through the visiting Troop Command.

13-6. MILITARY PAY:

a. Responsibilities:

(1) Fort Rucker, Alabama: Fort Rucker will be responsible for handling military pay for the Alabama and Mississippi Army National Guard Units. Detailed instructions will be published annually and disseminated at each Pre-Camp Conference.

(2) Coordinating/Support Installations (CI/SI): Appropriate CI/SI will be responsible for handling military pay for all USAR and ARNG units from states other than Alabama and Mississippi. Direct coordination should be conducted with the CI/SI prior to departing for AT.

(3) Camp Shelby Finance Support Office (FSO): Fort Rucker will furnish a FSO during each major encampment. The primary purpose of the FSO is to receive, safeguard, and issue military payroll checks to the Class "A" Agents. Again, detailed instructions will be furnished at each Pre-Camp Conference. While the FSO is established primarily to support ARNG units from Alabama and Mississippi, they are readily available to furnish support to all units present at Camp Shelby.

(4) CSTS-DRM: The CSTS-DRM will furnish ongoing coordination between Fort Rucker, Alabama, and all units training at Camp Shelby.

b. Procedures: Military pay procedures are covered in AR 37-104-3; implementing instructions are published by individual USP&FOs and MUSARCs.

13-7. CASH COLLECTIONS: Cash collections will be made and reported on DD Form 1131 (Cash Collection Voucher). Payments for cash collections will be by money order and made payable to Finance and Accounting Office (F&AO), Fort Rucker, Alabama. The cost of the money orders will be

deducted from the amount to be remitted and recorded as a minus amount on DD Form 1131. During the Pre-Camp Conferences, Fort Rucker F&AO will furnish updated Accounting Classifications to be used on Cash Collection Vouchers.

13-8. CHECK CASHING: Check Cashing is available from the Post Exchange (Bldg 2600) and the post bank (Deposit Guaranty National Bank). Requirements must be indentified to the PX NLT Wednesday of the first week of encampment. There is no charge for check cashing at the PX. The post bank, however, charges a "flat" $2.00 fee regardless of the amount. If you have an account with the bank there is no charge, and the $2.00 will be waived if you purchase a money order or have other transactions with the bank.

CHAPTER 14

ACTIVE ARMY PERSONNEL

14-1. ACTIVE COMPONENT CONTROL HEADQUARTERS (ACCH): The ACCH Commander, from Readiness Group Redstone (RGR), is appointed annually to represent the Commander, Second US Army as Officer-in-Charge, Active Army Control Headquarters for support to active Army personnel performing temporary duty (TDY) at Camp Shelby, Mississippi. The RGR, will establish a headquarters at Camp Shelby, prior to arrival of reserve component units and maintain this headquarters through the Annual Training period.

14-2. CONTROL HEADQUARTERS RESPONSIBILITIES:

a. Assume operational control over all active Army personnel on TDY at Camp Shelby. Control pertains to all activities other than that of unit evaluations, unit advisory duties and Army Readiness Region/Group (ARR/RG) assistance.

b. Provide, in coordination with the Camp Shelby Training Site Supervisor and Chief, MATES, administrative and logistical support to evaluation teams and ARR/RG on site contingents. Administrative support entails transportation, office supplies, quarters and/or certificates of availability where applicable.

c. Liaison activities between Commanders of 5th Infantry Division, Mechanized, Fort Polk, Louisiana, Second US Army and the Camp Shelby Training Site.

d. Reporting disciplinary problems or evidence of inefficiency on the part of active Army personnel to 2USA.

e. Coordinating the reception and escorts of VIP's with the Camp Commander and major reserve component commanders.

14-3. REPORTING: All active Army personnel ordered to Camp Shelby to support AT will report to the Active Control Headquarters upon arrival, Bldg 803.

CHAPTER 15

RELEASE OF PUBLIC INFORMATION

15-1. RESPONSIBILITIES: The Camp Commander or his authorized representative is responsible for public information emanating from this Camp with the exception of routine news releases for home town papers, radio, television, etc. Unit information sections may release such items as feature stories on training, promotions, presentation of medals and awards, and participation in various competition such as athletic events.

15-2. SENSITIVE MATTERS: Sensitive matters (accidents, injuries, etc.) will be coordinated through the Camp Information Officer and will not be made available to the public until authorized by the Camp Commander or his authorized representative. During non AT periods Serious Incident Reports will be made IAW guidance found in Annex S.

15-3. UNIT INFORMATION OFFICERS: Unit Information Officers will furnish the Camp Information Officer with copies of news releases and photographs released to the news media. This will include newspapers, magazines, periodicals, radio, television, and any other information releases.

15-4. NEWS MEDIA REPRESENTATIVES: Unit information personnel will also furnish (in advance when possible) names of news media representatives who tour the post and the name of their employer. Example: Fred Smith, Daily News, KoKomo, Ms.

CHAPTER 16

TENANT UNITS

16-1. GENERAL: Camp Shelby Training Site has several tenant units that operate on the post. They are comprised of a number of schools, maintenance/support organizations and a shipping/receiving activity.

16-2. SPECIFIC TENANT UNITS:

a. National Guard Bureau - Regional Schools Support Detachment (RSSD). The RSSD is OPCON to the Training Site Commander. Each school schedules their own students/units. The individual schools are:

(1) Region III NCO School (REG III)

(2) M60A3 Displaced Equipment Training Team (M60A3 DETT)

(3) Regional Training Site - Medical (RTS-MED)

(4) Regional Training Site - Maintenance (RTS-MAINT)

b. Mississippi Military Academy (MMA): The MMA is OPCON to the Mississippi Military Department with prime responsibility delegated to MS-DOT.

c. Maintenance Support Organizations: These activities are OPCON to the Surface Maintenance Officer (MS-DSM). They are:

(1) Surface Maintenance Office (SMO)

(2) Mobilization and Training Equipment Site (MATES)

(3) Combined Support Maintenance Shop (CSMS)

(4) Equipment Concentration Site (ECS)

(5) Organizational Maintenance Shop (OMS-6)

d. Explosive Ordnance Detachment (EOD): This is an active duty, FORSCOM Field Operating Activity. They are OPCON to the CSTS-DPTM and perform ordnance disposal missions.

e. United States Property & Fiscal Office (USP&FO): The PFO-W/CS (Camp Shelby) is OPCON to USP&FO-MS. They perform the shipping/receiving/warehousing activities for the post.

CAMP SHELBY REGULATION (Range Regulation)
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CAMP SHELBY RANGE REGULATION

SECTION A

GENERAL

1. PURPOSE AND SCOPE: This regulation establishes policy and procedures to be observed by all who utilize the ranges, firing positions, and training areas which come under the jurisdiction of Camp Shelby, MS. The prescribed policies and procedures are to be observed at all times during firing, training, or other activity, and ensure the preservation of property.

2. LIVE FIRE FACILITIES: A description of ranges available at Camp Shelby, by name/number, type, location, and type of weapons and/or ammunition to be used is listed in Section I.

3. RESPONSIBILITIES:

a. Post Range Control Officer: The officer appointed by the Post Commander and the Training Site Commander as their representative. He will be located at the Range Control Center, Barron Point, coordinates 935479. He is responsible for:

(1) Any construction, maintenance and/or repair of range facilities beyond the capabilities of the using unit.

(2) Assisting the Officer in Charge by using available means and methods to ensure efficient operation and utilization of ranges and training areas.

(3) Designation of danger areas and taking necessary action to ensure that there are barriers, signs, or guards at all normal entrances leading into them. This does not relieve the OIC of the responsibility for prohibiting entry into danger areas at the firing site.

(4) Ensuring that range equipment is properly stored, issued, and maintained.

(5) Determining when the range is safe for firing and authorizing opening and closing of each range.

(6) The control, coordination, and issue of all safety cards.

(7) Reporting the location of all duds to the Post EOD Team.

(8) Clearance of ranges in terms of police and sanitation.

(9) Making recommendation to S-3/G-3 on assignment of ranges.

b. Officer in Charge of Firing (OIC). The Commander of unit(s) which are firing is the Officer in Charge. He is responsible for:

(1) The appointment of Range and Safety Officer/NCOs required for each range or firing exercise.

(2) Providing all range guards required for range firing.

(3) Ensuring that TOC locations of Bn & higher Headquarters are reported to Range Control.

(4) The conduct of firing of all subordinate units and overall troop safety.

(5) Ensuring that adequate medical and communication support is provided to firing elements.

c. Range Officer in Charge (Commissioned or Warrant). The Range OIC is the officer responsible for the conduct and operation of firing on a particular range/firing point. His responsibilities are:

(1) Is required to reconnoiter range prior to receiving safety briefing and drawing safety card from Range Control Center. This is to be accomplished at least 24 hours in advance of scheduled firing time. Visits to any range must be coordinated with the Range Control Center prior to visiting the range. OIC will have a current copy of the Camp Shelby Range Regulations in hand when reporting to receive safety briefing. Copies of current Range Regulation can be obtained from the Publication's Office, Training Site Headquarters, Bldg #1001. In addition to Range Regulation, OIC of Tank/Bradley ranges will have a copy of approved scorecard to be fired in hand when reporting to Range Control Center to receive safety card.

(2) To be present at the range/firing point at all times. The Range Control Center will be notified at any time this individual is required to leave the range/firing point.

(3) Obtaining clearance to open fire on assigned range/firing point from the Range Control Center and assuring that all rounds are directed into the impact area as prescribed on the safety card.

(4) Establishing, checking, and maintaining communications with the Range Control Center. Notifying the Range Control Center of administrative breaks in firing; completion of firing for the day; and closing the range/firing point prior to moving to new location.

(5) Clearance of Assigned Range: Range OIC will not depart Camp Shelby until advised by Range Control that all clearance requirements of his range are accomplished. Clearance requirements include, (1) Police and sanitation of range, (2) Repair of any damage that is the responsibility of the unit firing, (3) Submission of written reports on safety violations (if applicable), (4) Verification of ammunition accountability by Camp Shelby ASP (if applicable), (5) Turn-in of all equipment drawn from the Range Control Warehouse, and (6) Turn-in of Range Evaluation Checklist.

(6) Coordination with the Safety Officers/NCOs to ensure that al safety measures are complied with before, during, and after firing.

(7) Making necessary preparations on the range for the conduct of firing exercises, including drawing, placing, maintaining and return of target(s) and target material and ammunition.

(8) Ensuring that medical personnel with suitable equipment are present at the firing position.

(9) Verifying that all operational/maintenance checks by the unit and/or support maintenance personnel have been completed prior to firing

(10) Immediately reporting all accidents involving the use of ammunition or other ordnance material to the Officer in Charge and the Range Control Officer. The order to "check fire, hold" will be given and all pieces will be left in position as fired. Under no condition will he allow the fired data on any weapons to be moved or altered during the period of "check fire" without the approval of the Range Control Center.

d. Safety Officer/NCO (E6 or above). The Safety Officer/NCO acts as an assistant to the OIC in all matters concerning safety. His responsibilities include:

(1) Becoming thoroughly familiar with references pertinent to the weapon(s) to be fired and with all portions of this regulation and AR 385-63 pertaining to the firing being conducted.

(2) Having in his possession a copy of the Camp Shelby Range Regulation and an approved safety card for the range/firing point being fired. He will become thoroughly familiar with limitations of fire; times and dates listed on the card in relation to range utilization; and will insure that all personnel receive instructions on safety procedures.

(3) Causing firing to cease upon observing any unsafe act or situation.

(4) Inspecting weapons for safe operation prior to the "commence fire" order being given.

(5) Ensuring that the range flag/blinking light is displayed at the prescribed location at all times firing is being conducted.

(6) Ensuring that local interior range guards are correctly instructed and posted at all times that firing is being conducted.

(7) See Sections C, D, and E for additional Safety Officer/NCO duties peculiar to artillery, mortar, and tank ranges.

4. AVAILABILITY OF RANGES.

a. Weekend Training: All ranges and firing points are available for weekend training 1 September through 30 April except during the deer seasons where the Mississippi Department of Wildlife Fisheries and Parks allows the use of dogs for hunting. This is normally the last two weeks of November, the last two weeks of December, and the first two weeks of January.

b. Annual Training: All ranges are reserved for units performing Annual Training during the period of 1 May through 31 August.

5. REQUEST FOR USE OF FACILITIES, RANGES, AND TRAINING AREAS:

a. Weekend Training:

(1) All requests for facilities, including ranges, training areas, devices, and buildings should be submitted to the Camp Shelby's Director of Plans, Training and Mobilization (DPTM) not later than (NLT) 90 days prior to the desired training period. Requests will consist of one of the following:

ATS Form 47A - Request for Range/FAFP/MFP
ATS Form 47B - Request for Training Area/Facility
ATS Form 47C - Request for NVG/NOE Routes
ATS Form 47D - Request for Cancellation of Training
Target Request Form - Request for target use on Tank/Bradley, Machine Gun moving targets, etc.
ATS Form 135R - Billet Request (must always be included with any of the above).

These forms will be filled out completely, or will be returned unprocessed. (See paragraphs (3) and (4) below for special forms requirements for Tank, Bradley, and Demolition ranges). The DPTM will review and answer all requests as quickly as possible after they are received. Housing assignments and telephone numbers will be forwarded to units by the Housing Office NLT 60 days prior to the approved training period. Requests will be received up to 30 days prior to desired training dates; however, neither the DPTM nor the Housing Officer will guarantee that requested facilities will be available. Appendix 3, Section I, lists training facilities (other than ranges and training areas) available at Camp Shelby, their locations, who they are requested from, where the facilities are to be drawn, and how they are cleared. Strength reports are to be drawn from and turned in to the Billeting Office.

(2) Cancellations should be submitted thirty (30) days in advance of approved training, so that valuable ranges, training areas, facilities, etc., can be re-allocated to other units who wish to train. Cancellations should be submitted on an ATS Form 47D (see section P)

(3) Requests for Tank and Bradley ranges will also include an original and one copy of the target request and an original and one copy of the scorecard (table) with ATS Form 47A and an ATS Form 135R. Units will utilize target request form provided in section P, page 81. Request will include quantities and types of targets required (i.e. 5 each, T-72 Frontals, etc.). Scorecards will consist of tasks to be fired. Each task will include as a minimum; firing position to be fired from, ammunition to be fired, and target position to be fired at (i.e. Firing Position 1, .50 Caliber MG, Target Position 16, etc.). These scorecards will be developed by range IAW with the Camp Shelby Target Manuals which may be requested from Camp Shelby Range Control Center. ATS Form 47's received without scorecards and target requests will be returned disapproved.

(4) Demolition Reconnaissance Report (DA Form 2203-R) will be turned into Range Control upon OIC drawing Safety Card for Demolition ranges. This is in order to comply with the requirements of DA PAM 710-2-1. Blank copy of this form is provided in Annex E, FM 5-25 (Explosives and Demolitions).

(5) Requests for 500 series Field Artillery Firing Points must received NLT sixty (60) days prior to scheduled firing. See Section C, para 4, for additional requirements for firing from 500 series FAFPS.

(6) All units and/or activities which use the Training Site will draw an administrative building with a telephone and station a charge-of-quarters (CQ) in the building for their entire training period. A DF reflecting emergency information data, and an alphabetical list of all personnel who will attend training at Camp Shelby will be turned in to the Housing Office by an individual in each unit's advance detachment immediately upon arrival at Camp Shelby. Each unit commander must let their personnel know how they can be contacted at Camp Shelby. All emergency calls should be directed to the CQ at the unit's Camp Shelby telephone number. The CQ will be required to have communication capabilities with troops in the field (radio, runner) during their entire training period.

(7) Each unit or activity will be required to clear Camp Shelby before departing. Final clearance will be granted by the Housing Office only after a clearance certificate has been signed by Range Control and Facility Engineer representatives and all property settlements have been made. A clearance certificate will be given to a member of each unit's advance detachment at the time buildings are drawn for the training period.

(8) See Section F for request form examples which may be reproduced by the unit.

b. Annual Training: Request for facilities, ranges, firing points, and training areas will be directed by the Troop Command.

c. Artillery firing points are allocated separately, and are not a part of the training area within which they are located. Allocation of a training area includes everything within that area EXCEPT facilities for weapons firing such as ranges, FAFP's, MFP's, OPs, etc.

(1) Access roads to FAFP's do not belong to the unit allocated the training area within which they are located; further, all roadways within the Camp Shelby operational area are available for use by all troops/units training here and will not be restricted/blocked by any unit without prior approval of Range Control.

(2) Allocation of a FAFP includes the cleared firing point itself, the area 350 meters to the front of the FAFP, and an area extending 100 meters from the woodline (into the woods) on the sides and rear of the FAFP.

(3) Priority for allocation of FAFP's go to artillery units; however, they may be allocated to other units if they are not needed to facilitate artillery training. In any event they must be requested and allocated through the Range Control Center prior to occupation. Non-artillery units must fully justify request for FAFP's. All units allocated training areas at Camp Shelby will take action to preclude the occupation of FAFP's and/or the adjacent area indicated above.

d. The Range 44/45 complex and Range 18/19 complex require extensive setup and service. The setup and service must be closely coordinated with the Range Control Center. The down range area of these range complexes are inside firing fans of other ranges.

6.. REQUIREMENTS FOR OPENING/CLOSING RANGES AND FIRING POINTS.

a. Opening Established Ranges: The following are requirements for opening established (named) ranges and will be transmitted, by FM radio, to the Range Control Center at the time of the request and prior to commencement of any firing:

(1) Range designation. Example: Range 42A

(2) Unit designation. Example: Co A, 890th Eng

(3) OIC rank and initials. Example: 1LT RSP

(4) Safety briefing conducted.

(5) Safety officer has valid range safety card in hand.

(6) Range flag is flying (or blinking light displayed if at night.)

(7) Military qualified medical personnel with a dedicated military vehicle on site. (Vehicle does not have to be an ambulance, but must be dedicated to medic only.)

(8) Road guards are posted (if applicable).

(9) Laser sign posted (if applicable).

(10) Prior to firing range, the OIC will notify Range Control of any discrepancies noted on range, such as holes in safety pole/panel, road damage, etc.

NOTES:

(1) The time that the first round has been fired down range and if observed safe will be reported to the Range Control Center.

(2) Never allow anyone down range (beyond firing line) without approval of the Range Control Center.

(3) Units are required to furnish own radios for unit communication with the Range Control Center.

b. Opening Field Artillery/Mortar Firing Points: The following are requirements for opening FAFP's and MFP's and will be transmitted, by FM radio, to the Range Control Center at the time of request and prior to commencement of firing:

(1) Firing point designation. Example: Firing Point 114

(2) Unit designation. Example: Bty A, 4/114th FA

(3) OIC rank and initials. Example: CPT RSP

(4) Safety briefing conducted and safety officer has verified that tubes are laid and safe.

(5) Safety Officer has valid safety card in hand for the point occupied.

(6) Flag flying, or blinking light displayed if at night. (Flag/light will be displayed at Observation Point controlling fire.)

(7) The Observation Point utilized for control and if communication is established with that OP. (NOTE: Forward observers are not allowed to position themselves more than 75 meters forward of the OP marker.)

(8) Military qualified medical personnel with a dedicated military vehicle on point. (Vehicle does not have to be an ambulance, but must be dedicated to medic only.)

(9) Maximum ordinate in feet for high/low angle fire will be given. Max ordinate will be rounded off to the next highest thousand feet.

(10) Prior to firing, OIC will notify Range Control of any discrepancies noted on point such as road damage, etc.

NOTES:

(1) The time that the first round has been fired down range and if observed safe will be reported to the Range Control Center.

(2) If a high angle mission is required, the firing point will call Range Control and ask permission to increase max ordinate (reported in feet) for that mission. Range Control will be notified when mission is complete.

(3) Units are required to furnish own FM radio for unit communication with the Range Control Center.

c. Closing Ranges and Firing Points. A request to close a range/FP will be transmitted by FM radio to the Range Control Center prior to the departure from the range/point and the following information will be given:

(1) Range/FP occupied.

(2) Request to close range/FP.

(3) Number of rounds of ammunition expended by caliber.

(4) Number of personnel trained.

(5) Police of areas has been accomplished and Range/Firing Point is ready for clearance.

7.- BASIC REQUIREMENTS. The following are requirements that are the responsibility of units using ranges at this installation. Compliance will preclude delays or cancellation of scheduled firing and will avoid administrative or disciplinary action:

a. Communications will be established and maintained with Range Control Center at all times during firing. FM radio, set on 38.90 new squelch on, will be the primary means of communication. If contact with Range Control is lost, all firing from that point will cease until communication is re-established. In the event that any unit fails to respond to a radio call after having been cleared to fire by Range Control, personal contact by a Range Control representative will be made and no further firing will be allowed from that position until cleared again by Range Control. NOTE: The Range Control NET is to ensure safety. It is not a relay station. Arrangements will be made by unit for administrative messages from post or home station.

b. A red range streamer for day firing and a flashing red light for night firing is required to be displayed at the range/observation point whenever firing is being conducted.

c. Laser warning signs will be posted at entrance to range if any type of laser device is utilized.

d. An ambulance, or suitable substitute, and qualified medical personnel will be present at each firing position at all times firing is being conducted.

e. For all units utilizing Field Artillery Firing Points east of Highway 29, see Section C, para 4.

f. When ranges are authorized to be "open/hot", the order to "commence firing" is controlled by the OIC through his Range OIC.

g. The Range OIC will ensure that the time permission was given to open the range and the initials of the individual at the Range Control Center that gave the permission, are recorded at the range/firing point.

h. The Range OIC/Safety Officer will never allow anyone down range or forward of the firing line without prior approval from the Range Control Center.

i. All aiming circles will be declinated by units as soon as possible after arrival at Camp Shelby. There are two declination stations available for use. See Appendix 1, Section C for Declination Station information.

j. Duds will be removed or disposed ~~of~~ by EOD personnel only. All personnel will be warned not to disturb artillery or tank projectiles, flares, grenades, rockets, or any other munitions or components that may be found. Commanders will ensure that all personnel have been briefed on dud safety prior to their movement to the range. If duds of any kind are found, their locations will be marked with a white streamer and the locations reported to the Range Control Center. Firing units will report all suspected duds during firing to the Range Control Center giving approximate grid coordinates and terrain features of the location of the dud.

k. Malfunctions and Accidents Involving Explosive Ordnance:

(1) In case of an accident or malfunction involving ammunition or explosives, the senior individual present will:

(a) Temporarily suspend use of the lot of ammunition or explosives involved.

(b) Report the incident and all available facts to the Range Officer.

(c) Preserve all evidence in original state until it can be inspected by ammunition personnel. Weapons involved must remain as fired.

(2) When notified of accident or malfunction of weapons or explosives, the Range Officer will notify the Range Control Center and the Officer in Charge of firing. He will provide the following information:

(a) Nature and location of the incident.

(b) Unit involved.

(c) Lot number of all components of the ammunition or explosives concerned.

(d) Circumstances under which the incident occurred.

(3) The Range Control Officer will:

(a) Notify all ranges/FPs concerned to suspend the lot involved if the incident was caused by malfunction of ammunition or explosives.

(b) Report pertinent information to the Post Commander, Training Site Commander, Mississippi Military Department and Post Ammunition Officer.

l. Misfires will be removed from weapons by the firing unit personnel in accordance with procedures prescribed in appropriate field and technical manuals. The Range Control Center will be notified before misfire is removed from the weapon. After removal from weapon, keep the misfire round separate from serviceable rounds. Turn-in misfires to the Ammunition Supply Point at the conclusion of firing.

m. Projectile(s) landing outside of the safety limits will be immediately reported to the Range Control Officer who will cause firing to be suspended. All weapons at the firing point will remain as fired and all ammunition will remain undisturbed until cause and responsibility for error can be determined. The Range Officer will report the erratic firing to the Range Control Officer and the OIC. For Field Artillery Firing Point procedures, see Section C, para 6.

n. Check Fires: Because of emergencies and other situations that might arise, a "Check fire" will at times be imposed by the Range Control Center. When this occurs, the following procedures will be adhered to:

(1) Range Control will put out a net call by radio that a "check fire" is in effect. (Example: "CHECK FIRE", all firing units, this is Shelby Range Control - "CHECK FIRE" - Acknowledge - over).

(2) As soon as any unit in a live fire status hears this transmission, they will acknowledge receipt of message and call "check fire" at their location. As soon as "check fire" has been achieved, they will verify to the Range Control that "check fire" is in effect and whether or not any weapon is loaded ready to fire or the tubes of the weapons are clear.

(3) The Range Control Net will be kept clear during the time that any emergency exists except for traffic pertinent to the situation.

(4) Firing and normal operation will not be resumed until "check fire" is cancelled by Range Control.

o. The Officer in Charge is responsible for furnishing the Range Control Officer an estimate of required targets. Units will utilize the Target Request Forms outlined in Section F, Appendix 9.

p. All weapons require some form of operational/maintenance check prior to firing. It is the unit's responsibility to ensure that all such checks, as required by regulations, technical bulletins, technical manuals, etc., have been accomplished prior to firing.

q. Range/Training Area Fires.

(1) Fires in any impact or downrange area will be immediately reported to the Range Control Center, and will be fought only under the direction of the Range Control Officer.

(2) The Officer in Charge is responsible for immediately attacki and extinguishing, with all troops available, all wild fires within his training area.

(3) All wild fires, regardless of location, will be reported to the Range Control Center immediately upon discovery.

(4) No fires will be ignited except on order of a commissioned officer who will ensure that an area within a five meter radius of the fire is cleared of ignitable material. All such fires will be completely extinguished prior to leaving the area.

(5) All necessary care will be taken to prevent fires.

r. Commanders will ensure that all personnel wear hearing protection devices IAW AR 385-63, Chapter 2, para 2-1(m).

8. MEDICAL EVACUATION:

(1) Annual Training: Military medical evacuation is normally available during Annual Training. Units having a requirement can contact the MEDEVAC unit on frequency 38.50 (old squelch). In the event that contact cannot be made, units can call the Range Control Center on frequency 38.90 new squelch for assistance.

(2) Weekend Training: There is military air MEDEVAC available for most WET periods. Range Control is MEDEVAC Control for WET periods. Personnel from unit advance detachment will contact Range Control to determine what MEDEVAC assets are available and procedures for requesting MEDEVAC support. If no military air MEDEVAC is available, units will have to utilize their on-hand assets. The Southeast Mississippi Air Ambulance (Rescue 7) is available on an on-call basis, however, since they serve a seven county area there are no guarantees that they will be available when needed. If an extreme emergency exists, Range Control will assist by making contact to determine their availability.

(3) Medevac Simulation: Units will not conduct simulated medevac calls over the medevac net, 38.50, Range Control net, 38.90, or the Range Air net, 233.20.

9. MOVEMENT ON ROADS AND TRAILS:

a. Maximum speed limit for all range roads and tank trails is 25 MPH unless otherwise designated.

b. Vehicles will keep off road shoulders whenever possible.

c. Only existing roads and trails will be utilized. No new entrances will be made into any training area or range without the approval of the Range Control Officer.

d. Movements during Annual Training Periods: All convoy movements during AT will be approved by Troop Command. All movement policies (Day and Night) during annual training periods will be provided by that AT Period's Troop Command.

e. Movments during Other Than Annual Training Periods:

(1) Any night convoy movement outside of an AT Period will be coordinated with the Range Control Center

(2) Tracked vehicle columns (day or night) will be preceded and followed by a wheeled vehicle. Lights of all vehicles will be turned on during movement, unless moving under blackout conditions, in which para (3) below applies.

(3) All blackout drive columns (wheeled and tracked) will be preceded by a wheeled vehicle with headlights on and followed by a wheeled vehicle with tail lights on to warn any approaching traffic of the blacked out column. Distances of lead and trail vehicles from the blacked out column will be at the discretion of the Convoy Commander.

(4) Single vehicles moving under blackout conditions will immediately turn on headlights and tail lights when being approached from the front or rear by a vehicle that is not driving under blackout conditions.

f. Road guards to control traffic will be placed at intersections in order for vehicles to proceed non-stop through intersections. If no road guards are posted, all vehicles will obey traffic control devices present (i.e. Stop Signs, etc.).

g. Under emergency situations, during Annual Training or Weekend Training periods, Range Control personnel are exempt from blackout drive requirements.

10. USE OF CHEMICAL AGENTS:

a. Weekend Training: Use of chemical agents at Camp Shelby for NBC Training during IDT is now authorized in accordance with the following criteria:

(1) Chemical agents will not be utilized in the cantonment area as defined in paragraph 10-4c of the Camp Shelby Regulation.

(2) Chemical agents will not be utilized on ranges or MSRs or within 500 meters of those MSRs or ranges.

(3) Chemical agents will not be employed when they may present an obstacle to adjacent units or to normal camp functions.

(4) Camp Shelby Range Control will approve use of chemical agents on a case-by-case basis with a 30-day written approval.

(5) If chemical agents are approved for use, radio contact with Range Control is required during the actual use period. Medical personnel must be present, and upon completion a report of rounds expended will be given. Roadguards will be placed at entrances to NBC Training Areas to prevent civilian traffic into areas utilizing chemical agents.

b. Annual Training: The use of chemical agents during Annual Training must be approved by Troop Command prior to use.

11. GENERAL INFORMATION:

a. Wire crossings on paved roads will be through culverts or suspended at least 8 meters (25 feet) overhead. Wire will not be trenched across any paved road. All wire installed by units will be removed by the unit assigned to that training area/facility before area clearance will be granted. Pole climbers will not be used to climb any pine trees.

b. Firing schedules will be published in the Post daily bulletin by the Troop Command G-3 during Annual Training. The Range Control Officer will notify the local news media at other times firing is to be conducted. All persons will consult this firing schedule before venturing onto the range/training areas. Barricades and warning signs placed on roads and trails within the reservation will not be passed without a written pass or actual verbal instructions from the Range Control Officer.

c. Broad leaf trees and bushes are the only vegetation that are authorized for use as camouflaging and road barricades. Vegetation of pine trees will not under any circumstances be utilized for camouflaging material. Upon completion of exercise, camouflage and road barricades will be properly policed.

d. Animals, domestic and wild, will not be molested in any way.

e. Accident Reports: During other than AT periods, an accident report on all accidents requiring medical attention will be turned in to the Range Control Center prior to unit's departure.

f. Strength Report (WET): A strength report (ATS Form 27) is required to be submitted to the Billeting Office before unit(s) depart for home station. The forms are available at the Billeting Office. See Appendix 1, Section P.

g. Clearance of Assigned Areas: Prior to departure from Camp Shelby, each unit will be required to police all assigned ranges, firing points, and training areas requested and assigned, even if not utilized. An additional road police will be given to each unit as a police requirement. The aforementioned requirements will be cleared through Camp Shelby Range Control, post cantonment area facilities will be cleared through Facilities Engineers.

h. Digging/Excavation: All digging/excavation (i.e. foxholes, latrines, shower sites, tank ditches, etc.) and other operations affecting the environment will be IAW Camp Shelby Regulations, Annex G, Environmental Protection.

i. Off-Limit Areas: All areas marked "Off Limits" will not be occupied or disturbed in any manner to include any surrounding fences. All other areas marked with any type of restrictions will be complied with. Any personnel that discovers an "Off Limits" area that has been damaged or occupied will report this damage to the Range Control Center.

j. Training Area 44 has been designated a Gopher Tortoise Refuge. Off road maneuver training and bivouac is no longer authorized in this area. Field Artillery Firing Points 62, 63, 64, & 116 located within this area and roads leading to them may be used.

k. Redbud Hill (abandoned FP 500) in Training Area 28 (Grid Coordinates CK 106-493) is off limits to all personnel and equipment.

l. Range Control Personnel must be and are authorized immediate access to all unit locations, training areas and ranges without interference from using units.

SECTION B

AMMUNITION AND EXPLOSIVES

1. Ammunition Storage: Ammunition will be brought into the cantonment area only after coordination and approval by the Camp Commander or his designated representative. Under no circumstances will ammunition or explosives be stored in motor pools on Camp Shelby.

2. Transportation of Munitions and Explosives:

a. Vehicles used for the transportation of munitions shall be loaded to no more than rated capacity. The munitions shall be so secured as to prevent shifting of load or dislodgment from the vehicle in transit. In all open body type vehicles the explosives shall be covered with a fire resistant tarpaulin.

b. The transportation of exposed explosives in a motor vehicle is prohibited: Reference paragraph 7-B(19), TM 9-1300-206 (Care, Handling, Preservation, and Destruction of Ammunition). All persons involved in use of ammunition and explosives including excess increments of propellent and other types, will be knowledgeable of disposal procedures.

c. All vehicles transporting munitions shall have the classification markers as per applicable technical manual.

d. High explosive ammunition, bulk black powder, and pyrotechnics will be stored and transported separately from the following devices:

(1) Blasting caps of all types.
(2) Percussion caps.
(3) Electric squibs.
(4) Rockets containing white phosphorous.
(5) Boosters, primers, and separate fuses. Trucks with trailers attached will not be considered as separate transportation except as indicated below:

(a) Non-electric blasting caps in standard cap boxes and packaged electric blasting caps may be transported in the same vehicle with explosives providing the caps are carried in the cab of the vehicle and the explosives in the rear. When a 1/4-ton truck is used, caps may be carried in the truck while explosives will be transported in a trailer attached thereto.

(b) Maximum distance will be maintained between caps and explosives and in no case will the quantity transported on one vehicle exceed 100 caps (electric or non-electric) and 50 lbs of explosives.

(c) Vehicles used to transport munitions shall be in good repair. Vehicles will be free of all metal not a part of the vehicle including metal tools, carbides, oils, matches, firearms, electric storage batteries, acids, flammable substances and oxidizing or corrosive compounds. When steel or part steel bodies are used, fire resistant and nonsparking cushioning materials shall be employed to separate the contents of explosives from the material.

(d) Vehicles transporting munitions shall be equipped with at least two (2) fire extinguishers of the type approved for class "B" and "C" fires.

(e) Smoking is prohibited within fifty (50) feet of a vehicle carrying munitions.

(f) See Section III, Annex D, to Camp Shelby Regulation for additional requirements.

I. Handling and Storage of Ammunition in the Field:

a. Ammunition field storage site must be approved by the Camp Shelby Range Control Officer prior to establishment.

b. Prior to receipt of ammunition at field storage site, firebreaks wide enough to prevent the spread of fire must be built by the best means available.

c. Firebreaks must be IAW Paragraph 3-2, TM 9-1300-206. Prior written approval for all excavation must be obtained from the Camp Shelby Facilities Engineer.

d. Ammunition will be placed on dunnage at least 6 inches off the ground, and will be protected from direct sunlight by some type of overhead cover which allows airspace between the ammunition and cover.

e. Ammunition will be separated and stored by field storage categories and separated by lot number if more than one lot is being utilized. Barriers will be used to separate individual unit stocks in a consolidated ammunition storage site.

f. Quantity distances will be maintained as per TM 9-1300-206. Temporary field storage of explosives will be IAW AR 385-63, Paragraph 18-3.

g. Ammunition will be retained in original container until ready to fire, and all returned ammunition will be properly repacked and identified by lot number.

h. Misfires and damaged ammunition/pyrotechnics will be properly segregated.

i. A perimeter barrier consisting of triple strand concertina will be maintained.

j. Continuous surveillance will be provided by on-duty or specifically appointed guard personnel. Guards will be equipped with multi-frequency radio or land line communication with Range Control.

k. All guard personnel will be briefed with explicit instructions in case of emergency, and will be thoroughly instructed in fire fighting procedures and safety precautions to be taken.

l. Guard will have access roster of all personnel authorized to enter storage site. Access roster will contain the name, rank, SSN, and unit of authorized personnel.

m. Storage site will have security lighting unless operating under light and noise discipline during hours of darkness.

n. The ammunition in field storage areas will be inventoried daily by responsible person and recorded.

o. Number of personnel allowed access to field storage areas should be kept at an absolute minimum.

p. No Smoking, Restricted Area, and appropriate Fire Symbol signs will be posted at eye-level at least 50 meters away from storage site in all directions.

q. All extraneous vehicles, fuel trucks, or flammables stored outside the storage site must be at least 1800 meters away from site.

r. Fire extinguishers will be present at the storage site. Responsible person will insure that they are serviceable and in good condition.

s. Storage site will be clear of all debris.

t. Storage site whether tactical or administrative will be clear of all weapons at all times.

u. No cigarette lighters or matches will be allowed inside storage site, a repository will be maintained outside storage site for such items.

v. Caps and explosives will not be stored together. The supply of blasting caps for the required operation will be kept at a minimum distance of eight (8) meters from the supply of explosives.

w. Caps and explosives will not be left in direct sunlight or exposed to any other source of heat; nor should it be stored where the possibility of discharge by lightning or other extraneous electricity may exist (as in too close proximity to operating radio, radar, TV, energized power lines or other sources of static electricity.)

x. The priming of explosives will be performed at a distance of not less than eight (8) meters from the site of any permissible storage or operations point involving preparation of primers and demolition charges.

4. Range 46A/B Ammunition Accountability:

a. Units utilizing ranges 46 A/B, 42B, 18A, 6A, or 12B will be required to provide accurate accountability of each round fired on Camp Shelby ranges to Camp Shelby Range Control and ASP. The unit range OIC will not depart Camp Shelby until cleared by Range Control.

b. Units firing 40 mm ammunition will ensure that only low velocity ammunition is fired from the M-203 grenade launcher.

c. Units brining ammunition from home station ASP will provide Range Control a copy of the issue DA 581 on the ammunition being fired.

SECTION C

ARTILLERY

1. The firing of any artillery piece on this reservation will be governed by AR 385-63, field manuals, and technical manuals pertaining to the weapon and/or weapon system or equipment and the safety precautions outlined.

2. A permanent safety card file for all established artillery firing positions is maintained at the Range Control Center for all type artillery authorized to be fired. Permission to fire from any of these firing positions is authorized upon receipt of a valid copy of a permanent safety card signed by the Range Control Officer giving unit, dates and times firing authorized. Actual firing will not begin until clearance is given by the Range Control Center. Unit may obtain copies of desired safety cards by following procedures as outlined in the General Section of this regulation. These established firing points along with survey control points and observation posts are listed with normal information in the Trig List for Camp Shelby.

a. The surveyed firing point marker is to be used as the firing position location. The battery center, as long as it does not exceed 100 meters from the surveyed marker, or close a main supply route, can be located according to the tactical situation.

b. There will be no firing that exceeds maximum ordinate of 29,000 feet MSL.

c. Only ammunition including fuzes that are authorized on the safety card will be fired. Ammunition that has not been certified as approved for overhead fire by the Ammunition Supply Point will not be fired without approval of the Range Control Officer.

d. All aiming circles will be declinated at Camp Shelby prior to their use in laying a gun for firing. See Appendix 1, Section C for Declination Station information.

3. Firing from any position other than those listed in the Camp Shelby Trig List is prohibited unless approved by the Camp Shelby Range Control Officer. The procedure for approval is to prepare safety cards (minimum of 3 copies) with surface danger area overlay, and submit to the Range Control Officer thirty (30) days prior to requested date of use. This preparation and request will be prepared by the requesting unit. The Camp Shelby Range Control Officer will either approve or disapprove this request.

4. Firing from the 500 series FA Firing Points located east of Highway 29 requires that a portion of Highway 29 be closed to traffic during hours of live fire. Firing is only authorized each day during following hours: 0800-1100 hrs, 1300-1600 hrs, 1900-2200 hrs, and 2400-0600 hrs. See Appendix 2, Section C, requirements and procedures for blocking the Highway.

5. Safety Personnel.

a. The Senior Field Artillery Commander conducting firing is responsible for all preparations and precautions necessary for safety during all phases of live firing while training at Camp Shelby. AR 385-63 establishes basic requirements.

b. Training and certification of safety personnel is a command responsibility. Proof of qualification and proficiency of personnel who are to perform Safety Officer duties will be determined through written tests administered by or under the direction of the highest headquarters conducting firing. A copy will be retained in each fire direction center/firing position. This list will be made available for inspection at the firing position location.

c. Duties, responsibilities, and techniques to be employed incident to functions of Safety Officers and NCO's are prescribed in FM 6-50, Chapter 12.

6. Safety Violations/Round-Out of Safe/Unobserved Round Procedures

a. Units cited for safety violations must provide acceptable corrective action to the Range Control Officer prior to resuming firing activities. All firing safety violations will require that a detailed written report of investigation and corrective actions taken be submitted to the Range Control Officer.

b. In event a reported round fired out of safe or unobserved round, the following procedures will be followed:

(1) All Firing Points and Ranges will immediately be placed in a check fire by Range Control. Each Firing Point upon acknowledging check fire status will insure that all personnel fall to the rear of the guns, that no settings are changed, that tubes are not moved, and that no charges are moved, disposed of, or destroyed until the check fire for that point is cancelled by Range Control.

(2) Immediately after check fire the Senior Artillery HQ Commander controlling Artillery Fire at Camp Shelby at that particular time will designate a competent officer from their command to investigate the incident and report his findings to Range Control.

(3) The check fire will not be cancelled by Range Control until the investigation of the incident is complete, and the location from which the round(s) was fired is identified, and cause determined. Units that were in an "ADMIN" or "COLD" status at the time of the check fire, will be allowed to go "HOT" if it is determined by Range Control that their firing will not affect the ongoing investigation.

(4) Once item (3) has been accomplished to the satisfaction of the Range Control Officer, then Firing Points and Ranges not involved in the incident may be allowed to resume a firing status. <u>The Range Control Officer will notify any Firing Point or Range when their check fire is cancelled.</u> Units <u>WILL</u> <u>NOT</u> call Range Control by radio inquiring as to status of the check fire.

(5) Check Fire for the Firing Point involved in the incident will not be cancelled until a detailed hand-written report of the investigation conducted by the Senior Artillery Headquarters present at Camp Shelby is received by the Range Control Officer, and he is satisfied with the results of the investigation and the corrective action taken to prevent another incident. This hand-written report will be followed up by a formal written report of investigation. Range Control Officer will advise unit of the date/time in which formal written report is due. See Appendix 3, Section C for Required Report Form. It is expected that this investigation will have a very high priority since firing will not resume until the incident is resolved.

7. Other Artillery Safety Requirements.

a. Limits shown on safety card may be further restricted by the Fire Direction Officer and/or Safety Officer as long as limits of target area shown on the safety diagram do not exceed safety limits listed on approved safety card.

b. All firing data will be within the established safe limits, which, if correctly determined and applied with tubes accurately laid, will cause all projectiles to impact in the approved target area.

c. Illuminating rounds will not be fired at elevations exceeding the QE corresponding to the maximum range shown on the safety card, regardless of the need to obtain an optimum height of burst. Range to impact will be the limiting factor of maximum QE.

d. Fuzes containing a superquick element, which are subject to premature detonation if fired in rain or hail, will not be employed if cloud formation indicate the presence of rain showers in or near the flight path of projectiles.

e. The Range Control Center must have continuous communications with the element on the firing point and the OP. The OP must have communications with the firing element. The OIC on both the OP and firing point will ensure that these communications are established and operating. Firing will not take place when any communications link is lost or inoperative. Communications problems will cause the unit to be checked fired by Range Control until the corrective action deemed necessary by the Range Control Officer is taken.

8. Impact Areas and Surface Danger Zones.

a. The impact area and surface danger zones, "A", "B", "C", and "E", as defined in Chapter 11, AR 385-63, cannot be occupied during firing. Unless the type firing specifically precludes occupation of Area "D", firing units will assume that this area is to be occupied and will comply with additional precautions stated in paragraph 11-2f, AR 385-63. All mortar firing precludes occupation of Area "D".

b. The left and right limits of the target area defines the lateral limits of fire. The grid azimuth of these lines will be used in determining deflection limits. Maximum and minimum quadrant elevation will be based on the far and near boundary of the target area. The near boundary of the target area will be moved toward the far boundary when necessary to correspond to the minimum range based on the computed minimum QE.

c. The following measures will be taken to preclude occupancy or entrance into Area "E" when firing is to take place:

(1) Traffic over roads and trails through Area "E" will be controlled by the firing unit commander in such a manner as to ensure that the area is free of personnel during the course of a fire mission. Weapons will not be emplaced within Area "E" distance of Federal or State highways that cannot be controlled. See Table 11-1, AR 385-63.

(2) All training guidance and coordination of training plans will consider the existence of Surface Danger Zone "E" as a limiting factor in all activities.

(3) Commanders of firing units will, to the extent possible, inform organizations and units operating in vicinity of the firing position of the existing danger area.

9. Direct and Assault Fire: Direct and assault fire can be fired on Camp Shelby Reservation from predetermined firing positions. Camp Shelby Range Control Officer can furnish approved locations and prepared safety cards on request.

10. Observation Post (OP's)

a. There are established OP's on the Camp Shelby Reservation used in conjunction with artillery and mortar fire. The OP must have communications with Range Control Center and the firing position at all times firing is being conducted. If either link is broken, firing will cease until the link is re-established. Communications with the Range Control Center will be by radio.

b. Concrete protective bunkers are provided for safety at OP locations. The Camp Shelby Range Control Officer encourages use of the bunkers during live fire operations. The top (grass area) of the bunkers will not be occupied or utilized in any manner, due to the erosion of soil that could result.

c. OP 18 will not be occupied or utilized without prior approval of and in coordination with the Range Control Center at least thirty (30) days prior to planned use. OPs 5, 7, and 8 cannot be occupied if the tank fan is in effect.

d. No personnel will be forward of an OP marker toward the target area more than 75 meters.

e. The OIC for the OP will be designated by the commander of units who have their units fire controlled by that OP. The OIC for the OP will:

(1) Ensure safe operation of the OP, supervise the operation, to include display of red streamer, lights, warning signs, etc.

(2) Maintain communication with FP and Range Control.

(3) Orient all personnel in "Check Fire" procedures, observing and determining location of erratic firing and duds, call Range Control if any round is fired out of target area.

(4) Call Range Control immediately of any erratic or suspected unsafe rounds. OIC may call his unit but only after Range Control is notified.

(5) Police of OP for clearance after termination of firing and closing OP with Range Control.

11. Excess Powder/Increment Burning: Coordination must be made with Range Control reference instructions on the burning of excess powder/increments.

12. Lasers: Range Control will be notified and must approve the use of any laser device prior to its utilization. See Section D, this regulation.

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DECLINATION STATION INFORMATION

Declination Station Booth #1	Elevation	Remarks
Easting: 296800.70	111.17 Meters	Established by 1st TAB 25th FA 1972 - located near East end of firing lane No. 1 on Range 40
Northing: 3449062.67		
Ref PT # 1 AZ from Dec Sta Booth:	5157.376 mils	
Ref PT # 2 AZ from Dec Sta Booth:	0913.937 mils	
Ref PT # 3 AZ from Dec Sta Booth:	4691.001 mils	

All reference points are six (6) foot cast iron pipes approximately two (2) inches in diameter and painted white.

Declination Station Booth #2	Elevation	Remarks
Easting: 293514.4	72.8 meters	Established by 2/114 FADS located on the south side of Lake Janney
Northing: 3443133.4		
Ref PT #1 AZ from Dec Sta Booth:	0338.7 mils	
Ref PT #2 AZ from Dec Sta Booth:	3481.0 mils	
Ref PT #3 AZ from Dec Sta Booth:	5155.0 mils	

All reference points are six (6) foot cast iron pipes approximately two (2) inches in diameter and painted white.

1. Road Guard Requirements from Units:

a. Vehicle/Personnel Requirements Per Shift:
(1) Three (3) Vehicles (At least two (2) must have FM radios)
(2) Three (3) Personnel, 1 guard required on North End, 2 guards required on South End (Two barricade locations on South End).
(3) All guard personnel will wear reflective vests at all times.

b. Highest HQ S-3 (i.e. Brigade, Battalion), or Battery Commander (if single battery firing) will report to Range Control 24 hours prior to scheduled firing for coordination on road guard duties.

c. Guard personnel will be located at the following locations with equipment as indicated:

Location	Grid Coordinates	Pers/Equipt Required
North End (vic New Augusta Cemetery) (Callsign: Two-Niner North)	CK 0589-5153	One Person with Radio Equipped Vehicle
South End No. 1 (vic Hwy 29/8 Mile Road Intersection)	CK 0998-4019	One Person with Vehicle
South End No. 2 (vic Hwy 29/Paret Tower Road Intersection) (Callsign: Two-Niner South)	CK 0987-4065	One Person with Radio Equipped Vehicle

d. Guard personnel will utilize Type 3 road barricades at each guard location. Two (2) barricades will be utilized to block both lanes at the North End location, and at the South End No. 2 location. One (1) barricade will be utilized at the South End No. 1 location, and will be placed in the North bound lane. Guard personnel will draw five (5) each of these barricades (complete with signs and lights) from the Range Control Warehouse. In order to transport these barricades and the signs denoted in paragraph g below, it will require at least a 2-1/2 Ton cargo truck.

e. Guard personnel will arrive at the barricade positions and open communications on Range Control FM Frequency 38.90 New Squelch 30 minutes prior to scheduled firing/road closing times. Guard personnel will monitor FM 38.90 at all times barricades are in effect.

f. At the scheduled time of closing the highway the guard personnel at the North End location and South End No. 2 location will call Shelby Range Control and advise when road barricades are in place and all known vehicles have cleared the affected road area. (i.e. guards will verify on independent frequency that the last vehicle going by South side barricade has cleared the north barricade, and vice versa). This verification must be received by Range Control prior to allowing any FAFP's east of Highway 29 to go hot.

Appendix 2, Section C

g. Warning signs will be posted along Highway 29 to alert traffic of upcoming road block. Guard personnel will draw necessary warning signs from the Range Control Warehouse when drawing road barricades, see para c page 23.

2. Hours of Fire (Highway will be closed):

Military Time	Civilian Time
0830-1100	8:30 am - 11:00 am
1300-1600	1:00 pm - 4:00 pm
1900-2200	7:00 pm - 10:00 pm
2400-0600	12:00 am - 6:00 am

3. Hours Road Must be Open:

Military Time	Civilian Time
0600-0830	6:00 am - 8:30 am
1100-1300	11:00 am - 1:00 pm
1600-1900	4:00 pm - 7:00 pm
2200-2400	10:00 pm - 12:00 am

4. In case of an emergency vehicle (i.e. Ambulance, Police; Fire) or School Bus on Highway 29, road guard will notify Range Control immediate so check fire may be imposed. In the event that any vehicle fails to sto at road barricade or North End or South End No. 2, Range Control will be notified immediately, so that check fire can be imposed on firing points affected until vehicle is verified clear.

5. South End No 1 guards will advise traffic of upcoming road block (South End No 2) and advise traffic heading to New Augusta that they must detour via 8-Mile Road and Beaumont. Traffic desiring to go west will be advised that the Paret Fire Tower Road is open, and to proceed north to the next barricade location.

6. In order to prevent the road guards from making unnecessary administrative radio traffic on FM 38.90, unit commanders should insure that guard personnel are supplied with adequate water and meals, etc.

_____ _____

-(Unit/Office Symbol) (Date)

MEMORANDUM FOR Range Control Officer, Camp Shelby, MS 39407-5500

SUBJECT: Report on Investigation of FA Safety Violation That Occurred _____
(date)

1. Who Reported Safety Violation: _____

A. Location of Individual Reporting: _____
(Grid Coordinates)

B. Azimuth & Distance to Impact From Individual Reporting: _____

D. Location of Impact: _____ (Grid Coordinates)

C. Quantity/Type of Rounds that Impacted: Quantity: _____

Type: _____

2. Number & Type of Injuries Resulting From Incident: _____

_____

3. Who Fired Round?

A. Field Artillery Firing Point Number: _____

B. Unit: _____ Gun Number: _____

C. Type of Mission They Were Firing: _____

D. Grid Coordinates of Intended Target: _____

4. Detailed Narrative Explaining What Caused The Incident, How it Occurred, and Why. List Names and Positions Responsible.

_____
(Unit/Office Symbol)

SUBJECT: Report on Investigation of FA Safety Violation That Occurred _____
(date)

4. Narrative Continued from Page One:

5. Detailed Narrative Outlining Corrective Actions Taken, and When These Actions are to be Initiated and Completed:

6. Signature of Investigating Officer

_____ (Signature)

_____ (Name, Please Print)

_____ (Rank, Position)

(Signature Block of Senior Artillery Commander)

SECTION D

MORTAR

1. The firing of any mortars on Camp Shelby will be governed by AR 385-63, field manuals and technical manuals pertaining to the weapon and/or equipment and safety precautions outlined.

2. A permanent safety card file for all established mortar firing points is maintained at the Range Control Center for all types of mortars authorized to be fired. Permission to fire from any of these firing positions is authorized upon receipt of a valid copy of a permanent safety card signed by the Range Control Officer giving unit, dates and times of firing authorized. Actual firing will not begin until clearance is given by the Range Control Center. Units may obtain copies of desired safety cards by following procedures outlined in the General Section of this regulation.

a. Only ammunition that is authorized on the safety card will be fired.

b. All aiming circles will be declinated at Camp Shelby prior to their use in laying a mortar tube for firing. See Appendix 1, Section C for Declination Station information.

c. Request for firing from any position other than firing points with a permanent safety card will be as prescribed in paragraph 3, Section C of this regulation.

d. The surveyed firing point marker is to be used as the firing position location. The mortar tubes will be emplaced no further than 75 meters from the firing point marker.

e. There will not be any mortar firing over troops at Camp Shelby. The OIC will ensure that no personnel are between the mortar tubes and the target area while firing is being conducted.

3. Safety Personnel.

a. The senior commander conducting firing is responsible for all preparations and precautions necessary for safety during all phases of live firing while training at Camp Shelby. AR 385-63 establishes basic requirements.

b. Training and certification of safety personnel is a command responsibility. Proof of qualification and proficiency of personnel who are to perform Safety Officer duties will be determined through written tests administered by or under the direction of the highest headquarters conducting firing.

c. Duties, responsibilities, and techniques to be employed incident to functions of safety officer and NCOs are prescribed in the field manual for the weapon.

4. Other Mortar Safety Requirements:

a. See paragraph 7a - 7e, Section C this regulation. These items will be strictly followed or the unit will be check fired by the Range Control Officer until corrective action deemed necessary is taken.

b. Mortars will be separated by at least 32 meters; will be fired from prepared emplacements or from the SP mortar carriers; and will be located no farther than 75 meters from the established firing point marker.

c. Only the gunner, assistant gunner, and when necessary, one additional person serving in a safety or supervisory capacity will occupy the emplacement during firing. Protective helmets will be worn by all personnel who participate in mortar firing.

d. Excess powder/increment burning. see section C, para 11, page 21 of this regulation.

e. Extreme care will be taken to ensure that mortar rounds are not double loaded into tubes.

f. Mortar Firing Points 33 & 34 are located downrange of three (3) different Range complexes. Coordination with the Range Control Center is required prior to occupation.

5. Observation Post (OP's): All of paragraph 10, Section C of this regulation applies.

SECTION E

TANK/BRADLEY RANGES

1. General: AR 385-63, with additional precautions listed in this directive, will govern firing on Tank/Bradley ranges (tables). Unit commanders will insure that officers/NCO's detailed as range and safety officers are thoroughly qualified to perform their duties.

2. Range Officer: Duties of range officers (shown as OIC in FM 17-12-1) are covered in Section A, para 3c, these regulations and in Chapter 10, FM 17-12-1, dated 3 November 1986

3. Safety Officer: Duties of safety officer are covered in Section A, para 3d, these regulations, and Chapter 10, FM 17-12-1, dated 3 November 1986.

4. Safety Regulations for Tank and Bradley Ranges/Tables:

a. General:

(1) Assistant range and safety officers, commissioned or noncommissioned, may be appointed to assist the range and safety officers. The appointment of those assistants will in no way relieve the primary duty officers of their duties and responsibilities.

(2) Misfires, hang fires, and cook-offs will be handled as prescribed in AR 385-63 and appropriate technical manual for the weapon. Further reference is made in Sec A, para 7-1.

(3) No tank cannon will fire service or practice ammunition at a Quadrant Elevation (QE) greater than 5 degrees (89 mils) from horizontal.

(4) Range officer and safety officer will ensure that vehicle(s) maneuver on designated roads only.

(5) Range officer and safety officer will ensure that firing vehicle is centered within a stationary position, and that the vehicle is as far forward as possible without damaging the position prior to firing. All firing will be conducted IAW with the established safety card issued by Range Control.

b. The following safety precautions will be taken prior to opening fire:

(1) Safety officers will obtain the safety card for the range being fired from the range officer and verify that safety limits are established on the ground and are understood by all personnel present on the range.

(2) A red streamer will be displayed at the entrance to the range (table) and a flag placed on each tank which is to fire. Flags will be displayed as follows:

(a) Red Flag: Vehicle carrying live ammunition and engaged in firing.

(b) Green Flag: All vehicle weapons are clear and elevated. Any live ammunition in the tank is properly stowed.

(c) Orange Flag: Vehicle has a malfunction; used only in conjunction with other flags in Tank/Bradley gunnery (red & green).

(d) Red and Green Flags: Vehicle crew is preparing for firing or performing non-firing exercises; all weapons are clear, but not elevated.

(e) Red and Orange Flags: Vehicle has a malfunction or misfire; weapons are not clear and are pointed into impact area.

(f) Green and Orange Flags: Vehicle has a malfunction; all weapons are clear.

(3) Crew members will be cautioned to stay clear of path of recoil.

(4) Zones of fire will be cleared to ensure that no vehicle will fire into any obstruction such as trees or brush which might cause any explosion or ricochet at close range.

(5) Safety officers will instruct all personnel not to venture in front of the firing line, unless specifically authorized by safety personnel.

(6) The visible portion of the impact area will be checked to insure that it is clear.

(7) Prefire check will be performed. See Sec A, Para 7p.

c. The following safety precautions will be taken during firing:

(1) Safety officers will require all personnel at the position to comply with safety regulations.

(2) Due to the possibility of cook-off of overheated machine guns, all guns will be pointed down-range and elevated after firing to insure that accidental firing will pass over the heads of personnel in front of the tanks. This procedure will be followed in addition to the precautions listed in the following sub-paragraph.

(3) Before any vehicle is allowed to move off the firing line, all weapons on that Tank/Bradley will be unloaded and cleared. A safety officer or non-commissioned safety officer will inspect each vehicle weapon to insure that it has been unloaded and cleared before allowing the vehicle to depart from the firing line, or before allowing personnel in front of the vehicle. Vehicles will be considered clear when safety personnel have verified that all vehicle weapons are cleared, ammunition is properly stowed, and Laser Range Finder is placed on Safe for M-1 Tanks, and Test for M60A3 Tanks.

(4) Handling of Ammunition:

(a) Main tank gun ammunition will be covered by a tarpaulin at all times after uncrating until ready for use. When passing from stac into tank ready racks, the primer will be covered by placing one hand over the primer and the other hand on the fuse end of the projectile. Tank commanders or assistant range officers or non-commissioned officers will ascertain that the area is clear before allowing brass to be thrown from the tank.

(b) .50 Caliber: .50 Cal. machine gun ammunition will not be touched after clearing a fired gun until it has had time to cool.

d. The following safety procedures will be followed after firing:

(1) Procedures outlined in paragraph c(3)(see page 31) above will be followed after firing has been completed. No personnel will be allowed in front of the firing line until all vehicle weapons have been cleared and inspected by the safety personnel.

(2) The red streamer will be lowered.

(3) The Range Control Center will be notified that firing has been completed for the day and total number of rounds fired by caliber and the total number of personnel trained will be given. A request for clearance of the range will be made.

e. The Range 44/45 complex and Range 18/19 complex require extensive setup and service. The setup and service must be closely coordinated wit the Range Control Center. The down range area of these range complexes are inside firing fans of other ranges.

f. Tank Firing Fan: Appendix 1, Section E indicates location of road barricades that will be closed and area affected by the Tank firing fan. All commanders will instruct all personnel not to go around any closed steel gates or temporary barricades at any time.

g. Bradley Firing Fan: Appendix 2, Section E indicates location of road barricades that will be closed and area affected by the Bradley firing fan. All commanders will instruct all personnel not to go around any closed steel gates or temporary barricades at any time.

h. Lasers: See Section O.

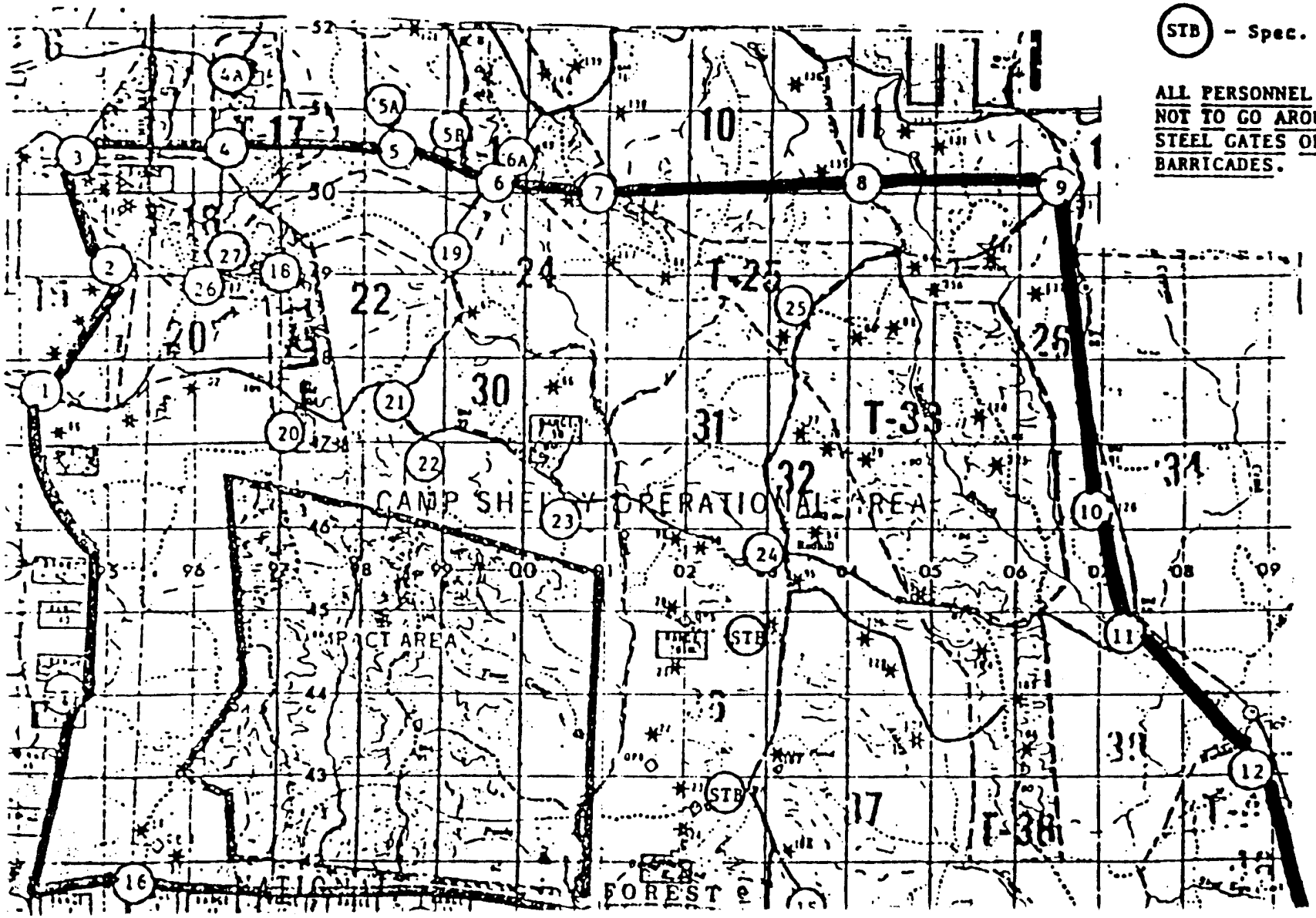
BIG TANK FAN
BARRICADE LOCATIONS

(#) - Permanent Barricade (Steel Gates)

(PTB) - Perm. Temp. Barricade

(STB) - Spec. Temp. Barricade

ALL PERSONNEL MUST BE BRIEFED NOT TO GO AROUND ANY CLOSED STEEL GATES OR TEMPORARY BARRICADES.



ANNEX C
Appendix 2, Section E

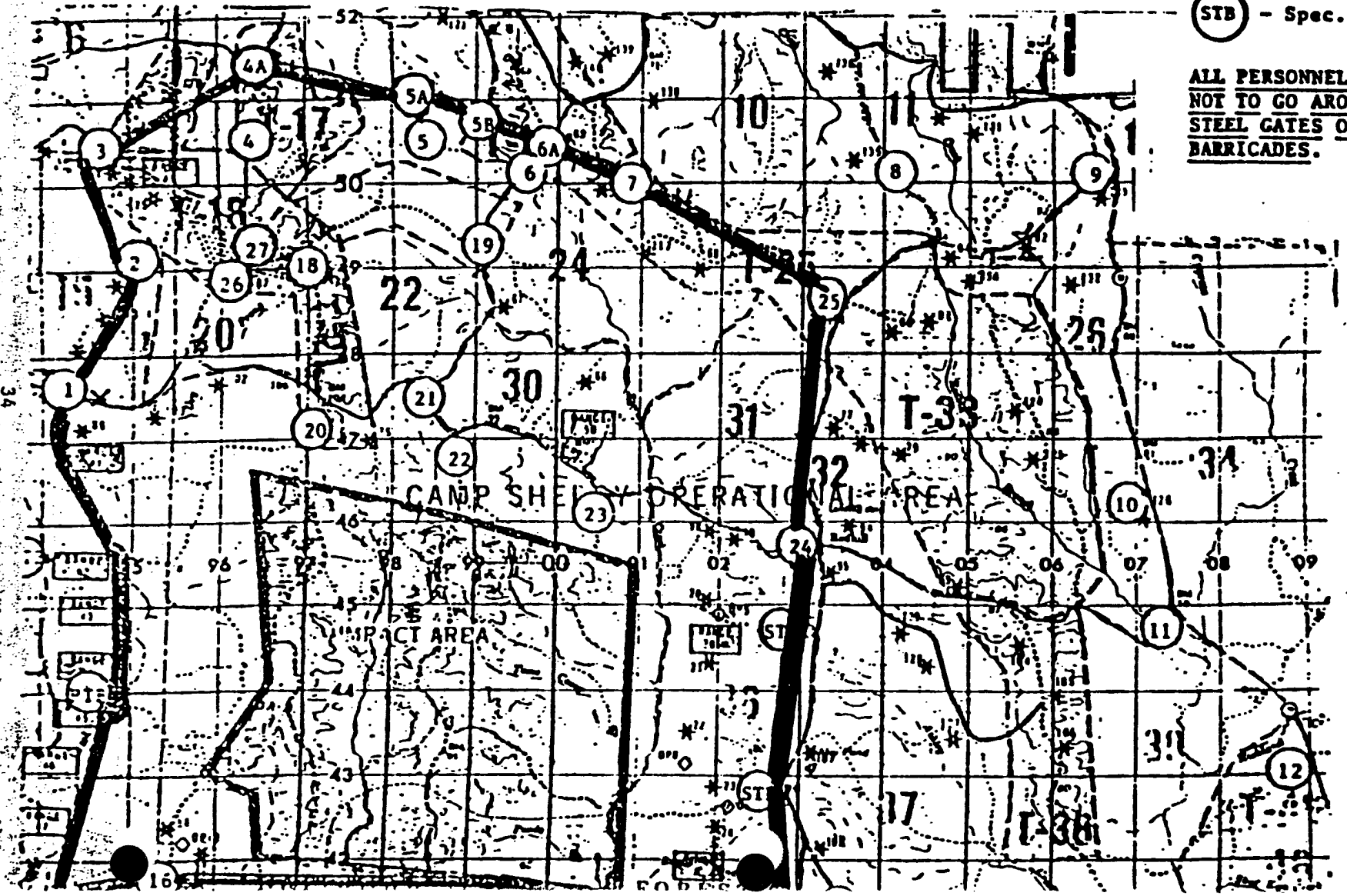
BRADLEY FAN
BARRICADE LOCATIONS

(#) - Permanent Barricade (Steel Gates)

(PTB) - Perm. Temp. Barricade

(STB) - Spec. Temp. Barricade

ALL PERSONNEL MUST BE BRIEFED NOT TO GO AROUND ANY CLOSED STEEL GATES OR TEMPORARY BARRICADES.



SECTION F

DAVIS RANGE COMPLEX

1. The Davis Range Complex denotes the rifle and pistol ranges located at coordinates 002469.

2. The Range Control Officer will be responsible for ensuring that the targets and target material for these ranges are on hand in sufficient quantities.

3. Using units will promptly report any malfunction of target equipment to the Range Control Officer or his representative. Units will paste target faces on target frames prior to firing.

4. Upon completion of firing, all target faces will be removed from targets and target equipment will be returned to the proper storage space subject to inspection by Range Control personnel.

5. Every effort will be made to conserve target and target materials. Appropriate action will be taken by the Officer in Charge to avoid damage to range equipment and facilities. The wooden portion of the target frame will not be fired on.

6. Using units will furnish all necessary control equipment such as communications equipment, colored helmets, etc.

7. Firing of weapons larger than .45 caliber or 5.56mm on any of these ranges is prohibited unless specifically requested in writing thirty (30) days in advance of planned use. Rifle Match Competition and Military Combat Skills Competition can be fired with prior approval.

8. Tracer and incendiary ammunition will not be fired on the Davis Range Complex without approval of the Range Control Officer.

9. Firing of weapons other than government issue is not permitted unless authorized by the Range Control Officer.

10. The Davis Range Complex can only be fired when Tank/Bradley Ranges are not firing.

11. Range OIC will ensure entrance road in to Field Artillery Firing Point 66 is blocked prior to firing.

SECTION G

DEMOLITIONS

1. General Requirements:

a. Training in live demolitions will be conducted only in appropriate courses for students or personnel required to use demolitions or to act as instructors in their use. Demolition training for other troops will normally be demonstrations.

b. All participating troops preparing demolitions will be qualified in a demolitions training course. Individuals engaged in the preparation and firing of charges for training troop units may be trained in a unit school conducted by a major organization. Such individuals must have in their possession a signed certificate of training and a listing of the types of demolitions for which the individual is considered to be qualified.

c. Commanders will ensure safety precautions in the use of pyrotechnics are brought to the attention of using personnel. There are certain inherent dangers to personnel, material and forest areas when using pyrotechnics. These dangers will be considered at all times, and particularly when using weapon-launched pyrotechnics such as mortar, illuminating rounds, rifle grenade flares, etc. Safety precautions as set forth in applicable FM/TM and AR 385-63, will be thoroughly understood and complied with by using units.

d. All personnel will strictly comply with regulations for handling munitions as prescribed in FM 5-25 (Explosives and Demolitions); TM 9-1900 (Ammunitions, General); and Section G of this regulation.

e. Demolition Reconnaissance Report (DA Form 2203-R) will be turned into Range Control upon OIC drawing Safety Card for Demolition ranges. This is in order to comply with the requirements of DA PAM 710-2-1. Blank copy of this form is provided in Annex E, FM 5-25 (Explosives and Demolitions).

2. Firing of Demolitions:

a. Demolitions will be fired at Range 6A located at Beaver Pond Creek South (OP 6) or Range 4A located at coordinates 930-540.

b. Charges up to 1/4 pound are authorized at the Demolition Range (4A) located at coordinates 930-540. Range 6A can accommodate up to 320 pounds depending on road block location. Range Control Officer will advise as to the max allowed for that day.

c. A safety officer (E-6 or above) will be designated for all problems, classes and demonstrations requiring the detonation of explosives. The safety officer will be responsible for the following:

(1) Protective helmets will be worn by all personnel.

(2) The enforcement of all safety procedures as outlined in AR 385-63 and procedures contained herein and other existing regulations.

(3) That only qualified personnel supervise the setting up of charges to be detonated.

(4) To personally check and inspect all charges before firing and inspect the area after firing to determine that all charges have been detonated.

(5) Will be charged personally with sole responsibility of all ignition devices (ignitors, blasting machines, etc.)

(6) Request clearance to fire from Range Control Center and have red flag flying on range flag pole during blasting.

(7) Posting of necessary road guards in coordination with the Range Control Officer.

(8) Minimum Safe Distance: See FM 5-34 and Chapter 18, AR 385-63.

d. Immediately before firing a charge, the warning "Fire in the Hole" will be given three (3) times to all personnel present and, if possible, three (3) short blasts sounded on a siren.

e. The following restrictions will be observed in firing demolitions on infiltration courses, combat exercises to simulate artillery or mortar fire:

(1) Only one 1/4 pound charge of explosives will be placed in a pit at one time except when specifically authorized by the Range Control Officer.

(2) All pits will be kept free of brush and gravel. A wall of dirt or sand filled bags will be placed around the edge of the pit to a height of 1/2 meter.

(3) The firing point will be so located that the person in charge of firing such charges can see each demolition pit and the immediate vicinity thereof.

f. Handling of Misfires: See AR 385-63.

g. Electric blasting caps and electric blasting circuits may be energized to dangerous levels from outside sources such as static electricity, induced electric currents, radio communication equipment, high tension wires, etc. Safety precautions, therefore, will be taken to reduce the possibility of premature ignition of the electric blasting caps and explosive charges of which they are a part.

h. Blasting or demolition operations involving electrical circuits shall not be conducted during electrical storms or when a storm is approaching. All operations shall be suspended, cap wires and lead wires should be short circuited and all personnel must move from the demolition area when an electrical storm approaches.

i. No caps will be placed underground at any time when priming cratering charges.

j. All pertinent safety regulations as found in FM 5-25 and TM 9-1900, will be strictly complied with.

k. Specific approval will be required from Range Control Officer for detonations not covered above.

l. Demolitions Range OIC will ensure that an accurate accountability of all demolitions material (ie. explosives, primers, detonators etc) is made on the demolitions accountability sheet attached to the safety card drawn from Range Control. The Range OIC will not depart Camp Shelby until the Camp Shelby ASP has a full accounting of all materials drawn and turned in as required. Clearance for Demolitions Range OIC to depart Camp Shelby will be given by Range Control following ASP clearance.

SECTION H

PYROTECHNICS

1. Prior to the use of any pyrotechnics at Camp Shelby, units will contact the Range Control Center for approval. Use may be disapproved because of possible fire hazards during periods of severe drought.

2. Simulator, Hand Grenade:

a. All personnel will be thoroughly instructed with use of the simulator as outlined on the label prior to use.

b. Immediately prior to removing the safety clip and extending the pull cord, the firer will select a spot which is free from rocks, loose gravel or sticks which may serve as missles when a simulator explodes. He will insure that no personnel are within 5 meters of the spot of impact and that no one will be within the trajectory of the simulator. The simulator will function six to ten seconds after pulling cord.

3. Simulator, Shell Burst, Ground:

a. Requires same safety precautions as above, with the exception that safety distance of 10 meters is required.

b. Immediately prior to removing the safety clip and extending the pull cord, the firer will select a spot which is free from rocks, loose gravel or sticks which may serve as missles when a simulator explodes. He will insure that no personnel are within 10 meters of the spot of impact and that no one will be within the trajectory of the simulator. The simulator will function six to ten seconds after pulling cord.

4. Ground flares will be fired only by experienced personnel. Ground flares will be mounted, staked down, pull wires set and checked. The area around the flare will be adequately guarded to prevent personnel from approaching within two meters of the installed flare. All flares will be accounted for prior to clearance of area.

5. Smoke pots will be fired only in areas free of ignitable material to eliminate possibility of fires. To prevent powder burns, the firer must never allow his face to be over the top of the smoke pot while igniting the striker.

6. Hand smoke grenades will be fired a minimum of 15 meters from personnel or material. Once the safety pin has been removed, it will not be replaced.

7. Hand Parachute Flares/Star Clusters will be fired IAW applicable FM/TM, and commanders discretion when around POL or ammunition sites.

8. All non-dud pyrotechnics (i.e. Artillery/Grenade simulators, booby-traps, Hoffman devices, etc.) will be removed by unit prior to departure from the training area.

9.. All dud pyrotechnics (i.e. Artillery/Grenade simulators, Booby-traps, Hoffman devices, etc.) will be marked with white engineer tape, and its location reported to the Range Control Center prior to unit departing training area.

10. Pyrotechnics will be brought into the cantonment area only after coordination and approval by the Camp Commander or his designated representative. Under no circumstances will pyrotechnics be stored in motor pools on Camp.

11. 40mm Illumination is NOT a pyrotechnic, and will only be fired on approved ranges.

HC SMOKE GUIDELINES

12. As a result of fatal acccidents and other injuries requiring hospitalization which have occurred during use of HC smoke for training, USASC strongly recommends immediate adherence to safety standards listed below:

a. Personnel will carry the protective mask when participating in exercises which include the use of smoke. Personnel will mask before:

(1) Exposure to any concentration of smoke produced by M8 white smoke grenades or smoke pots (HC smoke) of metallic powder obscurants.

(2) When operating in or passing through dense (visibility less than 50 meters) smoke concentrations such as smoke blankets and smoke curtains

(3) When operating in or passing through a smoke haze (visibility greater than 50 meters) and the duration of exposure will exceed 4 hours.

(4) Any time exposure to smoke produces breathing difficulity, eye irritation or discomfort. Such effects in one individual will serve as a signal for all similarly exposed personnel to mask.

(5) Personnel will mask when using smoke during military operations in urban terrain (MOUNT) training when operating in enclosed spaces. NOTE: The protective mask is not effective in oxygen deficient atmospheres. Care must be taken not to enter confined spaces where oxygen may have been displaced.

SECTION I

DESCRIPTION OF RANGES AND
TRAINING FACILITIES AVAILABLE

NAME	NUMBER	DESCRIPTION	TYPE OF AMMO
DEMOLITION 93005400	4A	Has pits for cutting charges	1/4 lb maximum charge
TOW (HE) 02064472	5	Located on OP 5 1 Firing Line	TOW/HE
BEAVER POND DEMOLITION 01744130	6A	Schematic available at the Range Control Center	320 lb maximum charge
AN-TVQ2 GVLLD 0164-4321	8A	Located OP 8. Laser Range Finder Mode only	AN-TVQ2 GVLLD with 10db Attenuator only.
TOW/DRAGON TRACKING RANGE 18535	10A	Scaled TOW/DRAGON tracking only	None
90MM RECOILLESS RIFLE 999408	12A	Located on OP 12 1 Firing Line	90mm HE/TP-T
RIFLE/MACHINE GUN FAM 999408	12B	Familiarization Course for M16 and M60 1 Firing Line	5.56mm, 7.62mm 90mm (sub-cal) Claymore
60MM MORTAR 999408	12C	Located on OP 12 60mm Direct Lay Range	M83A3 Illum M49A4 HE
TOW RANGE 991409	13A#	One point located on OP 13	TOW TP-T
DRAGON RANGE 991409	13B#	One point located on OP 13	DRAGON HE/TP-T
DIRECT FIRE ARTY 9412	14A	Direct Fire Artillery 1 Firing Line	155mm 203mm (8")

Requests for TOW/DRAGON Ranges will include type and quantity of rounds to be fired.

OP.14 979412	14B	Machine Gun Familiarization (Ground or vehicle Mtd) 1 Firing Line	7.62mm
INFANTRY PLATOON BATTLE RUN 943413	18A*	Mech Infantry Platoon Battle Run	.50 Cal 7.62mm 5.56mm 40mm (Prac) 35mm (Subcal)
TANK PLATOON BATTLE RUN 943413	18B*	Tank Platoon Battle Run	120/105mm .50 Cal 7.62mm
BRADLEY IFV TABLE V 943413	18M*	Bradley IFV Table V A&B	7.62mm 5.56mm
CEV COAXIAL MACHINE GUN 956422	19A**	CEV Coaxial Firing	7.62mm
CEV MAIN GUN & .50 CAL 956423	19B**	Range has 2 firing points	165mm .50 Cal
LOCUST 94855015	40A*	M60 Tank Table VI A&B	105mm .50 Cal 7.62mm
LOCUST 94855015	40B*	M60 Tank Table VII A&B	105mm .50 Cal 7.62mm
LOCUST 94855015	40C*	Mech Inf Carrier Course	.50 Cal 7.62mm
LOCUST 94855015	40D*	M-1 Tank Table VI A&B	105mm .50 Cal 7.62mm M-1 LRF

* Target Request and Scorecard Required with request for Range. See Section A, para 5-a-(3) for additional information.

** Target Request Required with request for Range. See portion of Section A, para 5-a-(3) that pertains to target requests for additional information.

LOCUST 94855015	40E*	M-1 Tank Table VII/VIII A & B	105mm .50 Cal 7.62mm M-1 LRF
LOCUST 94855015	40F*	M60A3 Tank Table VI A&B	105mm .50 Cal 7.62mm AN/VVG-2 LRF
LOCUST 94855015	40H*	M1A1 Tank Table VI A & B	120mm .50 Cal 7.62mm M-1 LRF
LOCUST 94855015	40I*	M1A1 Tank Table VII A & B	120mm .50 Cal 7.62mm M-1 LRF
LOCUST 94855015	40J*	M1A1 Tank Table VIII A & B	120mm .50 Cal 7.62mm AN/VVG-2 LRF
LOCUST 94855015	40M*	Bradley IFV Table V A&B	7.62mm
LOCUST 94855015	40O*	Bradley IFV Table VI A&B	25mm TP-T 7.62mm
LOCUST 94855015	40P*	Bradley IFV Table VII/VIII A/B/C	25mm TP-T 7.62mm 5.56mm
ASH 943473	41A*	M60 Tank Table VI A&B	105mm .50 Cal 7.62mm

* Target Request and Scorecard Required with request for Range. See Section A, para 5-a-(3) for additional information.

** Target Request Required with request for Range. See portion of Section A, para 5-a-(3) that pertains to target requests for additional information.

ASH 943473	41B*	M60 Tank Table VII/VIII A&B	105mm .50 Cal 7.62mm
ASH 943473	41C**	Machine Gun Qual/Fam Ground Mounted only 1 Firing Line	.50 Cal 7.62mm
ASH 943473	41D*	M-1 Tank Table VI A&B	105mm .50 Cal 7.62mm M-1 LRF
ASH 943473	41E*	M-1 Tank Table VII/VIII A & B	105mm .50 Cal 7.62mm M-1 LRF
ASH 943473	41F*	M60A3 Tank Table VI A&B	105mm .50 Cal 7.62mm AN/VVG-2 LRF
ASH 943473	41G*	M60A3 Tank Table VII/VIII A & B	105mm .50 Cal 7.62mm AN/VVG-2 LRF
ASH 943473	41H*	M1A1 Tank Table VI A & B	120mm .50 Cal 7.62mm M-1 LRF
ASH 943473	41I*	M1A1 Tank Table VII A & B	120mm .50 Cal 7.62mm M-1 LRF
ASH 943473	41J*	M1A1 Tank Table VIII A & B	120mm .50 Cal 7.62mm M-1 LRF

* Target Request and Scorecard Required with request for Range. See Section A, para 5-a-(3) for additional information.

** Target Request Required with request for Range. See portion of Section A, para 5-a-(3) that pertains to target requests for additional information.

ASH 943473	41M*	Bradley IFV Table V A&B	7.62mm
ASH 943473	41O*	Bradley IFV Table VI A&B	25mm TP-T 7.62mm
ASH 943473	41P*	Bradley IFV Table VII/VIII A/B/C	25mm TP-T 7.62mm 5.56mm
COMBAT PISTOL QUAL COURSE 943457	42A	Day record fire/NBC/night fire (12 firing Points)	.45 Cal .38 Cal .22 Cal 9mm
MECH INF SQUAD TEAM COURSE 942456	42B**	Squad dismount course Located at Birch Range	Claymore (FP 5 Only) 7.62mm 5.56mm 40mm Practice 35mm (Subcal)
CEDAR 942451	43A	MG Transition course Ground Mounted only 5 points for .50 Cal 10 points for M60	.50 Cal 7.62mm
CEDAR 942451	43B**	Tank Zero, MG Familiarization, Mounted (1 Firing Line)	105mm .50 Cal 7.62mm
CEDAR 942451	43C	Machine Gun, 10 Meter Dismounted Only. (20 Firing Points)	.50 Cal 7.62mm 5.56mm
CEDAR 942451	43D**	Machine Gun Moving Target Engagement, Mounted or Dismounted. Day/Night (20 Firing Points, Dismounted) (1 Firing Line, Mounted)	.50 Cal 7.62mm 5.56mm

* Target Request and Scorecard Required with request for Range. See Section A, para 5-a-(3) for additional information.

** Target Request Required with request for Range. See portion of Section A, para 5-a-(3) that pertains to target requests for additional information.

DOGWOOD 942443	44	Machine Gun 10 Meter Machine Gun Familiarization Dismounted only. (20 Firing Points)	.50 Cal 7.62mm 5.56mm
ELM 942436	45A*	M60 Tank Table VI A&B	105mm .50 Cal 7.62mm
ELM 942436	45B*	M60 Tank Table VII A&B	105mm .50 Cal 7.62mm
ELM 942436	45C**	MG Fam (Vehicle Mtd Only) Table VI Berm	.50 Cal 7.62mm
ELM 942436	45D*	M-1 Tank Table VI A&B	105mm .50 Cal 7.62mm M-1 LRF
ELM 942436	45E*	M-1 Tank Table VII/VIII A & B	105mm .50 Cal 7.62mm M-1 LRF
ELM 942436	45F*	M60A3 Tank Table VI A&B	105mm .50 Cal 7.62mm AN/VVG-2 LRF
ELM 942436	45G*	M60A3 Tank Table VII & VIII A & B	105mm .50 Cal 7.62mm AN/VVG-2 LRF
ELM 942436	45H*	M1A1 Taqk Table VI A & B	120mm .50 Cal 7.62mm M-1 LRF

* Target Request and Scorecard Required with request for Range. See Section A, para 5-a-(3) for additional information.

** Target Request Required with request for Range. See portion of Section A, para 5-a-(3) that pertains to target requests for additional information.

ELM 942436	45I*	M1A1 Tank Table VII A & B	120mm .50 Cal 7.62mm M-1 LRF
ELM 942436	45J*	M1A1 Tank Table VIII A & B	120mm .50 Cal 7.62mm M-1 LRF
ELM 942436	45M*/O*/P*	BFV table VI/VII/VIII A&B	25mm TP-T 7.62mm
GUM NORTH 938431	46A	LAW (66mm) & Grenade Launcher (3 Firing Points)	66mm 40mm 35mm (Subcal) MK-19 (Prac/ Smk Only)
GUM SOUTH 938431	46B	Grenade Launcher Only (3 Firing Points)	40mm (Practice Only)
GUM 938432	46C	M31 FA Trainer	14.5mm
HICKORY 937425	47A	Rifle Field Fire NBC/Night qual. (35 Firing Points)	5.56mm
HICKORY NORTH 938423	47B	90mm Subcaliber M60 (tank) Familiarization	7.62mm
IRONWOOD 938422	47C	25 meter rifle qualification and machine gun qualification, (30 Firing Points)	.50 Cal 7.62mm 5.56mm
RECORD FIRE 962431	48A	Rifle Record Fire Day/NBC/Night fire (PA system required (12 Firing Points)	5.56mm

* Target Request and Scorecard Required with request for Range. See Section A, para 5-a-(3) for additional information.

ZERO RANGE 962431	48B	25 meter rifle qualification and zero range. (35 Firing Points), ground mounted.	5.56mm
CMBT PISTOL COURSE 962431	48C	MP (Combat Pistol Course) (35 Firing Points)	.45 Pistol
DAVIS COMPLEX 001469	50B	25/50 yard pistol firing line. (50 Firing Points)	.45 .38 Cal .22 Cal 9mm
	50C	combat skills 400 yard max. 25 meter zero/fam KD 100-400 yard Known Distance firing. (50 Firing Points)	5.56mm
	50D	combat skills 600 yard max 25 meter zero/fam, KD 100-600 yard Known distance firing. (50 firing Points)	7.62mm 5.56mm
HELICOPTER DOOR GUNNERY 01744130-943413	186A	Located between OP6 & OP18	7.62mm
AIR-GROUND WEST 027447	201W	ANG Range - Scoring Capability for strafing, dive bombing and skip bombing	20mm TP-T 30mm TP-T 7.62mm 500 lb Bombs Frac. Bombs 2.75" Rockets
AIR-GROUND EAST 118453	202E	ANG Range - Scoring Capability for strafing, dive bombing and skip bombing	20mm TP-T 30mm TP-T Frac Bombs 2.75" Rckts (TP-T Only)
ARTILLERY Appendix 1, Section I		Firing points and OP coordinates listed in Camp Shelby Trig List and Appendix 1	203mm (8") 155mm 105mm
MORTAR Appendix 2, Section I		Firing points and OP coordinates listed in Camp Shelby Trig List and Appendix 2	107mm (4.2") 81mm 60mm
TRAINING FACILITIES Appendix 3, Section I		Listed in Appendix 3	

FIELD ARTILLERY FIRING POINTS

FPS	COORD'S	FPS	COORD'S	FPS	COORD'S	FPS	COORD'S	FPS	COORD'S
60	934 420	83	978 523	106	060 433	129	042 446	152	984 512
61	942 416	84	049 491	107	032 433	130	047 507	153	984 504
62	967 387	85	051 488	108	033 421	131	051 506	154	989 505
63	985 397	86	968 491	109	035 432	132	063 487	501	124 495
64	995 395	87	963 489	110	956 511	133	066 498	502	125 488
65	049 451	88	953 525	111	951 507	134	032 483	503	119 474
66	004 476	89	943 470	112	924 441	135	037 503	504	116 462
67	994 485	90	943 526	113	935 440	136	033 513	505	116 457
68	018 490	91	959 525	114	934 430	137	012 519	506	117 453
69	001 505	92	955 530	115	954 413	138	012 510	507	095 447
70	926 431	93	972 482	116	967 401	139	006 516	508	097 443
71	973 490	94	036 458	117	010 492	140	003 515	509	098 436
72	031 449	95	034 454	118	006 499	141	941 505	510	087 444
73	948 502	96	981 524	119	938 527	142	944 481	511	092 473
74	951 502	97	937 468	120	948 523	143	947 485	512	093 479
75	955 500	98	020 459	121	986 521	144	949 488	514	108 478
76	977 470	99	022 458	122	990 521	145	949 516	515	125 481
77	035 471	100	971 472	123	994 521	146	926 424	516	112 495
78	038 470	101	937 450	124	057 473	147	926 417	517	096 488
79	042 468	102	960 476	125	059 467	148	936 415	518	085 490
80	042 483	103	953 473	126	070 461	149	042 452	519	078 502
81	045 483	104	058 445	127	049 435	150	051 483	520	077 507
82	056 491	105	060 439	128	047 442	151	979 496		

MORTAR FIRING POINTS

Station	Easting	Northing
MFP 20	01841.74	44907.26
MFP 21	02111.01	44465.77
MFP 22	01743.34	43633.31
MFP 23	01941.44	42902.86
MFP 24	02110.01	42423.72
MFP 25	01768.35	41348.02
MFP 26	01681.41	41113.93
MFP 27	00431.296	40747.628
MFP 28	99687.062	40759.491
MFP 29	99333.968	40796.602
MFP 30	98865.522	40835.776
MFP 31	98078.906	40955.315
MFP 32	97741.084	41079.3416
*MFP 33	95710.842	42117.151
*MFP 34	95460.047	42353.546

*NOTE: MFP's 33 & 34 are located in the down range area of three (3) ranges. Close coordination with Range Control Office must be made before use.

Appendix 2, Section I

TRAINING FACILITIES

Facility	Location	REQUESTED FROM	WHERE DRAWN	HOW CLEARED
Barron Point LZ	9350-4735	RC	RC	RC
Hagler AAF	9085-5135	RC	RC	RC
Andrews Land Navigation Course (35th St. and 6th Ave.)	9097-5269	RC	RC	FE
Dogwood Land Navigation Course	8922-5434	RC	RC	FE
NOE Course	CP Shelby Opnl Area	RC	NA	NA
Practice Grenade Course	9370-4240	RC	NA	RC
Rappelling tower	9155-5261	RC	RC	RC
PT Training/testing Area	8790-5390	RC	FE	FE
TSFO	BLDG 622 (Jackson Ave.)	RC	TSFO	TSFO
Load Out Training Area: (Must specify desired facility(ies) C-130 Mock-up -140 Mock-up -5 Mock-up (not completed) Flat Car and Box Car (see Facility Engineers for spanners)	36th St.	RC	FE	FE
Leadership Reaction Course (35th St. and 6th Ave.)	9097-5269	RC	RC	RC
Gas Chamber	BLDG 4290 (43rd St.)	RC	RC	RC
Shelby DZ	T-19	RC	RC	RC
Quonset Hut # 5918 (with telephone)	Barron Point (West of Grapevine)	RC	RC	RC
Quonset Hut # 5916	Barron Point (West of Grapevine)	RC	RC	RC
Quonset Hut # 5919	Barron Point (West of Grapevine)	RC	RC	RC
Latrine # 5963	Barron Point (West of Grapevine)	RC	RC	RC

*RC = Range Control
FE = Facility Engineers

Appendix 3, Section I.

TRAINING FACILITIES (CONTINUED)

Facility	Location	REQUESTED FROM	WHERE DRAWN	H CLEARED
Quonset Hut # 5913	Barron Air Strip (East of Grapevine)	RC	RC	RC
Quonset Hut # 5920	Barron Air Strip (East of Grapevine)	RC	RC	RC
Latrine # 5965	Barron Air Strip (East of Grapevine)	RC	RC	RC
Engineer SQT Bldg	6th Avenue	RC	RC	RC

*RC = Range Control
*FE = Facility Engineers

Appendix 3, Section I (Continued).

SECTION J

RESTRICTED AIRSPACE

1. Restricted Airspace R-4401: Camp Shelby restricted airspace (R-4401) contains all live firing positions on the reservation. R-4401 boundaries are depicted on maps located at Hagler Air Field, Post Main Dispensary, and Range Control Center. Entry and exit points are designated on these maps by a letter of the alphabet. All entries and exits of R-4401 will be at these points. (See Appendix 1, Section J)

a. A NOTAM (Notice to Airmen) is posted with Houston Flight Service for the time that live firing is being conducted. This is another means of determining if R-4401 is clear for air traffic, i.e., if a NOTAM is posted with Houston Flight Service, then R-4401 is active.

b. No aircraft will enter restricted airspace during the time (R-4401) is active unless radio (UHF/FM) communication is established with the Range Control Center and permission to enter is granted.

2. Range Air Traffic Control: Emergency mission aircraft, organizational aircraft of tactical units and other aircraft with valid reasons will be allowed to enter R-4401 by following the procedures shown below:

a. Approved entry and exit points and landing areas designated on maps at installations listed in paragraph 1, this section are to be utilized.

b. Pilots must request permission to enter R-4401 from Shelby Range Air Control prior to approaching desired entry point. Pilot will then inform Shelby Range Air Control of entry point, desired route, and intentions inside of restricted air space, to include LZs or other areas where landing is required. Shelby Range Air Control may approve/disapprove requested air routes and LZs depending upon firing situations or other operations within R-4401. (NOTE: ALL LANDINGS ARE AT THE PILOTS DISCRETION). It is the pilots responsibility to ensure that LZs are safe for use and free of any obstacles, personnel and equipment, that may endanger either aircraft or ground personnel prior to actual landing of aircraft. Pilots will inform Shelby Range Air Control of short final approach for LZs. Pilots will call Shelby Range Air Control before taking off, and advise of present location and destination. Pilots will not take off without approval of Shelby Range Air Control.
Communications: Primary Frequency is 233.20 UHF, Alternate Frequency is 38.90 FM (New Squelch). If no contact can be made utilizing above frequencies, call Shelby Range Control on 41.60 FM (Old Squelch), or Air Ground Range on 297.10 UHF.

c. If request is approved, pilot will be given instructions pertinent to his request, i.e. entry point, route to follow, special instructions, etc.

d. If request denied, the Shelby Range Air Control radio net will not be used to debate the decision. Telephone or personal contact will be used for discussion of any problem.

e. Instructions for departure from restricted area will be given upon request and will be followed. These instructions must be obtained prior to aircraft lift-off.

f. Shelby Range Air Control will be informed as soon as aircraft is clear of R-4401.

g. Commander's tactical employment of his organizational aircraft within the boundaries of the restricted airspace will not be denied without just cause, however, the aircraft must be cleared to be positioned within R-4401 as per instructions above. Any planned employment of aircraft such as convoy cover and control, tactical recon, artillery air missions, etc., will be coordinated and approved at least 24 hours prior to planned employment. The unit aviation officer will report to the Range Control Center and make the necessary coordination with the Range Control Officer. Under no conditions will the aircraft make any move, regardless of prior coordination, without receiving permission from the Range Control Center immediately prior to take-off.

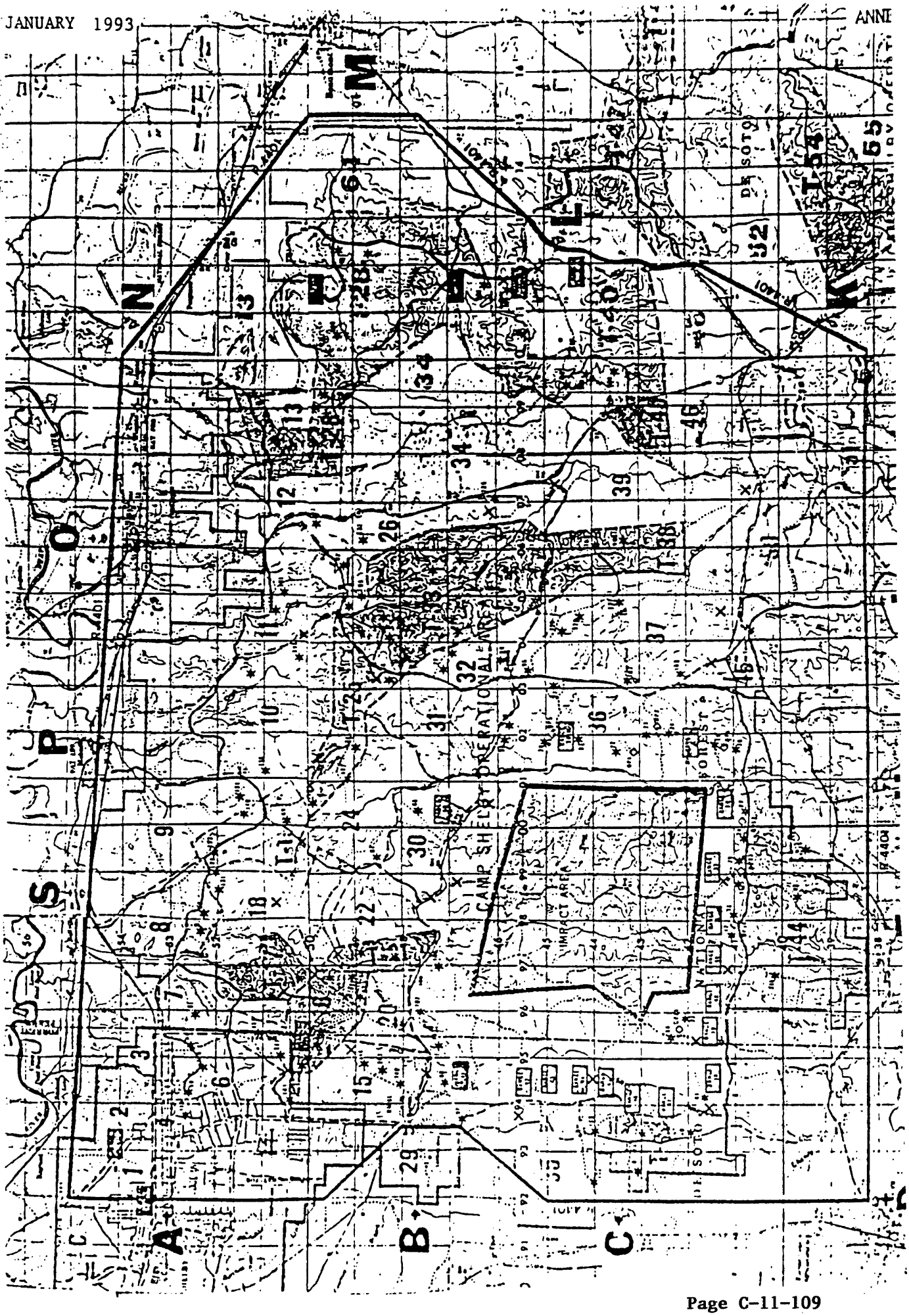
h. It is the pilot's responsibility to keep Shelby Range Air Control informed AT ALL TIMES of the situation involving his aircraft.

i. In the case of multiple ship formations, the Flight Leader may communicate with Range Air Control on entry, exit, and movement within R-4401 for all aircraft in his flight. Upon contact with Range Air Control, Flight Leader will inform Range Air of the quantity of aircraft within his flight (including his aircraft). All aircraft within the flight WILL have operational radios capable of communicating with Range Air Control. It is the flight leader's responsibility to advise Range Air Control of any aircraft (identify by tail number) that leaves flight. In addition, the departing aircraft must also call Range Air Control and advise that his aircraft has departed the flight. The flight leader will be held responsible for the actions of all aircraft within his flight.

j. Each individual has the responsibility of reporting any known aircraft violations of the R-4401 restricted airspace to the Range Control Center.

k. Check fires will not be imposed to allow aircraft to fly into R-4401 except for MEDEVAC. Check fires infringe upon valuable unit training time. The senior headquarters should keep this in mind when planning operations or flights that may require units to be check fired. If the senior headquarters training at Camp Shelby desires units to be check fired for VIP aircraft or any other planned use of the airspace, coordination must be arranged with the Range Control Officer prior to planned use of the airspace.

l. Aircraft will avoid Cypress Creek Church (vic grid 103396 - 600 meters north west of Entry Point "K") between 0900-1200 hours on Sunday's


CAMP SHELBY
MISSISSIPPI
NATIONAL GUARD
IMPACT AREA
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NAME: COORDINATES:	EXIT/ENTRY POINTS TERRAIN FEATURE LOCATION
A-ALPHA 920532	LEE AVENUE EAST GATE MP SHACK
B-BRAVO 935478	BARRON POINT RANGE CONTROL CENTER
C-CHARLIE 920432	APPROX 1500 METERS WEST OF LAKE JANNEY
D-DELTA 920 382	BLACKTOP ROAD APPROX 1/2 MI NORTHEAST OF BROOKLYN
E-ECHO 978382	APPROX 500 METERS NORTH OF ROAD JCT - PARET TOWER RD (BLACKTOP) & GRAVEL ROAD
H-HOTEL 008382	ALONG PIERCE CREEK APPROX 900 METERS SOUTH OF BRIDGE ON BROOKLYN-PARET BLACKTOP
J-JULIETT 048382	ROAD JCT APPROX 1 MILE SOUTH OF PARET FIRE TOWER
K-KILO 107391	HWY 29 (BLACKTOP) AT CYPRESS CREEK CHURCH
L-LIMA 125447	ROAD JCT (BLACKTOP) & DIRT ROAD APPROX 700 METERS SOUTHEAST OF RANGE 202E
M-MIKE 151489	TRAIL JCT APPROX 1 MILE WEST OF BEAUMONT
N-NOVEMBER 103537	BIG BEND IN LEAF RIVER AND CURVE IN RAILROAD
O-OSCAR 061543	NEW AUGUSTA AT HWY 29
P-PAPA 018545	INTERSECTION OF BLACKTOP ROAD AND HWY 98 AT MAHNED
S-SIERRA 985548	BIG BEND IN LEAF RIVER AT INTERSECTION OF LEE AVENUE AND HWY 98

NUMBER: COORDINATES:	LANDING POINTS TERRAIN FEATURE LOCATION
5 021447	OP 5 HILL
7 021426	OP 7 HILL
13 991409	OP 13 HILL
20 001469	RANGE 50 COMPLEX
21 000510	DROP ZONE SHELBY - NEAR TRAIL JUNCTION
22 032461	SOUTH END OF REDHILL AIRSTRIP
23 125494	BIG HILL AT TRAIL JCT EAST OF RANGE 1 (REDBUD)
24 119468	RANGE 2 (FIR)
25 122447	INTERSECTION OF TRAIL AND BLACKTOP ROAD SOUTHEAST OF RANGE 202E
26 098517	LARGE CLEARING APPROX 2 MILES SOUTHEAST OF NEW AUGUSTA
60 935419	ARTY FIRING POINT 60
67 993486	ARTY FIRING POINT 67 NORTH WEST OF RANGE 50
68 017491	ARTY FIRING POINT 68 NORTH EAST OF RANGE 50
71 973490	ARTY FIRING POINT 71 EAST END OF RANGE 40
73 948502	ARTY FIRING POINT 73 WEST END OF RANGE 40
78 037470	ARTY FIRING POINT 78 1 MILE NORTH OF REDHILL
85 049489	OPEN FIELD NEAR SWEETWATER CEMETARY
90 943526	ARTY FIRING POINT 90 NEAR EAST END OF FORREST AVE
104 058445	ARTY FIRING POINT 104 EAST OF REDHILL
115 954412	ARTY FIRING POINT 115 JCT SOUTH TANK TRAIL & COMPEN ROAD

CALL SIGN: SHELBY RANGE AIR

Primary Frequency: UHF 233.20
Alternate Frequency: FM 38.90 New Sq
Emergency Frequency: FM 41.60 Old Sq

SECTION K

NIGHT VISION GOGGLE AND NOE TRAINING

1. Aviators will strictly adhere to the following procedures listed for Night Vision Goggle (NVG) and Unaided night operations.

a. NVG operations will not be conducted when the weather is forecasted to be or becomes less than a 1,000 foot ceiling or 3 miles visibility.

b. NVG Training and Standardization

(1) Qualification - Except when flying with an NVG IP, each aviator will be qualified and current with NVG IAW respective aircraft ATM and appropriate regulations.

(2) Standardization Evaluation - Each aviator in continuation training will complete an NVG Standardization Evaluation IAW the ATM.

(3) Pilot in Command - Prior to performing Pilot in Command (PC) duties, aviators will be qualified and current with NVG, completed NVG mission Training, and designated in writing by the commander.

c. Crew Endurance - Flight limits and crew rest will be IAW crew endurance scheduling guide, AR 95-3.

d. Aircraft Lighting

(1) UH-1

(a) Navigation Lights will be set to "Flash Bright" when rotor is turning on the parking pad. The navigation lights will be placed on "Steady Bright" prior to leaving parking. Upon landing and during engine cool down, the navigation lights will not be turned off until rotor blades have stopped.

(b) Subduing of navigation lights for NVG. The upper half of the lower and the lower half of the upper navigation lights may be taped to prevent a halo effect around the aircraft.

(c) The navigation lights may be placed in "Steady Bright" or "Steady Dim" mode. It is the discretion of the PC as to which mode, dependent on ambient light levels.

(d) Only approved NVG modified aircraft will be used for NVG training missions.

(e) Additional light source. NVG terrain flight will not be conducted when the moon illumination is less than 23% or below 30 degrees altitude unless the infrared band-tass filter or a pink light modified search light or landing light is installed and operational. If operations are conducted during low levels of illumination extreme caution must be used.

(f) Anti-collision light may be turned off, position lights may be turned to dim during NVG flights below 200 feet AGL. These lights must be on bright when operation within five (5) miles of a lighted airport.

(2) OH-6: Same lighting procedure as UH-1 aircraft, except steady bright navigation lights will be on anytime the rotor is turning on the pad. The navigation lights may be taped as required.

(3) UH-60, AH-64, AH-1, and OH-58 lighting requirements will be IAW the respective aircraft ATM.

e. Location of NOE Routes

(1) NOE routes 1, 2, and 3 or located south of Beaumont outside of R-4401 to the S/W.

(a)
IP	NOE Route	#1	CK 237-381
RP	NOE Route	#1	CK 234-237
IP	NOE Route	#2	CK 195-385
RP	NOE Route	#2	CK 174-248
IP	NOE Route	#3	CK 179-449
RP	NOE Route	#3	CK 155-322

(2) NOTE: NOE Route #4 has been eliminated due to overflight of Wilderness Area.

f. Night Terrain Flight

(1) A minimum of two aircraft are required to train at NOE flight altitudes using the "Buddy System". If only one aircraft is conducting NOE training, a S and C (Safety and Cover) aircraft is required.

(2) Aircraft utilizing the "Buddy System" will only utilize NOE routes 1 and 3. Single aircraft operating with a S and C aircraft may utilize any NOE route.

(3) The maximum number of aircraft utilizing the NOE routes at any one time is two (2).

(4) Corridors:

(a) Entry corridor - Starting point for departure to NOE routes will be Hagler AAF. Entry corridor to the terrain flying area will be North of Hwy 98 along Leaf River. The actual coordinates to check point one are BK 922-568. This is located just outside the Northwest corner of R-4401. Aircraft enroute to the check point will proceed at 800 ft MSL. After passing check point one aircraft will proceed East bound along Leaf River, and will remain at 800 ft MSL until passing check point two, located at Beaumont, coordinates CK 173-496. Once aircraft are South of check point two (Beaumont) aircraft can proceed to the NOE routes at 100 ft AHO.

(b) Exit corridor - Exiting the terrain flying area from the NOE routes, aircraft will climb to 2000 ft MSL (weather permitting) and proceed South of R-4401 and then turn West. If unable to maintain 2000 ft MSL due to weather, aircraft will circumnavigate the Black Creek Wilderness Area to the south enroute to check point 3 (Brooklyn). Once aircraft are West of check point 3 (Brooklyn), coordinates BK 896-373, aircraft may proceed to Hagler Army Airfield at 800 ft AGL remaining clear of R-4401.

(5) Communication - All aircraft (aided and unaided) will monitor 233.20 UHF, Shelby Range Air. Range Control will function as the controlling agency for NVG aircraft and unaided aircraft operating in [illegible]-4401 and the tactical training areas. Each aircraft will contact Shelby Range Air. After initial contact, aircraft will give call sign, whether you are unaided or NVG, and your destination in the training area. Aircraft will also report check points inbound to NOE area and outbound.

(6) Mixed Traffic - Unaided aircraft operating in the training area will be restricted to a minimum altitude of 500 feet AGL when NVG aircraft are enroute to the training area. Unaided aircraft performing supervised unit tactical training may operate below 500 feet AGL only when there are no other reported NVG aircraft enroute to or operating in the tactical training area.

(7) Aircraft Operations - Tower personnel will be given an NVG briefing and orientation with NVG prior to controlling NVG operations. The NVG aircraft will goggle up on the south end of helicopter parking area. Traffic permitting, the tower will depart NVG aircraft from this area. Vehicle lighting will be kept to a minimum and red lights will be placed on obstacles. Unaided aircraft will use the runway. Aided aircraft may use the runway when no conflicts exist with unaided aircraft.

(8) Scheduling Procedure - Units desiring to conduct unaided and NVG training will utilize an ATS Form 47C (See Section P, Appendix 4) using the following criteria:

(a) Weekend (IDT) Training - Units will submit ATS Form 47C not less than thirty (30) days in advance of desired training to ensure Range Control Center is staffed to support desired mission.

(b) Annual Training - Units will submit ATS Form 47C upon arrival at Camp Shelby to ensure Range Control Center is staffed to support desired mission.

(c) Range Control will coordinate training areas/routes to maintain separation of aircraft.

(d) Cancellations - All cancellations will be submitted in writing on an ATS Form 47C. On last minute cancellations due to changes in weather, pilot will call Range Control via telephone or radio immediately and advise of requested cancellation.

g. Minimum Required Equipment for NVG Operations:

(1) Aircraft with operational UHF radio. VHF or FM for unit air to air.

(2) Current map of training area with check points and obstructions.

h. A NVG hazard map is located in Hagler AAF operations.

i. Camp Shelby does not have an approved VHIRF procedure. Units must establish their own procedures for inadvertent IMC.

SECTION L

AIR-TO-GROUND RANGE

General Information: There are two (2) Air National Guard Air-to-Ground Ranges located within the boundaries of Camp Shelby Restricted Airspace (R-4401). One Control Tower (Coordinates 11704540 - Beaumont Sheet) (East Range) is located generally midway between Oak and Fir Ranges. The other Control Tower (Coordinates 02204420 - New Augusta Sheet) (West Range) is located 700 meters south of OP5. All types of aircraft utilize these ranges throughout the year for live fire training.

a. All firing is controlled by the Air National Guard Range Control Officer. Firing consists of 30mm and 20mm Strafing, 2.75 rocket firing, dive and skip bombing using practice bombs.

b. Normally live firing is conducted from aircraft flying from East to West with left pull-out.

c. The East Range Safety Surface Danger Area generally falls within a triangular shaped area bounded by the following description: From Coordinates 12104520 (Beaumont Sheet) North to Coordinates 11904620 (Beaumont Sheet) Northwest to Coordinates 05404760 (New August Sheet) South to Coordinates 06804190 (New Augusta Sheet) Northeast to Starting Point. The West Range Surface Danger Area falls within existing artillery impact area.

d. Barricades are placed on road approaches leading into the danger area and under no circumstances will anyone bypass these barricades, when in place, without prior coordination and approval of the Range Control Officer.

e. The Air-Ground Range Officer will ensure that all barricades are physically checked and secured each day prior to commencement of firing. Additionally, the Air-Ground Range Officer will ensure that these barricades are opened at the completion of firing each day if no firing is scheduled for the next day.

f. The Air-Ground Range Officer will instruct first aircraft of the initial flight for the day to conduct a "dry" flyover of the danger area to ensure that area is clear of all unauthorized personnel and equipment.

g. The Air-Ground Range Officer will advise all aircraft to avoid populated areas such as New Augusta, Beaumont, or McLain. When the Air-Ground Range is operating on Sundays, range officer will further advise aircraft to avoid Cypress Creek Church (vic grid 103396 - 600 meters north west of Entry Point "K") between 0900-1200 hours

h. The Air-Ground Range Officer will ensure that range area is periodically policed of all live or unexploded ordnance, residue, etc. This police will be conducted by personnel from Air-to-Ground Range in coordination with EOD. At no time will unauthorized personnel (i.e. civilians/military personnel) knowingly be permitted to remove expended ordnance/residue.

i. No Trash or Garbage of any type will be buried on Air Ground Range.

SECTION M

TRAINING AREAS

1. Training areas at Camp Shelby are depicted by number on the Camp Shelby Training Area Map Sheets. Each numbered area has the boundaries shown in color on the map. Any unit training at Camp Shelby is responsible for the police, clearance and grass/brush fire control of the training areas assigned. Training involving any type vehicle except track vehicles (see paragraph 2 and 3 below) can take place in any numbered training area.

2. Certain training areas have been designated as off-road track maneuver areas. These areas are identified on"TRAINING AREA OVERPRINT" maps by the letter "T" preceding the training area number and highlighted in orange, yellow, or violet color. Within these areas track vehicle maneuver is further limited to that area inside the orange marked trees. These are the only areas in which track vehicles are allowed off-road for maneuvers. In all other areas, track vehicles will travel on the roads only.

3. Track vehicles are not allowed south of the road which runs from coordinates 11803550 to 21103905 (Beaumont Sheet) for any reason whether on or off road. Any other type training is allowed in those areas south of indicated road.

4. Any barricade erected by the Range Control Center in any training area will not be bypassed by anyone without coordination and approval of the Range Control Officer. These barricades block entry into areas that are dangerous due to firing in progress at that particular time. Barricade locations are changed daily by the Range Control Center as dictated by the firing planned. No barricade will be moved by anyone except Range Control personnel.

5. Artillery firing points and ranges are not part of a training area. If an artillery unit is authorized a FP in a training area, that artillery unit has control of that point to include 350 meters forward of the tubes, and an area extending 100 meters from the woodline (into the woods) on the sides and rear of the FAFP. Artillery firing points are allocated separately, and are not a part of the training area within which they are located. Allocation of a training area includes everything within that area except facilities for weapons firing such as ranges, FAFP's, MFP's, OP's, etc.

6. Units occupying training areas must not bivouac or occupy designated aircraft landing zones. (See Page 54 for list of LZs by grid coordinates).

7. The assignment of a training area to a unit does not include the exclusive use of roads within the area unless special requirements are justified and sole user authority for the duration of the problem has been approved by the Range Control Officer.

8. Digging/Excavation: All digging/excavation (i.e. foxholes, latrines, shower sites, tank ditches, etc.) and other operations affecting the environment will be IAW Camp Shelby Regulations, Annex G, Environmental Protection.

9. Off-Limit Areas: All areas marked "Off Limits" will not be occupied or disturbed in any manner to include any surrounding fences. All other areas marked with any type of restrictions will be complied with. Any personnel that discovers an "Off Limits" area that has been damaged or occupied will report this damage to the Range Control Center.

10. Training Area 44 has been designated a Gopher Tortoise Refuge. Off road maneuver training and bivouac is no longer authorized in this area. Field Artillery Firing Points 62, 63, 64, & 116 located within this area and roads leading to them may be used.

11. Redbud Hill in Training Area 28 (Grid Coordinates CK 106-493) is off limits to all personnel and equipment.

12. All non-dud pyrotechnics (i.e. Artillery/Grenade simulators, Booby-traps, Hoffman devices, etc.) will be removed by unit prior to departure from the training area.

13. All dud pyrotechnics (i.e. Artillery/Grenade simulators, Booby-traps, Hoffman devices, etc.) will be marked with white engineer tape, and its location reported to the Range Control Center prior to unit departing training area.

14. RANGE CONTROL COMMO PROCEDURE WITH TRAINING AREAS

a. When Units are occupying training areas, they will be required to establish and maintain primary two way communications with Range Control on FM radio frequency 38.50 during non AT/weekend training.

b. Range Control will make 3 hour discretionary radio checks to units bivouacking or occupying non-live fire training areas.

c. Units having Battalion HQ's or Brigade HQ's will be monitored thru that respective TOC! (ex. if the 155th Armor Brigade is in the field the subordinate Battalions and Companies will be accounted for thru the 155th Brigade TOC with Range Control).

d. Units conducting training independent of a higher HQ (ex. A/1-155th mech Infantry), will be required to establish and maintain primary two way communications with Range Control thru the Company/Detatchment TOC in the absence of a higher HQ element.

e. Ranges and or firing points/OP's will be required to monitor Range Control on FM frequency 38.90 in Admin status as well as hot status. This will also apply to units conducting RON on tank ranges/firing points, etc. Periodic radio checks will be conducted between occupying units and Range Contol to insure two-way commo is maintained while they are cold/RON.

f. Units conducting Annual Training (AT) will monitor as described in para. c and d above, or through respective Troop Command NET. Appropriate frequency for AT commo use will be provided at the AT G-3 briefing held at the beginning of each AT period.

g. Range Control will chart radio checks using the training area commo form in the operations room. The completed form will be placed in the Range Control Officers WET INFO box for review. When the RCO has reviewed and initialed the form, it will be stapled to the original Daily log/journal for filing.

SECTION N

DROP ZONES

1. General: Before troops and equipment can be airdropped at Camp Shelby, all Drop Zones (DZ's) will be surveyed by the requesting unit, marked, and control groups physically located on the DZ before and during the airdrop.

2. Drop Zones, Camp Shelby: Approved drop zones for personnel and equipment drops located inside the Restricted Airspace (R-4401) for airborne operation training are as follows:

a. DZ Shelby, personnel and equipment. This DZ is located in training area 19. DZ center mass is 31 10' 34.5" N 89 05' 56.2" W. Units must request training area 19 to request DZ Shelby.

b. DZ Hill Top Circular, equipment only. This DZ is located in training area 28, DZ center mass is 31 09' 49" N 88 59' 14" W.

c. DZ Dewey, equipment only. This DZ is located in training area 28, DZ center mass is 31 08' 27"N 88 59' 03.3" W.

3. Units must request drop zones NLT thirty (30) days in advance of planned airdrop. A current drop zone survey must accompany this request before approval can be given. See Section A, Para 5, for proper request procedures.

4. Aviation units supporting drop zone operations will comply with Camp Shelby Regulation, Chapter XI (Aviation), and Section J, this regulation.

5. A qualified Drop Zone Safety Officer (DZSO) will report to Range Control at least twenty-four (24) hours prior to planned airdrop and receive a drop zone safety briefing. Drop Zone Safety Officer requirements are outlined below:

a. The prerequisites to perform the duties of DZSO, require the soldier to be:

(1) Be an Officer, Warrant Officer, or NCO in the pay grade of E-5 or above.

(2) Be jumpmaster qualified and current as a jump master.

(3) Have performed duties as Assistant DZSO at least once.

(4) Have previously observed the DZSO perform duties during a personnel drop. (Applicable for Personnel Drops only)

b. The DZSO is the airborne commander's direct representative, and is responsible for the safe operation of the Drop Zone.

6. Training and certification of qualified, proficient safety personnel is the responsibility of the using units' highest headquarters.

7. No personnel and/or equipment will be dropped if the DZSO is not physically on the drop zone.

8. DZSO will open DZ operations with Camp Shelby Range Control one (1) hour prior to airborne operations , and will continuously monitor FM Freq. 38.90 (New Squelch) at all times while the DZ is in operation.

9. Unit will comply with section A, para 11, item G, for DZ clearance procedures.

10. Units requesting to conduct airborne operations in areas in which no surveyed drop zones exist must provide a written request along with certified survey for the proposed DZ.

11. Drop Zone support requirements:

a. Units will read and comply with all pertinent sections concerning DZ operations and support requirements as outlined in FC 57-230, chapters 7 & 9.

b. Units will post road guards at all access roads to drop zone and control traffic through DZ while operations are being conducted.

c. Units will dedicate a minimum of 2 (two) radios for DZ operations. (One radio for DZSO, and one radio for assistant DZSO).

d. The DZSO will ensure that all obstacles are cleared and marked prior to commencing DZ operations.

e. Medical personnel/transportation requirements:

(1) Equipment Drops from U.S. Army or Air Force aircraft requires a minimum of one (1) medic with front line ambulance (FLA).

(2) Personnel Drops from U. S. Army aircraft: Unit will provide two (2) medical personnel with Front line ambulance (FLA).

(3) Personnel drops from U. S. Airforce aircraft:

(A) Multiple aircraft; Unit will provide two (2) medical personnel with front line ambulance (FLA).

(B) Single aircraft (no more than 20 seconds exit time or 2,100 meters or less of useable DZ); the unit will provide a minimum of one (1) medic with front line ambulance (FLA).

(4) A front line ambulance is either a dedicated military vehicle or aircraft suitable for MEDEVAC purposes.

12. <u>Drop Zone operations when dropping Air Force training bundles only, and the drop zone is operated by USAF personnel only</u>:

a. Drop zone will be operated IAW MAC reg 3-3 chapter 2.

b. Drop zone Commanding Officer (DZCO) must be command certified to act as DZCO per MAC reg 3-3 chapter 2.

c. A minimum of one qualified medic will be on site during training bundle drops, with a dedicated military vehicle to use as an ambulance.

d. DZCO will comply with coordinating procedures outlined for DZSO's in this section.

SECTION O

LASERS

1. The use of laser devices will be IAW Chapter 19 and Appendix B, AR 385-63.

2. The utilization of all non-eye safe laser devices will be coordinated and approved by Range Control. They must be utilized in designated areas only.

3. Lasers may not be operated unless a laser range safety card issued by Range Control is present at the laser range.

4. Lasing of reflective surfaces is PROHIBITED (i.e. glass, mirrors, headlights, etc.).

5. Commanders planning operations outside approved designated laser range areas will adhere to para 19-9, AR 385-63.

SECTION P

TRAINING SITE BLANK FORMS AND MAPS

1. Listed below in numerical order are the blank forms referenced in this regulation that are utilized by the Camp Shelby Training Site, along with a brief description of each:

a. Appendix 1 - ATS Form 27 (Strength Report - Camp Shelby, MS) form used by units training at Camp Shelby not in AT status. Form should be completed and turned in to the Camp Shelby Billeting Office prior to departure. Blank copy of form is available at the Billeting Office. (Example on page 69).

b. Appendix 2 - ATS Form 46 (Safety Card - Field Artillery other than Tank Main Gun - Camp Shelby, MS) form used as safety card for tube-type artillery. Mortar units utilize same form. Completed cards will be kept on file at Camp Shelby Range Control Center and will be issued to units on request. (Example on page 70).

c. Appendix 3 - ATS Form 47A (Request for Ranges/FAFP/MFP - Camp Shelby, MS) request form used by units to obtain permission to use live fire facilities and safety cards to control firing exercises. Completed form should be submitted to Camp Shelby Range Control at least thirty (30) days prior to date of training, or as designated by Troop Command for Annual Training. (Example on pages 71-72).

d. Appendix 4 - ATS Form 47B (Request for Training Area/Facilities - Camp Shelby, MS) request form used by units to obtain permission to conduct field training exercises, track maneuver, or bivouacking. This form is also used to request a facility for land navigation, NBC training and to conduct an APFT. Completed form should be submitted to Camp Shelby Range Control Officer at least thirty (30) days prior to date of training, or as designated by Troop Command for Annual Training. (Example on pages 73-74).

e. Appendix 5 - ATS Form 47C (Request for NOE/NVG Training - Camp Shelby, MS) request form used by units to obtain permission to use NOE routes, or conduct NVG training at Camp Shelby. Completed form should be submitted to Camp Shelby Range Control Officer at least thirty (30) days prior to date of training, or as designated by Troop Command for Annual Training. (Example on Page 75-76).

f. Appendix 6 - ATS Form 47D, (Request for Cancellation of Training - Camp Shelby, MS.). Request form used to cancel scheduled ranges, Training Areas, and Facilities. Completed form should be submitted to Camp Shelby Range Control Officer at least thirty days prior to the date of scheduled training or as designated by Troop Command during Annual training. (Example on page 77-78).

g. Appendix 7 - ATS Form 49 (Safety Card - Established Range - Camp Shelby, MS) Safety Card used on any established (named) range. Completed cards kept on file at Camp Shelby Range Control Center and will be issued to unit on request. (Example on page 79).

h. Appendix 8 - ATS Form 135R (Building and Quarters Request - Camp Shelby, MS) Form used to request building and quarters at Camp Shelby. Must be submitted NLT ninety (90) days prior to scheduled training period. (Example on page 80).

i. Appendix 9 - Target Request Form (request for targets required for Tank/Bradley, or machinegun moving targets, etc.) this form will be submitted with the units request for ranges requiring target mechanisims for tank gunnery, or moving targets. (Example on page 81-82).

2. Units may locally reproduce ATS Form 27 (Appendix 1), ATS Form 47A (Appendix 3), ATS Form 47B (Appendix 4), ATS Form 47C (Appendix 5), ATS Form 47D (Appendix 6), ATS Form 135R (Appendix 8) and the Target Request Form. ATS Form 46 (Appendix 2) and ATS Form 49 (Appendix 7) will be issued to units upon request.

3. Camp Shelby Range Control Center does not have maps available for issue. Units may order maps of Camp Shelby ranges and training areas from:

HQ 1203 Engineer Bn
P. O. Box 1470
Dothan, Alabama 36301

_____
(UNIT/CITY/STATE)

COMPONENT: ARNG ___ USAR ___ ROTC ___ ANG ___ USMC ___ USMCR ___ USAF ___

USAFR ___ SEABEES ___ ACTIVE ARMY ___ NAVY ___ NAVAL RESERVE ___ OTHER ___

TRAINING SITE COMMANDER
ATTN: BILLETING OFFICE
CAMP SHELBY, MS 39407-5500

I certify that the following strength report is correct and that personnel were present at Camp Shelby, MS on dates indicated.

STRENGTH REPORT FOR MONTH OF _____

DATE	OFF	WO	EM	TOTAL	DATE	OFF	WO	EM	TOTAL
01					17				
02					18				
03					19				
04					20				
05					21				
06					22				
07					23				
08					24				
09					25				
10					26				
11					27				
12					28				
13					29				
14					30				
15					31				
16					Aggregate totals				

_____
(Name & Grade of Preparer

_____
(Signature of Preparer)

_____
(Signature of Camp Shelby Billeti Office)

_____
(Date Prepared)

ATS Form 27 (Revised April 1990)

SAFETY CARD - FIELD ARTILLERY OTHER THAN TANK MAIN GUN - CAMP SHELBY, MS, TRAINING SITE

DATE PREPARED:	FIRING POINT: (No. and Coordinates)	SAFETY CARD SERIAL NUMBER

THIS SAFETY CARD IS VALID ONLY ----

a. During the following times:

DATE	FROM (HR)	TO (HR)	DATE	FROM (HR)	TO (HR)	DATE	FROM (HR)	TO (HR)

b. For use by the unit or organization shown here: EXAMPLE

c. For the Weapon/Shell/Fuze/Type Fire Combinations checked below:

	WEAPON		SHELL		FUZE		TYPE FIRE
	105mm How M		HE		M514		Low Angle
	155mm How M109		ILLUMINATION		M520		High Angle
	8" How M110		BURSTER		M557		Direct
					M564		

d. When the assigned safety officer(s) have in hand a Safety Diagram approved by the S3 or FDO of the firing organization and limits are plotted in Fire Direction Centers.

e. For firing within the following limits:*

REFERENCE POINT: GN; DIRECTION (DIR) ZERO MILS (ṁ) APPROXIMATE.

FROM DIR _____ṁ. TO DIR _____ṁ. MAX RN IS _____M, MIN RN IS _____.

FROM DIR _____ṁ. TO DIR _____ṁ. MAX RN IS _____M, MIN RN IS _____M.

FROM DIR _____ṁ. TO DIR _____ṁ. MAX RN IS _____M, MIN RN IS _____M.

FROM DIR _____ṁ. TO DIR _____ṁ. MAX RN IS _____M, MIN RN IS _____M.

FROM DIR _____ṁ. TO DIR _____ṁ. MAX RN IS _____M, MIN RN IS _____M.

FROM DIR _____ṁ. TO DIR _____ṁ. MAX RN IS _____M, MIN RN IS _____M.

CHARGES: LA _____; HA _____; ILLUMINATION _____.

SPECIAL INSTRUCTIONS: (1) Apply +5.5 seconds to time of flight corresponding to minimum ranges shown above to establish minimum time for fuze VT.

*For simplicity, the target area may be reduced by using lesser included intermediate limits in the construction of Safety Diagrams, provided the limits on this card are not exceeded.

(Maximum Ordinate: Low Angle _____, High Angle _____ Ft. Above MSL)

APPROVED: EXAMPLE	70	DATE: EXAMPLE

REQUEST FOR RANGES/FAFP/MFP - CAMP SHELBY, MISSISSIPPI		
FROM:	UIC:	DATE:

1. Component: ARNG_____USAR_____ROTC_____ANG____USMC____SEABEES____OTHER_____
2. Estimated Arrival Date/Time of Advance Party & No of Personnel:_____.
3. Estimated Arrival Date/Time of Main Body:_____.
4. Estimated Departure Date/Time of Main Body:_____.
5. Estimated Strength at Camp Shelby: Off_____WO_____EM_____CADETS_____

TO BE FIRED		REQUESTED RANGES/ FAFP/MFP	TYPE TRNG TO BE CONDUCTED	NO. OF PERS. TO TRAIN	ACTUAL FIRING TIMES REQUESTED/DATE/TIME FROM - TO	ALTERNATE DATE/TIME TO FIRE
WPN	AMMO					

*Units must establish and maintain radio communication with Range Control at all times during occupation of any live fire facility or bivouac site.

Name and Telephone Number of Officer Familiar with Planned Activities:

Signature of Requesting Commander:	Date:

Disposition: Submit original and one copy to Range Control Officer, ARNG Training Site, Camp Shelby, Mississippi 39407-5500, NLT thirty (30) days in advance.

ATS FORM 47A **REQUEST FOR RANGES/FAFP/MFP**

REQUEST FOR RANGES/FAFP/MFP - CAMP SHELBY, MISSISSIPPI

FROM:	UIC:	DATE:
111th Military Police Co. 2424 Washington Ave. Somewhere, MS 12345-6789	W89QZF	12 August 1989

1. Component: ARNG XX USAR ____ ROTC ____ ANG ____ USMC ____ SEABEES ____ OTHER ____
2. Estimated Arrival Date/Time of Advance Party & No of Personnel: 18Jan90/1200/20
3. Estimated Arrival Date/Time of Main Body: 18Jan90/1700 hours.
4. Estimated Departure Date/Time of Main Body: 20Jan90/1500 hours.
5. Estimated Strength at Camp Shelby: Off 10 WO 2 EM 135 CADETS Ø

TO BE FIRED		REQUESTED RANGES/ FAFP/MFP	TYPE TRNG TO BE CONDUCTED	NO. OF PERS. TO TRAIN	ACTUAL FIRING TIMES REQUESTED/DATE/TIME FROM - TO	ALTERNATE DATE/TIME TO FIRE
WPN	AMMO					
M16	5.56	48B	Zero	135	19Jan90 0800-1700hrs	19Feb90 08-17
M16	5.56	48A	Record/NBC/ Night Fire	135	19Jan90 0800-2400hrs	19Feb90 08-24
.45	.45cal	42A	Record/NBC/ Night Fire	12	19Jan90 1400-2200hrs	19Feb90 14-[illegible]

EXAMPLE

*Units must establish and maintain radio communication with Range Control at all times during occupation of any live fire facility or bivouac site.

Name and Telephone Number of Officer Familiar with Planned Activities:

Stephen C. Washington, CPT or MSG Joseph P. Blueberry, (788) 675-1234

Signature of Requesting Commander:	Date:
Stephen C. Washington, CPT	12 August 1989

Disposition: Submit original and one copy to Range Control Officer, ARNG Training Site, Camp Shelby, Mississippi 39407-5500, NLT thirty (30) days in advance.

REQUEST FOR TRAINING AREA/FACILITIES - CAMP SHELBY, MISSISSIPPI		
FROM:	UIC:	DATE:

1. Component: ARNG_____USAR_____ROTC_____ANG____USMC____SEABEES____OTHER_____.
2. Estimated Arrival Date/Time of Advance Party & No of Personnel:_____.
3. Estimated Arrival Date/Time of Main Body:_____.
4. Estimated Departure Date/Time of Main Body:_____.
5. Estimated Strength at Camp Shelby: Off_____WO_____EM_____CADETS_____

REQUESTED TRAINING AREA FACILITY	REMAIN OVERNIGHT		TYPE TRNG TO BE CONDUCTED	NO. OF PERS. TO TRAIN	ACTUAL USAGE TIME REQUESTED/DATE/TIME FROM - TO	ALTERNATE DATE/TIME
	YES	NO				

*Units occupying bivouac sites or non-live fire training areas must establish and maintain radio communication with Range Control.

Name and Telephone Number of Officer Familiar with Planned Activities:

Signature of Requesting Commander:	Date:

Disposition: Submit original and one copy to Range Control Officer, ARNG Training Site, Camp Shelby, Mississippi 39407-5500, NLT thirty (30) days in advance.

ATS FORM 47B **REQUEST FOR TRAINING AREA/FACILITIES**

EXAMPLE

REQUEST FOR TRAINING AREA/FACILITIES - CAMP SHELBY, MISSISSIPPI

FROM:	UIC:	DATE:
111th Military Police Co. 2424 Washington Ave. Somewhere, MS 12345-6789	W89QZF	12 August 1989

1. Component: ARNG XX USAR____ ROTC____ ANG____ USMC____ SEABEES____ OTHER____.
2. Estimated Arrival Date/Time of Advance Party & No of Personnel: 18Jan90/1200/20
3. Estimated Arrival Date/Time of Main Body: 18Jan90/1700 hours.
4. Estimated Departure Date/Time of Main Body: 20Jan90/1500 hours.
5. Estimated Strength at Camp Shelby: Off 10 WO 2 EM 135 CADETS Ø

REQUESTED TRAINING AREA FACILITY	REMAIN OVERNIGHT YES	REMAIN OVERNIGHT NO	TYPE TRNG TO BE CONDUCTED	NO. OF PERS. TO TRAIN	ACTUAL USAGE TIME REQUESTED/DATE/TIME FROM - TO	ALTERNATE DATE/TIME
TA's 29 & 35	XX		FTX/Bivouac	147	18Jan90 1700-2400hrs 19Jan90 0001-2400hrs 20Jan90 0001-1200hrs	18Feb90 17-24 19Feb90 01-24 20Feb90 01-12
Andrews LNC		XX	Land Navigation	147	19Jan90 0800-1800hrs	19Feb90 08-1

EXAMPLE

*Units occupying bivouac sites or non-live fire training areas must establish and maintain radio communication with Range Control.

Name and Telephone Number of Officer Familiar with Planned Activities:

Stephen C. Washington, CPT or MSG Joseph P. Blueberry, (788) 675-1234

Signature of Requesting Commander:	Date:
Stephen C. Washington, CPT	12 August 1989

Disposition: Submit original and one copy to Range Control Officer, ARNG Training Site, Camp Shelby, Mississippi 39407-5500, NLT thirty (30) days in advance.

ATS FORM 478 REQUEST FOR TRAINING AREA/FACILITIES

EXAMPLE

REQUEST FOR NIGHT VISION GOGGLE TRAINING, CAMP SHELBY, MISSISSIPPI		
FROM:	UIC:	DATE:

1. Component: ARNG_____USAR_____ROTC_____ANG____USMC____SEABEES____OTHER_____
2. Estimated Arrival Date/Time of Advance Party & No of Personnel:_____.
3. Estimated Arrival Date/Time of Main Body:_____.
4. Estimated Departure Date/Time of Main Body:_____.
5. Estimated Strength at Camp Shelby: Off_____WO_____EM_____

QTY OF AIRCRAFT TO TRAIN	REQUESTED TNG AREA OR IP #	NO OF INDIVIDUALS TO TRAIN (EST)	DATE/ACTUAL TIME TO BE FLOWN

*Notify Range Control immediately if NVG/NOE flights are cancelled.

Name and Telephone Number of Officer Familiar with Planned Activities:

Signature of Requesting Commander:	Date:

Disposition: Submit original and one copy to Range Control Officer, ARNG Training Site, Camp Shelby, Mississippi 39407-5500, NLT thirty (30) days in advance.

ATS FORM 47C **REQUEST FOR NVG/NOE ROUTES**

EXAMPLE

JANUARY 1993 ANNEX C

REQUEST FOR NIGHT VISION GOGGLE TRAINING, CAMP SHELBY, MISSISSIPPI

FROM:	UIC:	DATE:
2-145th Avn Gp 1415 General Lee Ave Nowhere, MS 98765-4321	WVPTW	12 August 1989

1. **Component:** ARNG XX USAR_____ ROTC_____ ANG____ USMC____ SEABEES____ OTHER_____
2. **Estimated Arrival Date/Time of Advance Party & No of Personnel:** 18Jan90/1700/5.
3. **Estimated Arrival Date/Time of Main Body:** 19Jan90/0700 hours.
4. **Estimated Departure Date/Time of Main Body:** 20Jan90/1600 hours.
5. **Estimated Strength at Camp Shelby:** Off 25 WO 15 EM 30

QTY OF AIRCRAFT TO TRAIN	REQUESTED TNG AREA OR IP #	NO OF INDIVIDUALS TO TRAIN (EST)	DATE/ACTUAL TIME TO BE FLOWN
3 - UH1's	IP's 1, 2, & 3	70	19Jan90 0800-1800 hrs
3 - UH1's	IP's 2 & 3	45	19Jan90 1900-2300 hrs
3 - UH1's	IP's 1, 2, & 3	70	20Jan90 0800-1000 hrs

EXAMPLE

2-145th Avn Gp will have only 3 aircraft conducting training!

***Notify Range Control immediately if NVG/NOE flights are cancelled.**

Name and Telephone Number of Officer Familiar with Planned Activities:

Mark J. Williams, MAJ or Billy W. Smith, CW3 (788) 999-0000

Signature of Requesting Commander:	Date:
Mark J. Williams MAJ	12 August 1989

Disposition: Submit original and one copy to Range Control Officer, ARNG Training Site, Camp Shelby, Mississippi 39407-5500, NLT thirty (30) days in advance.

EXAMPLE

REQUEST FOR CANCELLATION OF TRAINING - CAMP SHELBY, MISSISSIPPI		
FROM:	UIC:	DATE:

1. Component: ARNG_____USAR_____ROTC_____ANG____USMC____SEABEES____OTHER_____
2. Estimated Arrival Date/Time of Advance Party & No of Personnel:_____.
3. Estimated Arrival Date/Time of Main Body:_____.
4. Estimated Departure Date/Time of Main Body:_____.
5. Estimated Strength at Camp Shelby: Off_____WO_____EM_____CADETS_____

TRAINING TO BE CANCELLED RANGES/FAFP/MFP/TNG AREA/NOE ROUTES/OTHER	DATE AND TIME OF TRAINING TO BE CANCELLED

Name and Telephone Number of Officer Familiar with Planned Activities:

Signature of Requesting Commander:	Date:

Disposition: Submit original and one copy to Range Control Officer, ARNG Training Site, Camp Shelby, Mississippi 39407-5500, NLT thirty (30) days in advance.

ATS FORM 47D - REQUEST FOR CANCELLATION OF TRAINING

EXAMPLE

REQUEST FOR CANCELLATION OF TRAINING - CAMP SHELBY, MISSISSIPPI

FROM:	UIC:	DATE:
111th Military Police Co. 2424 Washington Ave. Somewhere, MS 12345-6789	W89QZF	3 November 1989

1. **Component:** ARNG XX USAR____ ROTC____ ANG____ USMC____ SEABEES____ OTHER____
2. **Estimated Arrival Date/Time of Advance Party & No of Personnel:** 18Jan90/1200/20
3. **Estimated Arrival Date/Time of Main Body:** 18Jan90/1700 hours.
4. **Estimated Departure Date/Time of Main Body:** 20Jan90/1500 hours.
5. **Estimated Strength at Camp Shelby:** Off 10 WO 2 EM 135 CADETS Ø

TRAINING TO BE CANCELLED RANGES/FAFP/MFP/TNG AREA/NOE ROUTES/OTHER	DATE AND TIME OF TRAINING TO BE CANCELLED
Rg 42A Andrews LNC	19Jan90 1400-1600hrs 19Jan90 0800-1800hrs
EXAMPLE	
**All other ranges and training areas remain the	same as requested previously.

Name and Telephone Number of Officer Familiar with Planned Activities:

Stephen C. Washington, CPT or Joseph P. Blueberry, MSG (788) 675-1234

Signature of Requesting Commander:	Date:
Stephen C. Washington, CPT	3 November 1989

Disposition: Submit original and one copy to Range Control Officer, ARNG Training Site, Camp Shelby, Mississippi 39407-5500, NLT thirty (30) days in advance.

ARS FORM 47 D - REQUEST FOR CANCELLATION OF TRAINING

EXAMPLE

January 1993

SAFETY CARD - ESTABLISHED RANGE
CAMP SHELBY, MS, TRAINING SITE

RANGE _____ LOCATION _____
(NAME) (GRID COORDINATES)

THIS SAFETY CARD IS VALID ONLY

A. DURING THE FOLLOWING TIMES:

DATE _____; FROM (HR) _____ TO (HR) _____

DATE _____; FROM (HR) _____ TO (HR) _____

B. FOR USE BY THE UNIT OR ORGANIZATION SHOWN HERE: _____

EXAMPLE

C. FOR THE WEAPON/AMMUNITION CHECKED BELOW:

	WEAPON		AMMUNITION

D. WHEN UNIT RANGE OFFICER AND ASSIGNED SAFETY OFFICER SIGN BELOW VERIFYING THAT PERSONNEL HAVE BEEN PROPERLY ORIENTED AS TO SAFETY PRECAUTIONS AND CONTROL PROCEDURES PERTINENT TO THE RANGE.

RANGE OFFICER _____ SAFETY OFFICER _____

E. FOR FIRING WITHIN THE FOLLOWING LIMITS:

LEFT LIMIT _____ RIGHT LIMIT _____

SPECIAL INSTRUCTIONS:

(1)
(2)
(3)

APPROVED:

EXAMPLE

EXAMPLE

_____ DATE _____

LONNIE E. RAYBURN, LTC, IN, MSARNG
RANGE CONTROL OFFICER
CAMP SHELBY, MS, TRAINING SITE

ATS FORM 49 (1 SEP 92)

BUILDING AND QUARTERS REQUEST
CAMP SHELBY, MISSISSIPPI

1. DATES:
   Inclusive Dates of Training: _____

   Date Buildings Will be Drawn: _____

2. Requesting Unit Home Station Information:
   Unit: _____ Telephone: _____

   Address: _____ POC: _____

   _____

3. Number of Personnel to attend training:

	OFFICERS	ENLISTED	TOTALS
Male	_____	_____	_____
Female	_____	_____	_____
Totals	_____	_____	_____

4. Buildings Requirements:

TYPE BUILDING	QUANTITY	TYPE BUILDING	QUANT
Bde HQs	_____	Dining Facilities	_____
BN HQS	_____	Latrines (200 man)	_____
BN Supply	_____	Motor Pools	_____
CO HQS	_____	Classrooms	_____
BOQs (E-1)	_____	Gas Chamber	_____
Barracks	_____	Theater	_____

Other (Specify) _____

5. Number of Maid Service BOQ and BEQ Beds Required (List Occupants):

NAME	RANK	DATE OF RANK	SEX	ARRIVAL DATE	DEPARTU DATE

_____ _____

DATE SIGNATURE

_____

RANK AND TITLE OF REQUESTER

ATS FORM 135 R
6 OCT 86

January 1993

DATE THIS FORM PREPARED: _____

TARGET REQUEST FORM FROM _____

RANGE _____ TANK TABLE _____ FIRING TIME FROM _____

DATE REQUESTED MATERIALS TO BE PICKED UP _____

TGT PIT	TYPE TARGET					HIT SENSOR	HOFF MAN	MOVING CART	GEN	M31A1
	CALIBRATE	DAY	NIGHT	THERMAL	SAAB					

LIST SPARE TARGETS BELOW	
TYPE	QUANITY

SPARE EQUIPMENT		
SAAB	EACH	
HIT SENSOR	EACH	
HOFFMAN	EACH	
GENERATOR	EACH	
M31A1	EACH	

SIGNATURE OF UNIT COMMANDER: _____

DATE THIS FORM PREPARED: 28 MAY 1992.

TARGET REQUEST FORM FROM 3/142 AR

RANGE 49G TANK TABLE VII FIRING TIME FROM 9 JULY 1993 TO 13 JULY 1993

DATE REQUESTED MATERIALS TO BE PICKED UP 7 JULY 1993

TGT PIT	TYPE TARGET CALIBRATE	DAY	NIGHT	THERMAL	SAAB	HIT SENSOR	HOFF MAN	MOVING CART	GEN	M31A1
1		Troop SQD		Yes	1ea				1ea	
2	950 M	RPG Team	Troop Sqd	Yes	1ea	2ea			1ea	
4		BMP Front	T72 Front	Yes	1ea	2ea	1ea		1ea	
6		T72 Front		Yes	1ea	2ea	1ea		1ea	
7	1200 M	BMP Front	T72 Front	Yes	1ea	2ea	1ea		1ea	
10		T72 Front		Yes				1ea	1ea	
13	1500 M									
18		E-type		Yes					1ea	7ea
20		Truk Flnk		Yes				1ea	1ea	
21		T72 Front	BMP Front	Yes	1ea	2ea	1ea		1ea	

LIST SPARE TARGETS BELOW	
TYPE	QUANITY
T-72 Flank	1ea
T-72 Front	2ea
BMP Front	2ea
Truck Flank	1ea
Troop Sqd	1ea

SPARE EQUIPMENT		
SAAB	EACH	1
HIT SENSOR	EACH	2
HOFFMAN	EACH	1
GENERATOR	EACH	1
M31A1	EACH	

SIGNATURE OF UNIT COMMANDER: JOHN DOE.
LTC, AR MSARNG.
COMMANDER.

CAMP SHELBY

REGULATION

ANNEX G

ENVIRONMENTAL PROTECTION

CAMP SHELBY REGULATION
ENVIRONMENTAL PROTECTION

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SECTION I

GENERAL

1. PURPOSE: The purpose of this annex is to military units in assessing the environmental impact that will result from their military training at Camp Shelby and to prescribe certain procedures to minimize any such harmful effects. Since most of the training at Camp Shelby is repetitive in nature, its impact is already known and precedures have been published to prevent harm to the environment. This annex will list those activities whose environmental impact has been assessed by the Camp Shelby Environmental Section and cite published directives where applicable. Unit Commanders will conduct training in accordance with Camp Shelby Environmental Regulations and cited directives or face possible disciplinary action for noncompliance. In the event a unit desires to conduct training of a nature not covered herein, the unit must prepare a complete Environmental Assessment (EA) and obtain prior written approval from the Camp Shelby Training Site Commander.

2. APPLICABILITY: This directive is applicable to all military units training at Camp Shelby.

3. REFERENCES:

A. AR 200-1

B. AR 200-2

C. NGR 200-1

D. NGB LOG Letter 84-312, dtd. 30 Jun 84

E. NGB LOG Letter 85-715, dtd. 17 Jul 85

F. Specific references cited in applicable paragraphs of this annex

SECTION II

FIELD TRAINING AND BIVOUACS

1. OFF-ROAD MANEUVERS: Maneuvering in designated training areas is authorized as long as restrictions stated in Camp Shelby Regulations are observed. Any proposed action/maneuver exercise which may have the potential to significantly impact the environment or adversely affect an environmentally sensitive area or species, must be submitted for approval to the Camp Shelby Range Control Officer NLT ninety (90) days prior to the proposed action. The proposal must then be submitted for approval to the Camp Shelby Environmental Officer NLT sixty (60) days prior to the proposed action.

2. FIELD LATRINES: Digging of field sanitation type pits is authorized as long as specifications and requirements as stated in FM 21-10 and Camp Shelby Regulations are complied with. Any other excavation/earth moving type training must be approved by the Camp Shelby Facilities Engineer.

3. RANGE FIRING: All firing will be approved by the Camp Shelby Range Control Officer and will be conducted as prescribed in Annex C, Camp Shelby Regulations.

4. CUTTING TREES: No trees will be cut without approval of either the Camp Shelby Facilities Engineer or the Camp Shelby Range Control Officer.

5. PREVENTING FOREST FIRES: The responsibility and requirements for prevention of forest fires are stated in Annex C, Camp Shelby Regulations. These requirements will not be violated at any time.

6. GARBAGE: The burial of garbage is prohibited. Units are responsible for the removal of garbage from all training areas and disposal in the Camp Shelby Sanitary Landfill.

NOTE: Household type garbage will be placed in the Sanitary Landfill only and not in the Stump/Rubbish Dump. The Stump/Rubbish Dump is for limbs, leaves, straw, stumps, etc.

SECTION III

WATER RESOURCES PROTECTION

1. FIELD BATH POINTS: Bath points must be located so that the effluent does not enter a stream or natural body of water. The discharge should be onto a sandy soil where disposal will be by seepage and/or evaporation. The commander responsible for establishing field points will:

A. Select a tentative location and make written notification to the Camp Shelby Facilities Engineer of the proposed location (training area # & grid coordinates) and period during which the bath point will be in operation.

B. Include a statement in the above notification that no effluent will be discharged into a live stream.

C. Commence operations only after written approval is obtained from the Facilities Engineer. (Notifications may be hand-carried when immediate action is required)

2. FIELD LAUNDRY SITES: Procedures are the same as for Field Bath Points.

3. FIELD WATER SUPPLY POINTS: When operated in accordance with TM 5-700 and the applicable equipment manual Field Water Supply Points are not detrimental to the environment. No alteration to stream banks, removal of trees or construction of roads or turnouts is permissible without prior written approval from the Camp Shelby Training Site Commander.

The Facilities Engineers Waste Water Treatment Section has the personnel and responsibility for the testing of the Field Water Supply Points. Units must have approval to establish water supply points. This approval has to be made by the Facilities Engineer. Approval requests shall be submitted on a memorandum to the Directorate of Facilities Engineers prior to the set-up of Water Supply Points. The unit will contact the WWTP, extension 2229, for the sampling and testing of the water produced at the Field Water Supply Point prior to the unit issuing any water to using units. The test of the water sample takes 24 hours for the results. The unit will be notified as soon as the test results are final.

SECTION IV

AIR POLLUTION ABATEMENT

1. TACTICAL SMOKE DEVICES: Smoke devices may not be used within the Camp Shelby Cantonment Area. Smoke devices are permitted in field training areas. The commander initiating the use of these devices must insure that measures are taken to prevent damage to trees and to prevent and/or extinguish forest fires resulting from their use. See Section XI for areas that are off limits as to the use of smoke. The use of all pyrotechnics shall be coordinated with Camp Shelby Range Control.

2. BURNING OF TRASH AND GARBAGE: Trash and garbage must be disposed of in an approved sanitary landfill. No burning of trash or garbage is authorized. The Camp Shelby Sanitary Landfill is a permitted landfill for domestic/household type waste disposal. The Camp Shelby Stump/Rubbish Dump can not be utilized for domestic/household garbage.

3. EXPLOSIVE ORDNANCE AND PROPELLANT, EXPLOSIVE, AND PYROTECHNIC (PEP) MATERIALS:

a. Policies and procedures that apply to explosive ordnance and PEP materials are set forth in AR 75-1, AR 75-14, AR 75-15, AR 385-60, AR 385-64, AR 755 series of regulations and Annexes C and D, Camp Shelby Regulations. The Camp Shelby EOD must be contacted in all matters concerning explosive ordnance involving a danger to personnel.

b. Resource Conservation and Recovery Act (RCRA) hazardous waste management requirements do not apply to burning excess propellant bags/increments incidental to the training mission, either at the firing points or at designated areas on the ranges.

c. Open burning of waste PEP materials associated with troop training activities at the field firing point is not considered to be hazardous waste treatment, but an integral part of the training mission. However, these activities will be conducted so as not to endanger public health or the environment.

NOTE: Burning of waste PEP materials at Camp Shelby is authorized and regulated by the Mississippi Department of Environmental Quality. Until further notice, the above procedures will be followed.

4. AUTO EMISSION: All internal combustion engines whether military or POV must be maintained in proper operating condition in accordance with Federal and State regulations. Obvious violations will be cited by Military Police.

SECTION V

HAZARDOUS AND TOXIC MATERIALS

1. PESTICIDES:

A. Pesticide Restrictions:

(1) This installation and units which train at Camp Shelby will use only those pesticides procured by the Department of the Army (DA) which are approved by and registered for use with the EPA. Their application will be consistent with their intended use and label instructions.

(2) Use of pesticides other than those registered and approved for specific application in accordance with their labeling is illegal.

(3) The storage, use, handling, and disposal of pesticides will conform to safety and health standards established by the DA.

(4) Army Publications that apply to the conduct of pest control activities are given in Table 6-1, AR 200-1.

B. Pesticide Management Procedures:

(1) Pesticides which are highly and moderately toxic will be stored IAW Paragraph 6-7a, AR 200-1.

(2) Pesticide application and other insect and rodent control will be accomplished by or under the direct supervision of a trained and certified applicator.

(3) DA directives will give categorization of pesticide use.

(4) Excess pesticides will be reported through channels for disposition instructions.

(5) Only approved methods will be used to dispose of small quantities of certain excess or unusable pesticides (3FR15329).

(6) The judicious application of herbicides will be observed. Alternate methods of plant control such as mowing, controlled burning, etc., should be used where possible.

(7) No pesticide or pesticide waste will be disposed of by open dumping, water dumping, well injection, or direct exposure which would have potential to pollute the environment.

(8) Pesticides will not be disposed of in a manner inconsistent with its labeling. Burning pesticides is not permissible.

(9) Supervisors of pesticide applicators must file any required ARNG Environmental Checklist & Record of Environmental Consideration (REC), Environmental Assessments (EA), or Environmental Impact Statements (EIS).

2. HAZARDOUS CHEMICALS:

A. Hazardous chemicals, other than approved pesticides, herbicides, and chemical munitions (CS/CN) will not be stored, handled, used, or disposed of at Camp Shelby without the prior knowledge and expressed approval of the Camp Shelby Training Site Commander.

B. Storage, use, handling and disposal of hazardous chemicals will comply with the appropriate publication listed in Tables 6-1 and 6-2, AR 200-1.

3. PHARMACEUTICAL STOCKS, BIOLOGICAL WASTES, AND DRUGS:

A. No pharmaceutical stock or its container will be disposed of in a manner inconsistent with instructions on its label, or instructions provided in SB 8-75 series.

B. Excess pharmaceuticals will be reported through medical supply channels IAW AR 40-61.

C. Biological, surgical, and hospital-type hazardous or toxic waste materials will be used, handled, stored and disposed of IAW AR 40-5 and AR 40-60. Any infectious medical waste generated will be properly bagged and labeled for transport, by unit/clinic personnel, to the incineration unit at Forrest General Hospital, located in Hattiesburg, MS. POC for coordination of this action is Mr. Randall Strange at phone 288-4089.

4. RADIOACTIVE MATERIALS AND CHEMICAL WARFARE AGENTS:

A. Radioactive Materials:

(1) The handling, use and disposal of radioactive materials must comply with applicable Army Regulations and with requirements of the MSARNG Safety Office, DSN: 637-6350/6377 or COMM: 601-973-6350/6377.

(2) Radioactive material at Camp Shelby will be limited to only those items which are absolutely essential for health and training purposes.

(3) Those devices which contain radioactive material will not be handled in a manner which will pollute the environment or which will contribute to health and safety hazards.

B. Chemical Warfare Agents:

(1) No chemical warfare agents, except limited quantities of CS/CN, will be stored or used at Camp Shelby. This policy does not include simulated, non-lethal chemical agents, which must be approved by the Range Control Officer.

(2) The safety program for chemical agents and associated weapons systems is prescribed in AR 385-61.

SECTION VI

ENVIRONMENTAL NOISE ABATEMENT

1. WEAPON: Environmental documentation for weapons firing up to and including 8-inch artillery has been made covering training related to live fire exercises. Any special or unusual type firing must be approved by the Camp Shelby Training Site Commander.

2. AIRCRAFT: Aircraft traffic is governed by FAA Regulations and local Flight Service Control. Any type air traffic (Example: low-level flights over populated areas) that deviates from normal types of operation must be approved by the MSARNG Aviation Officer.

3. DEMOLITIONS: Types, amounts, and detonation sites are given in Annex C, Camp Shelby Regulation. Any type demolition requirement not covered must have approval of either the Camp Shelby Facilities Engineer or the Camp Shelby Range Control Officer.

SECTION VII

CONSTRUCTION

All construction/alteration projects must be processed through the Camp Shelby Facilities Engineers office for proper environmental documentation.

SECTION VIII

PETROLEUM, OILS, AND LUBRICANTS

1. REFERENCES:

A. A list of publications relating to oil and hazardous substances spill control and contingency plans may be found in Table 9-1, AR 200-1.

B. Camp Shelby Spill Prevention Control and Countermeasures Plan, Annex F, Camp Shelby Regulation.

C. Camp Shelby Installation Spill Contingency Plan, Annex J, Camp Shelby Regulation.

D. Mississippi Army National Guard Hazardous Waste Management Plan For Large Quantity Generators.

2. POL products will not be dumped or disposed of in the field.

3. Used or contaminated POL products (waste oil, fuel, solvent, hydraulic fluid, etc.) will be placed in the proper container, marked, labeled and transported to Camp Shelby USPFO for proper turn-in and disposal in accordance with item D above.

4. Requirements for the prevention of POL spills are presented in item B above.

5. Procedures for the containment and clean-up of accidental spills are presented in item C above. In the event of a spill incident, contact the Facilities Engineers office, extension 2688/2689.

6. All POL Fuel System Supply Points which utilize collapsible tanks/bladders to store bulk petroleum products must be inspected, prior to operation, by the Camp Shelby Environmental Office and the Camp Shelby Fuel Management Office. A signed/dated copy of the inspector's checklist will be kept on file in the Camp Shelby Environmental Office. Berm sites must be approved by the Facility Engineers Office and the use of existing, permanent berm sites is encouraged.

7. Individual, isolated tanker trucks are not inspected, although, when tanker trucks are utilized as a substitute for collapsible bladders, i.e., when a complete FSSP system is assembled utilizing the major components with tanker trucks in lieu of collapsible bladders, a pre-operation inspection is required.

8. All units, 60 days prior to operation of proposed actions identified in 6 and 7 above, will submit necessary site request to the Facility Engineers Office for approval. All units, upon arrival of advance party, will initiate coordination with the Environmental Office and the Fuel Management Office for scheduling of necessary pre-operation inspection.

SECTION IX

HISTORIC PRESERVATION

1. The Historic Sites Act of 1966 (80 Stat. 915, U.S.C., para 470) establishes national policy relating to the preservation of buildings, structures, sites and objects of national significance for the inspiration and benefit of the people of the United States.

2. The Act also provides that the Secretary of the Interior maintain a National Register of districts, sites, buildings, structures, and objects which are significant in American history, architecture, archeology, and culture.

3. Presently, Camp Shelby has no properties listed in the National Register, and therefore, places no restrictions or limitations on training in relation to the Historic Sites Act of 1966. Additional considerations are being afforded buildings 1071 and 6981.

SECTION X

REQUIREMENTS FOR RESTORATION OF DUG-IN POSITIONS

1. No positions larger than a two-man fighting position may dug-in without prior written approval from the Camp Shelby Facilities Engineer. Written requests must be submitted for approval to the Facilities Engineer NLT sixty (60) days prior to the proposed action.

2. Positions should not be located in draws or low areas where rain water runoff will channelize to flood the emplacement or cause potential erosion problems.

3. Positions larger than two-man foxholes will not be dug-in on slopes steeper than 15 percent.

4. All emplacements will be filled completely, firmly compacted and mounded (crowned) to allow for settlement and to prevent the accumulation of rain water on the freshly disturbed soil.

5. Filled emplacements will be mulched with leaves or pine straw so that no bare ground is visible. If no natural mulch material is present, bailed hay may be obtained through the Facilities Engineers office.

6. Areas of extensive soil disturbance may require seeding and fertilization prior to mulching. This determination will be made be the Camp Shelby Facilities Engineer who will provide the necessary seed and fertilizer. Equipment will also be provided if available.

7. Permission to dig military emplacements is granted, subject to the above requirements. These requirements will be strictly enforced through inspection and the commander of the responsible unit will not be relieved of his/her site clean-up/rehab duties until all requirements have been met.

SECTION XI

THREATENED OR ENDANGERED SPECIES

1. The Endangered Species Act of 1973, Public Law 93-205, requires all Federal departments and agencies to carry out programs for the protection of endangered and threatened species of flora (plants) and fauna (animals). AR 420-74 describes a commanders responsibilities in regard to the Act. Threatened or Endangered Species are protected by Federal and State Law and violators may be fined or prosecuted. Commanders must advise all their personnel of these requirements.

2. Currently there are several species of plants and animals located within the Camp Shelby Military Reservation which are threatened, endangered or of special concern. These habitat areas are "off limits" to all military training activities.

3. The use of chemicals in areas restricted because of threatened or endangered flora or fauna is prohibited.

4. The use of smoke in areas restricted because of threatened or endangered fauna is prohibited.

5. Colony sites of the red-cockaded woodpecker are marked with a grey band on the perimeter trees and signed "Restricted Area-Threatened or Endangered Species". These areas are off-limits and will not be used for any type of training activity.

6. Colony sites of the Gopher Tortoise are signed "Restricted Area-Threatened or Endangered Species". These areas are off-limits and will not be used for any type of training activity. Isolated active Gopher Tortoise burrows located outside of colony sites in selected areas are also signed "Off Limits" and must not be disturbed.

7. Training area T-44 is designated as a Gopher Tortoise Refuge in which management/conservation practices will be directed toward providing optimal gopher tortoise habitat conditions. Military use of the area will be restricted to existing firing points and no off-road vehicle maneuvering or bivouacking is allowed.

8. An area of about five acres on the north boundary of the tank maneuver corridor 1/2 mile east of Hwy 29 is posted "off-limits" to perserve the silky camelia, a plant of special concern. This area will not be used for any type of training activity.

9. Lowland areas containing Pitcher Plant bog communities are "off-limits" to training activities, especially vehicular movement.

SECTION XII

ARNG ENVIRONMENTAL CHECKLIST AND
RECORD OF ENVIRONMENTAL CONSIDERATION

1. The National Environmental Policy Act (NEPA) as amended requires all agencies of the Federal Government to evaluate the environmental impact of their proposed actions during the planning phase. AR 200-1, AR 200-2 and NGB Log Letters 84-312 and 85-715 further require an analysis of the environmental consequences of all training plans and programs.

2. All military units, NLT 60 days prior to training at Camp Shelby, MS, must complete and submit an ARNG ENVIRONMENTAL CHECKLIST and a RECORD OF ENVIRONMENTAL CONSIDERATION (REC) for approval. All proposed construction projects/actions at Camp Shelby also require an ARNG ENVIRONMENTAL CHECKLIST and a RECORD OF ENVIRONMENTAL CONSIDERATION including the project number from the 420/1391. POC: LTC Bill Davis, DSN: 921-2636, Comm: (601) 584-2636

NOTE: The Abbreviated ARNG Environmental Checklist (Short Form) is no longer acceptable and is discontinued.

3. The completion of the required environmental documents will assist the Camp Shelby Environmental Office in determining if adequate environmental documentation has been completed for the proposed action. These environmental documents shall be mailed to the Facilities Engineers office NLT 60 days prior to actual training. Any late or delinquent environmental documents that have not been submitted within 60 days which require coordination with the U.S. Forest Service, i.e. digging approval, may result in that unit not being allowed to conduct proper training at Camp Shelby.

4. Units that fail entirely to complete the required environmental documentation prior to training, <u>will not</u> be allowed to train at Camp Shelby.

5. The ARNG ENVIRONMENTAL CHECKLIST and RECORD OF ENVIRONMENTAL CONSIDERATION must be properly completed, signed and dated by proponent agency or unit representative. Incorrectly completed documents will be returned to the proponent for correction. Submit completed documents to:

LTC Bill Davis, CSTS-DFE-E
Camp Shelby Training Site
Camp Shelby, MS 39407-5500

Date _____
State _____
(420/1391) Project Number _____

ARNG ENVIRONMENTAL CHECKLIST
(To be completed by proponent)

1. BACKGROUND:

a. Name of proponent _____

b. Address and phone number of proponent (POC) _____

_____

c. Name of proposal _____

_____

d. Start and End dates of proposed action _____

e. Has the project/action been addressed in a separate environmental document? If so, give title, agency, and date.

2. DESCRIPTION: All questions in this section must be answered. (Include a 1/50, 1/25, 1/24, or 1/12.5 USGS, Army tactical or equivalent map with the site clearly marked).

a. The project/action will involve (Check one or more).

___Training Activities/Areas
___Construction
___Maint/Repair/Rehab
___Lease or License
___Reorganization/Restationing
___Environmental Permits/Inspections
___Others (Explain)

b. Has the real estate action been addressed in a separate environmental documentation? If so, give the title and date.

c. Description and location of ARNG proposal

d. Environmental setting including present and past use of the proposed site:

e. How is the land currently zoned, commercial/part of an industrial park/airport/other?

f. Distance to environmentally sensitive areas? List the sites by type and distance.

3. ENVIRONMENTAL IMPACT ANALYSIS: (Select most correct answer to each question).

	YES	MAYBE	NO	N/A
a. Air - Will the proposal result in: (Ref: AR 200-1, Chap. 4)				
(1) Air Emissions, introduction of smoke, dust suspended particles, or noxious gases into the air which may result in the deterioration of air quality?	___	___	___	___
(2) The creation of objectionable odors or smoke?	___	___	___	___
(3) Particulate/dust migration beyond facility boundaries?	___	___	___	___
(4) Are Permits required?	___	___	___	___
b. Traffic - Will the proposal result in:				
(1) Generation or increase in aircraft activity or traffic?	___	___	___	___
(2) Generation or increase in vehicular movement or activity?	___	___	___	___
(3) Use/creation of unimproved roads?	___	___	___	___
c. Noise - Will the proposal result in: (Ref: AR 200-1, Chap. 7)				
(1) Increased noise levels?	___	___	___	___

YES MAYBE NO N/A

(2) Location close to a civilian community where noise might affect the population? Provide the distance to the nearest noise sensitive area.

a. Residence_____
b. Church _____
c. School _____
d. Hospital _____ ___ ___ ___ ___

(3) Specifying minimum altitudes and flight times for aircraft operations, to insure noise impacts are minimized? ___ ___ ___ ___

(4) Additional night (2200-0700) hours operations? ___ ___ ___ ___

d. Earth - Will the proposal result in:

(1) Long term disruptions, displacement, compaction, overcovering of the soil, permanent changes in topography or ground surface relief features? ___ ___ ___ ___

(2) Long term increase in wind or water erosion of soils, either on or off the site? ___ ___ ___ ___

e. Natural Resources - "NO" answers in this section must be supported by a letter or a phone record from a subject matter expert (SME) who was contacted, include date and position of the SME.

Will the proposal result in: (Ref: AR 200-1, Chap. 12 sec. 12-3)

(1) Change in the diversity of species or numbers of any species of mammals, birds, reptiles, amphibians, and fish or plants including trees, shrubs, grass, crops, microflora, or aquatic plants? ___ ___ ___ ___

(2) Introduction of new species of animals or plants into an area? ___ ___ ___ ___

(3) Reduction of the numbers of any listed, proposed, or candidate threatened, unique, rare, or endangered species of plants or animal? ___ ___ ___ ___

(4) The introduction of a barrier to the migration or movement of animals? ___ ___ ___ ___

	YES	MAYBE	NO	N/A
(5) Deterioration, alteration, or destruction to existing wildlife or fish habitat?	___	___	___	___
(6) Increase in the rate of use of any natural resource?	___	___	___	___
(7) Depletion of any non-renewable natural resources?	___	___	___	___
(8) Alteration, destruction, or significant impact on environmentally sensitive areas?	___	___	___	___

f. Land Use - Will the proposal result in:

(1) The alteration of the present land use of an area?	___	___	___	___

(2) Will the proposed project/action take place on: (Must check one)

(a) State owned land? ___
(b) Federal (DOD) owned land? ___
(c) Privately owned land? ___
(d) County/City owned? ___
(e) Other?_____ ___
(specify)

(3) Does the proposal contain a federal real estate action? PAS done?	___	___	___	___
(a) Require an increase of acreage/amendment to an existing lease or license?	___	___	___	___
(b) Require new purchase of_____(no.) acres with Federal, State, or other funds?	___	___	___	___
(c) Require new lease, license, land use permit for_____(no.) acres?	___	___	___	___
(d) Does action require the disposal or replacement of existing facilities?	___	___	___	___

	YES	MAYBE	NO	N/A
g. Hazardous Risk/Waste Disposal - Will the proposal result in: (Ref: AR 200-1, Chap. 6)				
(1) Generation of hazardous waste?	___	___	___	___
(2) Treatment, storage, and/or disposal of hazardous waste or materials?	___	___	___	___
(3) The storage, treatment, or disposal site/facility being permitted?	___	___	___	___
(4) Risk of an explosion, spill, or the release of oil or hazardous substances including, but not limited to pesticides, chemicals, or radiation?	___	___	___	___
(5) A need for procedures to be specified for the proper handling, storage, use, disposal and cleanup of hazardous and or toxic materials?	___	___	___	___
(6) A need for trained personnel to be available for handling and disposal of hazardous and toxic materials?	___	___	___	___
(7) The generation of solid wastes which must be disposed of either on site or off site by contractor?	___	___	___	___
(8) Training that generates or has the potential to generate hazardous wastes?	___	___	___	___
(9) Opportunity for hazardous minimization and recycling?	___	___	___	___
h. Water - Will the proposal result in: (Ref: AR 200-1, Chap. 3)				
(1) Changes in currents or the course of water movements in either marine or fresh waters? (i.e., drainage patterns)	___	___	___	___
(2) Discharge into surface waters or any alteration of surface water quality?	___	___	___	___
(3) Change in the quality and/or quantity of ground waters, either through direct additions, withdrawals, or through interception of an aquifer by cuts or excavations?	___	___	___	___

	YES	MAYBE	NO	N/A
(4) Potential for accidental spills of hazardous or toxic material near or in a body of water?	___	___	___	___
(5) The need for spill prevention and contingency measures to be developed?	___	___	___	___
(6) The construction of facilities or implementation of actions within floodplains or wetlands?	___	___	___	___
(7) Requires a discharge permit?	___	___	___	___

i. Archeological/Historical

(1) Will the proposal result in an alteration or destruction of an archeological or historical site, structure, object, or building on or eligible for inclusion in the National Register of Historic Places? (Ref: AR 200-1, Chap. 12 sec. 12-4)

	___	___	___	___
(2) Have all areas been critically evaluated?	___	___	___	___

j. Population - Will the proposal alter the location, distribution, or density of the human population of an area?

	___	___	___	___

k. Utilities - Will the proposal result in a need for new systems, or alterations to the following utilities:

(1) Electrical power, fossil fuel, or other? _____ (specify)	___	___	___	___
(2) Drinking water?	___	___	___	___
(3) Wastewater treatment?	___	___	___	___
(4) Sewer collection system?	___	___	___	___
(5) Washracks?	___	___	___	___

4. DISCUSSION OF ENVIRONMENTAL ANALYSIS AND POTENTIAL IMPACTS - INCLUDE MITIGATION: (Address all "Yes" and "Maybe" answers and "No" answers in the Natural Resources section on a separate sheet)

5. DETERMINATION: (To be completed be the State/Territory Environmental POC)

	YES	MAYBE	NO	N/A

a. Mandatory Findings of Significance

(1) Does the project have the potential to degrade the quality of the environment or curtail the diversity in the environment?

___ ___ ___ ___

(2) Does the project have the potential for cumulative impacts on environmental quality when effects are combined with those of other actions or when the action is of lengthy duration? (i.e., multiple construction, training exercises, mission expansion)

___ ___ ___ ___

(3) Does the project have environmental effects which will cause substantial adverse effects on humans either directly or indirectly? (i.e., Noise, Air Quality, Water Quality, Quality of Life)

___ ___ ___ ___

On the basis of this initial evaluation, prepare (check one):

____A Preliminary Assessment Screening (PAS)

____A Record of Environmental Consideration (REC) IAW paragraph 4-3, AR 200-2

____An Environmental Assessment (EA) based on paragraphs 5-2 and 5-3 criteria, IAW para 5-4, 5-5, AR 200-2

____A Notice of Intent (NOI) to prepare an Environmental Impact Statement based on paragraphs 6-2 and 6-3 criteria, IAW paragraph 6-7, AR 200-2

Signature: _____ Concurrence: _____
Proponent State/Territory Environmental Specialist

Date: _____ Date: _____

Date: _____
State: _____

RECORD OF ENVIRONMENTAL CONSIDERATION

1. Title: (Project/Action/Unit))

2. Description of Proposed Action: (Including existing environmental setting)

3. Anticipated Start Date and/or Duration of Proposed Action:

4. It has been determined that the action (Select one)

   a. Is adequately covered in the existing EA___ EIS___

      entitled _____

      and dated _____

   b. Qualifies for Categorical Exclusion #_____ (See Appendix A, AR 200-2 or Camp Shelby Regulation Annex G Environmental Protection, Appendix A)

   c. Is exempt from NEPA requirements under the provisions of (Cite superseding law)

SIGNED: _____ CONCURRENCE: _____
(Proponent for action) (Land Owner, Coordinator, etc.)

DATE: _____ DATE: _____

CONCURRENCE: _____ CONCURRENCE: _____
(State Environmental Specialist) (FOR THE COMMANDER)

DATE: _____ DATE: _____

APPENDIX A

LIST OF CATEGORICAL EXCLUSIONS (CX)

A-1 Normal personnel, fiscal, and administrative activities involving military and civilian personnel (recruiting, processing, paying, and records keeping).

A-2 Law and order activities performed by military police and physical plant protection and security personnel, excluding formulation and/or enforcement of hunting and fishing policies or regulations which differ substantively from those in effect on surrounding non-Army lands.

A-3 Recreation and welfare activities not involving off-road recreational vehicle management.

A-4 Commissary and Post Exchange (PX) operations, except where hazardous material is stored or disposed.

A-5 Routine repair and maintenance of buildings, roads, airfields, grounds, equipment and other facilities, to include the lay away of facilities, except when requiring application or disposal of hazardous or contaminated materials.

A-6 Routine procurement of goods and services, including routine utility services.

A-7 Construction that does not significantly alter land use, provided the operation of the project when completed would not of itself have a significant environmental impact; includes grants to private lessees for similar construction. (REC required)

A-8 Simulated war games and other tactical and logistical exercises without troops.

A-9 Training entirely of an administrative or classroom nature.

A-10 Storage of materials, other than ammunition, explosives, pyrotechnics, nuclear, and other hazardous or toxic materials.

A-11 Operations conducted by established laboratories within enclosed facilities where:

a. All airborne emissions, waterborne effluents, external radiation levels, outdoor noise, and solid or bulk waste disposal practices are in compliance with existing Federal, State, local laws, and regulations.

b. No animals which must be captured from the wild are used as research subjects, excluding reintroduction projects. (REC required)

A-12 Developmental and operational testing on a military installation, where the tests are conducted in conjunction with normal militay training or maintenance activities so that the tests produce only incremental impacts, if any, and provided the the training and maintenance activities have been adequately assessed, where required, in other Army environmental documents. (REC required)

A-13 Routine movement of personnel; routine handling and distribution of non-hazardous and hazardous materials in conformance with DA, EPA, Department of Transportation and state regulations.

A-14 Reduction and realignment of civilian and/or military personnel that fall below the thresholds for reportable actions as prescribed in AR 5-10. (REC required)

A-15 Conversion of commercial activities (CA) to contract performance of services from in-house performance under the provisions of DOD Directive 4100.15.

A-16 Preparation of regulations, procedures, manuals, and other guidance documents that implement, without substantive change, the applicable HQDA or other federal agency regulations, procedures, manuals, and other guidance documents that have been environmentally evaluated.

A-17 Acquisition, installation and operation of utility and communication systems, data processing, cable, and similar electronic equipment that use existing rights of way, easements, distribution systems, and facilities.

A-18 Activities that identify or grant permits to identify the state of the existing environment (for example, inspections, surveys, and investigations) without alteration of that environment or capture of wild animals.

A-19 Deployment of military units on a temporary duty (TDY) basis where existing facilities are used and the activities to be performed have no significant impact of the environment. (REC required)

A-20 Grants of easements for the use of existing rights-of-way for use by vehicles; electrical, telephone, and other transmission and communication lines; transmitter and relay facilities; water, wastewater, stormwater, and irrigation pipelines, pumping stations, and facilities; and for similar public utility and transportation uses. (REC required)

A-21 Grants of leases, licenses, and permits to use existing Army controlled property for non-Army activities, provided there is an existing land-use plan that has been environmentally assessed and the activity will be consistent with that plan. (REC required)

A-22 Grants of consent agreements to use a Government-owned easement in a manner consistent with existing Army use of the easement; disposal of excess easement areas to the underlying fee owner. (REC required)

A-23 Grants of licenses for the operation of telephone, gas, water, electricity, community television antenna, and other distribution systems normally considered as public utilities. (REC required)

A-24 Transfer of real property administrative control within the Army, to another military department, or other Federal agency, including the return of public domain lands to the Department of the Interior and reporting of property available for outgranting; and grants of leases, licenses, permits and easements for use of excess or surplus property without significant changes in land use. (REC required)

A-25 Disposal of uncontaminated buildings and other improvements for removal off-site. (REC required)

A-26 Studies that involve no committment of resources other than manpower. (REC required)

A-27 Study and test activities within the procurement program for Military Adaptation of Commercial Items for items manufactured in the U.S. (REC required)

A-28 Development of table organization and equipment documents, no fixed location or site.

A-29 Grants of leases, licenses, and permits to use DA property for or by another governmental entity when such permission is predicated upon compliance with the NEPA. (REC required)

ANNEX S

CAMP SHELBY REGULATION

SAFETY

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This Regulation supersedes Annex S - Safety, Camp Shelby Regulation dated Dec 1990.

SAFETY PROCEDURES

SUPERSESSION: Supersedes all previous Safety Annexes.

APPLICABILITY: This annex applies to all Camp Shelby operations.

SUGGESTED IMPROVEMENTS: The proponent of this annex is Installation Support Unit - Safety Officer, Camp Shelby Training Site. Users are invited to send comments and suggested improvements on a DA Form 2028 (Recommended changes to Publications and Blank Forms) to Commander, Camp Shelby Training Site, Camp Shelby, MS 39407-5500, ATTN: ISU-SO.

SECTION I
INTRODUCTION

1-1 PURPOSE: To provide guidance and direction for the conduct of a comprehensive safety and accident prevention program for all units, facilities, and individuals conducting operations or training at Camp Shelby, Mississippi.

1-2 APPLICABILITY: This annex is applicable to all units, organizations, facilities and individuals, regardless of component, occupying or using any part of Camp Shelby, Mississippi, for any purpose.

1-3 OBJECTIVES: To provide guidance for safety and accident prevention programs for organizations and facilities at Camp Shelby, Mississippi, and to emphasize command responsibility for safety management.

1-4 DEFINITIONS:

a. Camp Shelby is defined as that area included in the Camp Shelby Military Reservation and any adjacent area under joint use agreement with any other Government agency and any property adjacent to or near Camp Shelby Military Reservation leased by or loaned to the State of Mississippi for the purpose of conducting military operations or training.

b. Camp Shelby Ranges are defined as those areas in which or from which ammunition or explosives may be fired for training.

c. Training Areas are those areas in which tactical training is conducted. These areas may or may not include or be a part of Camp Shelby Ranges.

d. The Cantonment Area is that where troop billets and camp facilities are located, generally inside the Camp Shelby gates.

e. A Facility is defined as a civilian or civilian type operation in support of and controlled by Mississippi Army National Guard or other agencies using Camp Shelby (MATES, ECS, CSMS, USP&FO, Troop Health Clinic, and Training Site Elements).

f. Camp Commander refers to the Adjutant General of the State of Mississippi or his designated representative.

g. The Training Site Commander is the senior commander of troops in training at Camp Shelby.

h. An accident is defined as an unplanned event that does damage to person(s) or property exclusive of damage caused by actions of an enemy or hostile force. See Section IV, this annex for instructions on investigating and reporting accidents.

SECTION II
RESPONSIBILITIES

2-1 CAMP COMMANDER: The Camp Commander will appoint a camp safety officer to advise him on matters pertaining to safety and to supervise the administration and implementation of the Camp Shelby safety and accident prevention programs of units and facilities at Camp Shelby.

2-2 TROOP COMMANDER: The Troop Commander is responsible for the overall supervision of the troop safety program. He will require the appointment, on unit orders, of a unit safety officer in each unit down to and including company or detachment level.

2-3 UNIT COMMANDERS: Each commander is responsible for:

a. Appoint a unit safety officer to assist the commander in complying with the provisions of this regulation and other safety directives published by NGB, DA and MSARNG.

b. Prevention of accidents involving personnel, equipment, operations, and activities under his control.

c. Investigating, reporting and recording all accidents involving personnel, equipment, operations, and activities under his control.

d. Ensure that all hazardous conditions (regardless of dollar value) involving army equipment are reported on SF 368 (Product Quality Deficiency Report) for Category II EIRs (Emergency Incidence Reports) in accordance with DA PAM 738-750. The safety office will be furnished a copy of the completed SF 368.

2-4 UNIT SAFETY OFFICER: Will perform the minimal functions of the Unit SOP, and will be responsible to:

a. Establish and maintain a safety reference file to include as a minimum:

(1) MSARNG Pamphlet 385-10
(2) NGR 385-10
(3) AR 385-10
(4) AR 385-40
(5) DA PAM 385-1
(6) Unit SOP
(7) Unit Training Package, DA Form 285

b. Insure adequate safety records are maintained.

c. Will report immediately to the installation safety officer for a safety briefing upon arrival to this installation.

d. Ensure that all fire extinguishers and fire detectors are in good operational condition in all areas of use by the unit.

2-5 TRAINING SITE COMMANDER: The Training Site Commander will be responsible for overall supervision of the Training Site Safety Program and appointment of a Training Site Safety Officer.

2-6 TRAINING SITE SAFETY OFFICER: The Training Site Safety Officer will:

a. Advise the Training Site Commander on matters pertaining to safety.

b. Assist in establishing and implementing basic policies, plans, and procedures for establishing, supervising and directing a functional Camp Shelby Safety Program and reporting accidents.

c. During Mobilization periods the Installation Safety Officer will conduct a safety briefing at the beginning of M-Day to all Battalions and higher organizational safety officers.

d. Coordinate through proper channels to report and investigate all matters pertaining to safety programs and/or accidents.

e. The Training Site Safety Officer and the Installation Safety Officer may be one in the same.

2-7 FACILITY SUPERVISORS: The supervisor of each facility located at Camp Shelby will:

a. Develop a safety program applicable to the specific operation of the facility for which he is responsible.

b. Assume for his facility those responsibilities listed for Unit Commanders in paragraph 2-3 of this annex.

c. Supervisor's of facilities engineering, maintenance support activity, aviation support facilities and equipment concentration sites will send the installation safety officer a copy of each estimated cost of damage (ECOD) report.

d. Facilities engineering organizations will also provide the appropriate safety staff with a copy of DD Form 2324 for all army fires.

e. Additional support will include technical investigations (TIs) of material. The TI will determine the type and cause of failures or malfunctions.

2-8 CAMP AVIATION OFFICER: The Camp Aviation Officer will:

a. Be responsible for staff supervision of all aviation safety programs at Camp Shelby.

b. Ensure that a qualified safety officer is appointed for each aviation activity on camp.

2-9 PROVOST MARSHAL: The Provost Marshal will:

a. Be responsible for enforcement of traffic regulations at Camp Shelby.

b. Coordinate enforcement of traffic regulations off camp with local law enforcement agencies where military personnel are involved.

c. Provide the installation safety officer with a daily summary of accident information collected through MP channels (example, MP blotters and traffic accident reports).

2-10 TROOP COMMAND SAFETY OFFICER: The Troop Command Safety Officer will receive and analyze accident reports and recommend corrective actions as required. He will provide advice to unit commander's and guidance on a variety of safety matters to include accident investigating and reporting. He or his designated representative will conduct a safety briefing at the beginning of each encampment period, during AT normally on the first Saturday or Sunday to include, as a minimum, all battalion and higher organizational safety officers. A roster of attendance at these initial briefings will be maintained.

2-11 SAFETY OFFICERS: Safety Officers at all levels of command will perform the duties prescribed in AR 385-10, NGR 385-10 and DA Pamphlet 385-1. Safety officers will investigate and report all accidents within their jurisdiction as prescribed in AR 385-40, NGR 385-10 and MSARNG Pam 385-10. Fire prevention will be considered an integral part of the safety program. Safety officers will, as a part of the safety program, inspect all fire extinguishers and fire detectors in their unit areas, on vehicles assigned to their units, and in any other area of unit responsibility and ensure that all discrepancies are corrected.

SECTION III
GENERAL SAFETY REQUIREMENTS

3-1 TRAINING: Each soldier must be taught to cope with danger as well as how to avoid unnecessary exposure to danger. Realism in training must inherently require exposure to risk, but safeguarding of the soldier must always take precedence over realism in training. Training must be geared toward the soldier's recognition of danger and to his avoiding unnecessary risks both on and off duty. No task is so urgent that it cannot be performed in a safe manner.

a. High risk training facilities (LRC, rappel tower, etc) will be inspected for safety hazards when the course is initially established. Also, the unit safety officer will inspect the facility each time it is used and when modification of the course or equipment is proposed. These inspections will be made a matter of record to the company safety officer, and the Training Site Safety Officer. The Training Site Safety Officer will hold records on structural deficiencies brought to him and will be relayed to Facility Engineers for corective action.

b. Information on safe procedures and practices will be integrated into training doctrine and literature. Primary accident problem areas will be emphasized, to include, but not limited to, motor vehicles, weapons, explosives and flammables, pyrotechnics, duds, carbon monoxide poisoning, lightning, contact with power lines, sports, and vision and hearing hazards.

c. Plans for training or operational concepts which could require nonstandard or possible hazardous procedures, modification or improvisation of equipment, require approval of the Troop Commander or higher authorized approving agency.

d. Personnel will wear protective clothing and equipment (ear muffs or plugs, safety glasses or shields, safety helmets and safety shoes, etc.) when operating equipment or performing any task requiring the wearing of protective clothing and equipment.

3-2 MOTOR VEHICLE OPERATION:

a. All drivers and passengers of military and POV's are required to wear seat belts at all times, both on and off Federal Installations.

b. Only personnel who have been licensed in accordance with AR 600-55 will operate government owned motor vehicles.

c. Posted speed limits on Camp Shelby apply to both military and civilian vehicles. Authority to exceed the posted speed limits is not granted except in a specific emergency.

d. Vehicles will reduce speed to 10 mph when meeting or passing troops in formation on roads or streets.

e. Drivers will not consume intoxicating beverages during the 8 hours prior to scheduled duty during their normal duty shift.

f. No person will operate a government owned vehicle while under the influence of alcohol or drugs. Personnel who are under medical supervision, taking a prescription medicine containing a sedative, stimulant, or depressant will obtain the permission of a medical officer before operating government owned vehicles.

g. No parking on road shoulders, except for emergencies.

h. Special emphasis will be placed on the number of passengers in military vehicles. Refer to appropriate operator's manual for the maximum number of allowable passengers. This number will not be exceeded; there are no exceptions.

i. Tactical vehicles will not exceed 45 mph off the reservation and not to exceed 25 mph on the reservation.

j. Before vehicle dispatch, commanders or their representatives will ensure that drivers perform before, during, and after-operation checks.

k. Drivers will not be assigned to drive an Army Motor Vehicle (AMV) for more than 10 continuous hours, nor will the combined duty period exceed 12 hours in any 24-hour period without at least 8 consecutive hours of rest. If more than 10 hours are needed to complete operations, a qualified assistant driver must be assigned to each vehicle.

l. Soldiers will wear a properly fastened, approved helmet whenever and wherever (on or off post) they operate or ride a motorcycle or moped. Civilian personnel must wear a helmet while driving or riding as a passenger on a motorcycle or moped on and off Federal Installations.

m. Soldiers will wear proper eye protection, full-fingered gloves, long trousers, long-sleeved shirt or jacket, high-visibility garments (bright color for day and retroreflective for night), and leather boots or over-the-ankle shoes whenever and wherever they operate or ride a motorcycle or moped.

3-3 LICENSING:

a. It is the responsibility of each division head to assure that all personnel in his division are properly licensed to operate vehicles within the division.

b. DA Forms 348 with SMO Form 29 (Ledger of Permits) will be maintained and prepared by the maintenance shop foreman.

c. The issuing officer on SF 46 must be a commissioned officer within the appropriate division.

3-4 CONVOY MOVEMENT:

a. Convoy Commanders will brief all drivers/assistant drivers/senior occupants prior to the march on hazardous areas or conditions to be encountered; i.e., safe following distances, proper speed, route, rest periods, signals, etc., (AR 55-29, para 4d(2); FM 21-305, page 24-1).

b. Radio whip antennas should be tied down to not less than 7 feet and no more than 10 feet from the ground with antenna tips covered with protective ball when operated outside the training area or near aircrafts.

c. Rotating or flashing amber lights and convoy flags should be used on the first and last vehicles in the convoy (AR 385-55, para 2-16; FM 21-205, page 24-5).

d. No convoy will depart Camp Shelby except during daylight hours and never from the South Gate.

e. Any night move outside of AT period, must be coordinated with range control.

f. During night operations blackout drive will be conducted by all vehicles on all roads in the Camp Shelby operational area except on paved roads. This includes Grapevine Road from the ASP to the South Tank Trail. All convoys conducting blackout moves will be preceded by a vehicle out front 300 to 500 meters and trailed by a vehicle back 100 to 200 meters. The lead vehicle will use blackout drive except when meeting a vehicle driving with its lights on. The lead vehicle will then turn on its headlights and stop the other vehicle asking it to pull to the side of the road, stop and turn off its lights until the convoy passes. The trail vehicle will insure that any vehicles approaching the convoy from behind does not pass, but follows the trail vehicle. The driver of the trail vehicle will make the judgement to turn on his headlights as required for safety.

g. Road guards to control traffic will be placed at major intersections in order for vehicles to proceed non-stop through intersections. Road guards will wear reflective vest and use a wand type flash light or flash lights with amber lense. If no road guards are posted, all vehicles will obey traffic control devices present (i.e., stop signs, etc.).

h. Hattiesburg city limits are off-limits to all convoys.

3-5 TRACK VEHICLES:

a. Track vehicles will not be moved unless the vehicle commander is in voice communication with the driver. The vehicle will be moved only on order of the vehicle commander.

b. A qualified operator will remain in the driver's seat at all times while the vehicle is running.

c. When mounting or dismounting a track vehicle, an individual will first obtain the attention of the vehicle commander and then mount or dismount at his instruction.

d. Protective headgear will be worn by crew members at all times when the vehicle is in motion.

e. Personnel must keep hips below the level of the hatch rim when riding in an open hatch and at no time unduly expose themselves to the danger of being thrown from the vehicle. Personnel will ride on the outside of the vehicle only when the tactical situation demands that they do so. Personnel riding on the outside of the vehicle will be checked by the vehicle commander to ensure that they are properly situated and have a firm hold with both hands before the vehicle moves. Vehicle commanders and crewmen will make periodic checks to ensure that hatch cover latches are not accidentally released during operation over rough terrain. All equipment will be stowed securely inside the vehicle at all times and vehicle restraint systems will be used when available. Personnel will be briefed prior to all training exercises on procedures to take in the event of a vehicle roll over (i.e. drop down inside the vehicle etc.)

f. All bridges on Camp Shelby will be crossed at low speed.

g. Commanders will refer to Camp Shelby Regulations for further information on operation of track vehicles.

3-6 GROUND GUIDING POLICY: The following parallels the FORSCOM vehicle ground guiding policy. This guidance will be incorporated into unit SOP for movement of track and wheel vehicles and will be discussed in all safety briefings prior to AT or weekend training assemblies:

a. Ground guides will be used in backing any military vehicle larger than 3/4 ton and in backing any military vehicle with restricted rearward vision.

b. Except for blackout operations in tactical training situations, tactical military vehicles will be operated with headlights and taillights or when outside the cantonment area.

c. In an assembly area: Before a track vehicle is started, a member of the crew must walk completely around the vehicle to ensure nobody is in danger from the vehicle's movement.

d. During movement within or throughout an assembly area: Track vehicles will require ground guides front and rear. Guides must be able to see each other and one must be visible to the driver. Wheel vehicles will normally require no ground guide. However, two guides will be used when backing a wheel vehicle with restricted vision. Failure to follow these rules provides a basis for disciplinary action under the UCMJ.

e. Track vehicles moving into and away from wash points will have ground guides to proceed them.

f. Ground guides will check under the vehicles for sleeping personnel.

g. During night movement or during periods of reduced visibility, the ground guides will use flashlights with amber lenses to direct the vehicle movement.

h. Ground guides will stand off to the side of the vehicle when directing movement. This will prevent being pinned between vehicles and objects in the event the vehicle leaps forward.

i. Ground guides must be in view of the driver at all times.

3-7 ENGINEER EQUIPMENT:

a. Track:

(1) Track equipment WILL NOT be transported from one project to another project with the engine running and they will be tied down with chains and binders.

(2) Personnel will at NO TIME ride the track equipment while it is being transported.

(3) A qualified operator will remain with the equipment at all times while it is running.

b. Heavy Rubber-Tire Earth Moving Vehicles:

(1) AT NO TIME will this vehicle move on Camp Shelby road network unless it has a lead guide vehicle (with lights flashing) in front of and after the heavy rubber tire earth moving vehicle.

(2) A qualified operator will remain with this vehicle at all times while it is operating on or off a project.

3-8 AMMUNITION AND RANGE SAFETY:

a. Ammunition:

(1) Personnel will turn in any excess training ammunition prior to departing training area.

(2) Any excess training ammunition not turned in for any reason may use the Amnesty Program (reference Annex D to Camp Shelby Regulation and DA PAM 710-1, 710-2).

(3) Ammunition will be brought into the cantonment area only after coordination and approval by the Camp Commander or his designated representative. Under no circumstances will ammunition or explosives be stored in motor pools on Camp.

(4) Storage of ammunition will apply to DA 385-64 and TM 9-1300-206.

b. Ranges: Annex C (Camp Shelby Range Regulation) is applicable to all units using Camp Shelby training or range areas.

3-9 HEATERS:

a. LP gas heaters will be used in quarters when authorized by Unit Commander and Facilities Engineer. A guard must be on duty and awake at all times. (NOTE: Individuals will be cautioned of the dangers associated with the use of liquid petroleum heaters.)

b. Electric heaters can be used in quarters but the individual must exercise care when using portable electrical heaters.

c. A fire extinguisher will be available.

3-10 PT TEST: Running during AT of the 2 or 4 mile requirements for the PT test may be done on all streets and avenues at Camp Shelby except during the period from 2030-0500 hours. All 2 and 4 mile runs must be coordinated in advance with Troop Command Headquarters and DPTM. It will be a unit responsibility to obtain or provide traffic control and medical support.

3-11 PT FORMATIONS: The following applies to running formations on post roads:

a. Organization will avoid running during periods of heavy traffic congestion (0700-0730 hours and 1615-1645 hours).

b. No PT will be conducted between the hours of 1730-0430 on major avenues (i.e., Forrest, Jackson, Lee), unless approved through DPTM.

c. Individuals jogging more than (2) abreast will follow PT formation guide lines.

d. The main body of the formation will run three abreast. At no time will any member of the formation (including leaders, guidon bearers, and cadence callers in the fourth column) cross over the center line causing the formation to occupy more than a single lane.

e. Formation will maintain positive straggler control ensuring that all stragglers move off the road to the right of the formation. Stragglers will run in formation and will be provided road guard protection.

f. Front and rear road guards, wearing reflective vests (and carrying wand-type flashlights during periods of limited visibility), will maintain a position at sufficient distance to the front and rear of the formation to provide adequate warning to approaching traffic. During periods of limited visibility, this distance will be 50 meters. Road guards will not cross over the center line, other than to provide protection to the flank of the formation at intersections. Sufficient road guards will be used to enable road guards to be positioned to the flank of the formation at all vehicle intersections while still maintaining protection to the front and rear of the formation.

3-12 WALKING AND JOGGING:

a. Wear reflective or bright clothing and/or carry a flashlight.

b. Remain on street/road shoulders facing oncoming traffic.

c. In accordance with AR 385-55, the use of headphones or earphones while walking, skating, jogging, or bicycling on installation roads/streets is prohibited.

3-13 SAFETY EQUIPMENT FOR TRAFFIC CONTROL PERSONNEL: All military personnel involved in traffic control duties on the Camp Shelby Reservation, Camp Shelby operational area, and in convoy movements to and from Camp Shelby, will wear appropriate fluorescent or reflective personal safety equipment. This includes not only Military Police but also personnel utilized as road guides and related duties. Equipment is authorized by CTA 50-900.

3-14 FIRE REPORTING: The Installation Fire Department is responsible for reporting fires on the following forms listed below in accordance with AR 420-90:

a. AR 420-90 requires all fires that cause damage to army equipment to be reported on DD Form 2324 (DOD Fire Incident Report).

b. DA Form 285 will be submitted for recording in ASMIS on those equipment fires and explosions if there is fire damage to:

(1) Wheeled vehicles
(2) Tracked vehicles
(3) Aircraft (ground)
(4) Ammunition/explosive fires
(5) Missles, to include subsystems
(6) Tents
(7) Space heaters
(8) Generators

c. DD Form 2324 will be submitted for fire accidents involving army-owned or leased fixed facilities and physical property except where the fire was willfully and maliciously ignited (arson).

d. Pilots observing fires on Camp Shelby will report all fires or suspected fires to the Range Control Officer.

3-15 FIRE PREVENTION:

a. The use of gasoline and other highly flammable liquids for cleaning purposes is strictly prohibited.

b. Installed fire extinguishers will not be used for any reason other than fire fighting.

c. Smoking in bed is strictly prohibited.

d. Units operating fuel supply points will assure that a Halon Dry Chemical Type ABC, BC or B fire extinguisher is available.

3-16 RESTRICTIONS AND CONTROLLED SUBSTANCES:

a. The use or possession of controlled substances (narcotics and pharmaceuticals) as specified in the "Mississippi Uniform Controlled Substances Act of 1971" as amended, is prohibited except when authorized under the direction of appropriate medical authorities.

b. The possession of privately owned firearms on Camp Shelby is PROHIBITED.

3-17 PETS: There are no facilities for pets at Camp Shelby, therefore, pets should be left at home stations.

3-18 ANIMAL AND INSECT HAZARDS:

a. Small animals such as rabbits, foxes, raccoons, opossums and skunks are numerous. Personnel coming in contact with these animals run a high risk of contracting rabies if scratched or bitten. Any one bitten by such animals should carefully cleanse the wound, seek medical help immediately and, if possible, obtain the animal for examination by qualified medical personnel.

b. Prevention of spider, snake and ant bites:

(1) Check bedding before use.

(2) Check clothing, socks, and shoes before wearing.

(3) Watch your step and where you sit.

(4) Be careful where you place your hands when climbing or lifting objects from the ground.

3-19 Use of Chemical Light Sticks. There is an ongoing program to widen and improve bridges in the training areas at Camp Shelby; however, many bridges now in use are both narrow and dangerous. Route reconnaissance, use of adequate ground guides, reduced speed and use of chemical light sticks must be emphasized at all levels of command. When using the light sticks, the bridge will be marked on all four corners using red colored light sticks only. Bridges may also be marked with flashlights with red lenses. When marking sleeping areas in the field, with chemical light sticks, only blue will be used and blue will not be used for any other purpose on the Camp Shelby reservation.

SECTION IV
REPORTS

4-1 GENERAL: The following organizations will furnish the Installation Safety Officer one copy of the following:

a. Troop Medical Clinic #1: Daily Admission and Disposition Reports.

b. Provost Marshal: The Provost Marshal's Office (PMO) will provide the Camp Safety Officer with a daily summary of accident information collected through MP channels (i.e., MP blotters, traffic accident reports, and DA Form 3946).

c. Fire Station: Copy of DD Form 2324, DOD Fire Incident Report, will be provided the Camp Safety Officer in connection with fires or explosions followed by fire. (See Appendix S-1.)

4-2 NOTIFICATION OF ARMY ACCIDENTS:

a. Personnel directly involved in or individuals having knowledge of an accident or serious injuries, will promptly report the events surrounding the accident or injury to commanders and supervisors.

b. Commanders and supervisors who are directly responsible for an operation, equipment, or person(s) will promptly notify the Installation Safety Officer of accidents and injuries and all circumstances surrounding them. During AT notify the Troop Command Safety Officer.

c. Notification policies in case of accident involving a fatality or severe injuries to personnel: the Installation Safety Officer will be notified immediately by telephone. Accidents involving fatalities or severe injuries after duty hours during AT will be reported to the Staff Duty Officer at Troop Command Headquarters. Camp Shelby Security will be notified during periods of training when there is no operating Troop Command (i.e., weekend training). Camp Shelby Security will be informed on proper accident reporting format for each Accident Category (i.e., A, B, C, D) by the Installation Safety Officer.

4-3 INVESTIGATING AND REPORTING ACCIDENTS:

a. Responsibilities: The Commander of an organization experiencing an accident (including personal injuries) will ensure that:

(1) The accident investigation is initiated immediately after evacuation and care for the wounded to ensure expeditious completion and forwarding of accident reports.

(2) All accidents are investigated, the cause determined, and corrective action initiated.

b. Reportable Accidents: All accidents/injuries are REPORTABLE, through channels to the Installation Safety Office and troop command safety office during AT.

c. Recordable accidents. Accidents involving a lost work day or equipment damage is a recordable accident and will be reported on DA Form 285, through channels, to the Installation Safety Office and troop command safety office during AT.

d. Mississippi Army National Guard units will prepare Accident Report, DA Form 285, in accordance with NGR 385-10 and state directives (see appendix S-2). Accident Reports will be submitted through command channels to reach the Camp Shelby Safety Office in two (2) copies, with enclosures, not later than three (3) days after the accident. One of the requirements of Post Clearance is the timely submission of all accident reports. USAR and out of state units will furnish the safety office one information copy of all DA Forms 285 and forward the remaining copies through their command channels.

e. Reporting Class A Accidents (Fatalities).

(a) A Class A accident is defined as one in which the total cost of property damage, injury, or occupational illness equals $1,000,000.00 or greater, and/or a fatality occurs as a result of ARNG/Army operations. The U.S. Army Safety Center (USASC) at Fort Rucker, Alabama investigates most Class A, on duty, non-POV accidents, and other accidents of significance to the Army. During mobilization notify USASC on all Class A & B, notify FORSCOM on all Class A accidents. In the event a Class A, (i.e., injured person is not expected to live), the Camp Shelby Safety Officer or the Troop Command Duty Officer will be notified immediately with the following information:

1 Type accident, vehicle/equipment and location.

2 Synopsis of accident information available.

3 Number and names of personnel involved/any civilian involvement.

4 Number of injuries/fatalities.

5 Names of witnesses.

(b) In addition, the unit should take action on the following in coordination with the Camp Shelby Safety Officer:

1 Initiate life-saving actions and arrange for evacuation of any deceased/injured personnel. If in a field location, notify Range Control (FM 38.90 New Squelch) for assistance in arranging evacuation. Military MEDEVAC is normally available during regular AT periods and may be available on some weekends other than during AT. They can be reached on frequency 38.5 MHZ old squelch.

2 Immediately provide site security and ensure the site is undisturbed to the maximum extent possible, coordinating with appropriate civilian authorities to facilitate movement of public transportation and protect the public transportation and protect the public welfare.

3 Identify all witnesses.

4 Gather and secure operational/maintenance/historical records for all Army equipment involved in the accident.

5 Gather and secure medical, training, and personnel records for all Army personnel involved in the accident.

6 Coordinate with local medical facility for blood and urine samples from all personnel involved (20-40 ML blood, 50-100 ML urine).

4-4 HANDLING ACCIDENT REPORTS: All reports of accidents will be handled on a "FOR OFFICIAL USE ONLY" basis and no information will be released, except through the Camp Shelby Public Affairs Officer or the Office of the Adjutant General, State of Mississippi.

4-5 HAZARDOUS CONDITIONS/UNSAFE ACTS: Any hazardous conditions noted or unsafe acts being committed should be brought to the attention of the Camp Safety Officer, on a DA Form 4755 "Employee Report of Alledged Unsafe/Unhealthful Working Conditions".

SECTION V
OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

S-1 OCCUPATIONAL SAFETY AND HEALTH ACT 1970 (OSHA):

a. NGR 385-10 and AR 385-10 require that commanders and supervisors comply with the Occupational Safety and Health Act (OSHA). This includes, but is not limited, to the following:

(1) Compliance with OSHA Safety Standards. When Army Safety Standards are more stringent than OSHA standards, Army standards apply.

(2) Posting of Department of Defense Poster DD 2272 "Department of Defense and Health Protection Program" in each establishment where business is conducted or where services or operations are performed.

(3) Posting procedures for employees to report possible unsafe or unhealthy working conditions at each establishment will use a DA Form 4755.

b. Supervisors of shops, jobs, and facilities will:

(1) Ensure compliance with OSHA standards.

(2) Require that employees under their supervision use necessary protective clothing and equipment.

(3) Be aware of action to take for various offenses.

c. Employees will:

(1) Comply with OSHA standards while on the job.

(2) Use all protective clothing and equipment furnished them.

d. The State Safety Office will be furnished one copy of all CA Forms 1 - Injury and CA Forms 2 - Occupational Illness received by the Support Personnel Office.

e. Safety Standards:

(1) The Mississippi Army National Guard will employ safety and health standards of the Occupational Safety and Health Act (OSHA) of 1970 relative to industrial type operations, facilities, and equipment comparable to those found in the work environment in the private sector.

(2) The Mississippi Army National Guard has trained personnel capable of recognizing noncompliance with OSHA standards. When a condition is believed to be in noncompliance, a survey should be requested of TAGO-MS Safety Office.

DoD FIRE INCIDENT REPORT

FOR OFFICIAL USE ONLY

A. Complete instructions for filling out this form are contained in DoD 6055.7-M
B. The entire form may be hand printed. Legibility is important.
C. Where blocks are provided for the individual characters of the data, follow these rules:
(1) If the entry is letters, place the first letter in the left-hand block;
(2) If the entry is a number, place it so that the last digit is in the right-hand block.

THIS SPACE FOR SAFETY CENTER ONLY:

YR MO DAY LINE EXP NO. T/C

01 02 03 04 05 06 07 08 09 10 11 80

SECTION A – GENERAL DATA

1. NAME OF FIRE DEPARTMENT

2. REPORT STATUS
1. Preliminary
2. Final
3. Revised

3. OFF-STATION/MUTUAL AID RESPONSE
Y. Yes
N. No
12

4. LOCATION

5. ZIP CODE
9 DIGIT
5 DIGIT
13 14 15 16 17 — 18 19 20 21

6. UIC-RUC/ IDENT. CODE
22 23 24 25 26

7. AFFILIATION
1. Navy 2. Marine
3. Army 4. Air Force
5. Defense Logistics Agency
6. Other
27

8. NAME OF ACTIVITY WHERE FIRE OCCURRED

9. LOCATION

10. AFFILIATION
1. Navy 2. Marine
3. Army 4. Air Force
5. Def. Log. Agency
6. Other
28

11. UIC-RUC/ IDENT. CODE
29 30 31 32 33

12. DATE OF FIRE
YR MO DAY

13. DAY OF WEEK
1. Sun 5. Thu
2. Mon 6. Fri
3. Tue 7. Sat
4. Wed
36

14. INCIDENT NUMBER
37 38 39 40

15. MUTUAL AID RECEIVED
Y. Yes
N. No
41

16. METHOD OF ALARM FROM PUBLIC
42 43

17. TYPE OF SITUATION FOUND
44 45

18. FIXED PROPERTY USE
46 47 48

19. MOBILE PROPERTY TYPE
(Auto., Mobile Home, Ship, Aircraft)
49 50

20. IF MOBILE PROPERTY (Auto., Mobile Home, Ship, Aircraft)	YEAR	MAKE	MODEL/OR ACFT. MODEL	SERIAL NO./OR BUREAU NO.	LICENSE NO.

SECTION B – ORIGIN AND IGNITION DATA

21. AREA OF FIRE ORIGIN
51 52

22. LEVEL OF ORIGIN
53

23. TERMINATION STAGE
1. HEAT TERMINATED IN THE OVERHEAT STAGE BEFORE SMOLDER OR FLAME
2. FIRE TERMINATED IN THE SMOLDER STAGE, BEFORE ANY FLAME
3. FIRE TERMINATED IN OR AFTER THE FLAME STAGE
4. NOT APPLICABLE
56

24. EQUIPMENT INVOLVED IN IGNITION (IF ANY)
54 55

25. IF EQUIPMENT INVOLVED IN IGNITION	YEAR	MAKE	MODEL	SERIAL NO.	VOLTAGE

MATERIAL FIRST IGNITED *(26 and 27 only)*

26. TYPE
57 58

27. FORM
59 60

28. FORM OF HEAT OF IGNITION
61 62

29. IGNITION FACTOR
63 64

CARD NO.
77 78 79

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•U.S. GPO: 1984-438-388

SECTION C – STRUCTURE AND FIRE DATA

30. STRUCTURE TYPE (If not structure proceed to 46) [12]

31. STRUCTURE NO. [13][14][15][16][17][18]

32. YEAR CONSTR [19][20][21][22]

33. NUMBER OF STORIES [23][24][25]

34. GROUND FLOOR AREA [26][27][28][29][30][31][32]

35. CONSTRUCTION TYPE [33]

36. CONSTRUCTION METHOD [34]

37. EXTENT OF FLAME DAMAGE [35]
1. CONFINED TO THE OBJECT OF ORIGIN
2. CONFINED TO PART OF ROOM OR AREA OF ORIGIN
3. CONFINED TO ROOM OF ORIGIN
4. CONFINED TO THE FIRE-RATED COMPARTMENT OF ORIGIN
5. CONFINED TO FLOOR OF ORIGIN
6. CONFINED TO BUILDING OF ORIGIN
7. EXTENDED BEYOND BUILDING OR ORIGIN
8. NOT A STRUCTURE FIRE
9. NO DAMAGE OF THIS TYPE

38. EXTENT OF SMOKE DAMAGE [36]
1. CONFINED TO OBJECT OF ORIGIN
2. CONFINED TO PART OF ROOM OR AREA OF ORIGIN
3. CONFINED TO ROOM OF ORIGIN
4. CONFINED TO THE FIRE-RATED COMPARTMENT OF ORIGIN
5. CONFINED TO THE FLOOR OF ORIGIN
6. CONFINED TO BUILDING OF ORIGIN
7. EXTENDED BEYOND BUILDING OF ORIGIN
8. NOT A STRUCTURE FIRE
9. NO DAMAGE OF THIS TYPE

39. EXTENT OF WATER DAMAGE [37]
1. CONFINED TO OBJECT OF ORIGIN
2. CONFINED TO PART OF ROOM OR AREA OF ORIGIN
3. CONFINED TO ROOM OF ORIGIN
4. CONFINED TO THE FIRE-RATED COMPARTMENT OF ORIGIN
5. CONFINED TO THE FLOOR OF ORIGIN
6. CONFINED TO BUILDING OF ORIGIN
7. EXTENDED BEYOND BUILDING OF ORIGIN
8. NOT A STRUCTURE FIRE
9. NO DAMAGE OF THIS TYPE

40. EXTENT OF FIRE CONTROL DAMAGE
1. CONFINED TO OBJECT OF ORIGIN
2. CONFINED TO PART OF ROOM OR AREA OF ORIGIN
3. CONFINED TO ROOM OF ORIGIN
4. CONFINED TO THE FIRE-RATED COMPARTMENT OF ORIGIN
5. CONFINED TO THE FLOOR OF ORIGIN
6. CONFINED TO BUILDING OF ORIGIN
7. EXTENDED BEYOND BUILDING OF ORIGIN
8. NOT A STRUCTURE FIRE
9. NO DAMAGE OF THIS TYPE

41. AT TIME OF FIRE, BUILDING WAS: [39]
1. OCCUPIED BY AWAKE PERSONS
2. OCCUPIED BY SLEEPING PERSONS
3. OCCUPIED BY CHILDREN OR AGED PERSONS ONLY
4. NOT OCCUPIED
5. VACANT
6. NONE OF ABOVE (Explain in narrative)

42. IF FLAME SPREAD BEYOND ROOM OF ORIGIN: TYPE OF MATERIAL GENERATING MOST FLAMES: [40][41]

43. AVENUE OF FLAME TRAVEL [42][43]

44. IF SMOKE SPREAD BEYOND ROOM OF ORIGIN: TYPE OF MATERIAL GENERATING MOST SMOKE: [44][45]

45. AVENUE OF SMOKE TRAVEL [46]

46. METHOD OF DETECTION [47][48]

47. METHOD OF EXTINGUISHMENT [49][50]

48. AGENT AND QUANTITY USED (CIRCLE AGENTS USED & CODE AGENTS AND QUANTITY)
0 WATER – SPRAY/FOG 1 WATER – SOLID STREAM
2 WATER – BOTH 0 AND 1 3 AFFF
4 OTHER FOAMS (PROTEIN, HIGH EXPANSION FOAM AGENTS)
5 DRY CHEMICAL 6 CARBON DIOXIDE
7 HALOGENATED AGENTS (HALON 1211, 1301)
8 WATER WITH ADDITIVES (WET WATER, ETC)
9 OTHER (COMBUSTIBLE METAL EXTINGUISHING AGENTS, ETC)

AGENT		QTY.		AGENT		QTY.	
1	[54]	[55][56][57][58][59][60]		2	[61]	[62][63][64][65]	
3	[66]	[67][68][69][70]		4	[71]	[72][73][74][75]	

49. MOST EFFECTIVE EXTINGUISHING AGENT USED [51]

50. NUMBER OF PEOPLE RESCUED BY FIRE DEPT. (Explain in narrative) [52][53]

51. DEFICIENCIES OR PROBLEM AREAS [76]
If problems existed in any of the following areas, indicate and further explain in narrative:
1. ALARM TRANSMITTAL
2. FIRE DEPARTMENT RESPONSE
3. PUMPER, HOSE, LADDERS, ETC.
4. MANPOWER
5. BREATHING APPARATUS, PROTECTIVE CLOTHING, ETC.
6. EXTINGUISHING AGENTS, WATER SUPPLY, ETC.
7. VENTILATION, FORCIBLE ENTRY, SALVAGE
8. WEATHER
9. ITEMS OF NON-COMPLIANCE (OSHA)
10. OTHER

CARD [77][78][79]

SECTION D – FIRE PROTECTION FACILITIES (IN STRUCTURES ONLY)

52. AUTOMATIC SPRINKLERS PROVIDED? (IF NO, PROCEED TO 53) — Y. YES N. NO — 12

PERCENT COVERED? — 13 14 15

IF LESS THAN 100%, WERE SPRINKLERS IN FIRE AREA? — Y. YES N. NO — 16

OPERATED AT FIRE? — Y. YES N. NO — 17

CONNECTED TO FIRE ALARM HEADQUARTERS? — Y. YES N. NO — 18

WAS SPRINKLER OPERATION FIRST INDICATION OF FIRE? — Y. YES N. NO — 19

NUMBER OF SPRINKLER HEADS OPERATED? — 20 21

TYPE OF SPRINKLER SYSTEM — 22

1. WET
2. DRY
3. DELUGE-WATER
4. DELUGE-FOAM
5. PRE-ACTION DELUGE

SPRINKLER PERFORMANCE — 23

1. SPRINKLERS OPERATED SATISFACTORILY – EXTINGUISHED FIRE
2. SPRINKLERS OPERATED SATISFACTORILY – HELD FIRE IN CHECK
3. NO SPRINKLER OPERATION; FIRE TOO SMALL
4. NO SPRINKLER OPERATION; NO SPRINKLERS IN FIRE AREA
5. SPRINKLER OPERATION UNSATISFACTORY (EXPLAIN IN NARRATIVE)
6. PERFORMANCE OF AUTOMATIC EXTINGUISHING EQUIPMENT NOT CLASSIFIED ABOVE
7. PERFORMANCE OF AUTOMATIC EXTINGUISHING EQUIPMENT UNDETERMINED OR NOT REPORTED

53. AUTOMATIC FIRE ALARM PROVIDED? (IF NO, PROCEED TO 54) — Y. YES N. NO — 24

PERCENT COVERED? — 25 26 27

IF LESS THAN 100%, WERE DETECTORS IN FIRE AREA? — Y. YES N. NO — 28

OPERATED AT FIRE? — Y. YES N. NO — 29

CONNECTED TO FIRE ALARM HEADQUARTERS? — Y. YES N. NO — 30

WAS DETECTOR OPERATION FIRST INDICATION OF FIRE? — Y. YES N. NO — 31

TYPE OF ALARM SYSTEM — 32

1. FIXED TEMPERATURE
2. RATE OF RISE
3. COMBINATION FIXED TEMP/RATE OF RISE
4. SMOKE/SMOKE COMBINATION
5. OTHER

PERFORMANCE OF FIRE DETECTION EQUIPMENT — 33

1. DETECTOR(S) IN THE ROOM OR SPACE OF FIRE ORIGIN, AND THEY OPERATED
2. DETECTOR(S) NOT IN THE ROOM OR SPACE OF FIRE ORIGIN, AND THEY OPERATED
3. FIRE TOO SMALL TO ACTIVATE DETECTORS
4. DETECTOR PERFORMANCE UNSATISFACTORY (EXPLAIN IN NARRATIVE)
5. NO DETECTORS PRESENT
6. PERFORMANCE OF FIRE DETECTION EQUIPMENT NOT CLASSIFIED ABOVE
7. PERFORMANCE OF FIRE DETECTION EQUIPMENT UNDETERMINED OR NOT REPORTED

54. MANUAL FIRE ALARM SYSTEM PROVIDED? (IF NO, PROCEED TO 55) — Y. YES N. NO — 34

OPERATED AT FIRE? (IF NO, PROCEED TO 55) — Y. YES N. NO — 35

CONNECTED TO FIRE ALARM HEADQUARTERS? — Y. YES N. NO — 36

IF OPERATED DID SYSTEM PERFORM SATISFACTORILY? — Y. YES N. NO — 37

55. INSTALLED PORTABLE EXTINGUISHERS (NOT F.D. CARRIED) — 38

1. EXTINGUISHERS NOT PROVIDED
2. PROVIDED BUT NOT USED
3. OPERATED SATISFACTORILY
4. OPERATED UNSATISFACTORILY (EXPLAIN IN NARRATIVE)
5. OPERATION N/A

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56. OTHER FIXED SPECIAL EXTINGUISHING SYSTEMS IN FIRE AREA (IF NONE, PROCEED TO SECTION E)	FIXED SPECIAL EXTINGUISHING SYSTEMS OPERATED	SPECIAL SYSTEM PERFORMANCE
1. NONE 2. BUILT-IN CARBON DIOXIDE FLOODING SYSTEMS PROVIDED 3. BUILT-IN CARBON DIOXIDE HAND HOSELINE PROVIDED 4. BUILT-IN "HALON" FLOODING SYSTEM PROVIDED 5. BUILT-IN DRY CHEMICAL SYSTEM PROVIDED 6. BUILT-IN FOAM SYSTEM PROVIDED 7. OTHERS	1. AUTOMATIC 2. MANUAL 3. NOT OPERATED	1. FIRE TOO SMALL FOR SYSTEM OPERATION 2. OPERATED SATISFACTORILY – EXTINGUISHED FIRE 3. OPERATED SATISFACTORILY – HELD FIRE IN CHECK 4. OPERATED UNSATISFACTORILY (EXPLAIN IN NARRATIVE) 5. OPERATION N/A
39	40	41

SECTION E – LOSSES

PROPERTY DAMAGED	ESTIMATED $ VALUE	ESTIMATED $ LOSS
57. STRUCTURE OR MOBILE PROPERTY (GOVERNMENT)	42 43 44 45 46 47 48 49	50 51 52 53 54 55 56 57
58. CONTENTS (GOVERNMENT)	12 13 14 15 16 17 18 19	20 21 22 23 24 25 26 27
59. NON-GOV PROPERTY (IF NONE PROCEED TO 61)	34 35 36 37 38 39 40 41	42 43 44 45 46 47 48 49

60. IF NON-GOV. LOSS, GIVE PROPERTY TYPE
1. PRIVATE 4. EXCHANGE, PX
2. CONTRACTOR 5. GOV LOSS, REIMBURSED
3. SPECIAL SERVICES 6. OTHER _____

58 | CARD NO. 8 | 3 | 8 | 77 78 79

61. NO. INCIDENT-RELATED INJURIES 28 29 30

62. NO. INCIDENT-RELATED FATALITIES 31 32 33

SECTION F – TIMES (24-HR CLOCK)

63. ESTIMATED TIME FIRE STARTED 50 51 52 53

FIRE DETECTED 54 55 56 57

ALARM RECEIVED 58 59 60 61

F. D. ARRIVED 62 63 64 65

EXTINGUISHED 66 67 68 69

CARD NO. 8 | 4 | 8 | 77 78 79

SECTION G – BRIEF NARRATIVE OF FIRE

CHIEF OF FIRE DEPARTMENT | REVIEWING OFFICIAL | REVIEWING OFFICIAL | REVIEWING OFFICIA

FOR ADDITIONAL INFORMATION PHONE NO. _____ (CHECK ONE) ☐ AUTOVON ☐ FTS ☐ COMMERCIAL

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SECTION H – CASUALTIES

1. CASUALTY NAME LAST FIRST MI

2. CASUALTY SEQUENCE NUMBER [12][13][14][15]

3. AGE [14]

4. TIME OF INJURY (USE 24-HR CLOCK) [16][17][18][19]

5. CATEGORY [20]
1. FIRE SERVICE (CIVILIAN)
2. FIRE SERVICE (MILITARY)
3. MILITARY PERSONNEL
4. CIVIL SERVICE PERSONNEL
5 MILITARY DEPENDENTS
6. CONTRACTOR PERSONNEL
7. NON DoD FIRE SERVICE
8. OTHER (GUESTS)

6. SEX [21]
M. MALE
F. FEMALE

7. AFFILIATION [22]
1. NAVY 2. MARINE
3. ARMY 4. AIR FORCE
5. DEFENSE LOG. AGENCY
6. OTHER

8. CASUALTY TYPE [23]
F. FIRE CASUALTY
A. ACTION CASUALTY

9. SEVERITY [24]
I. INJURY D. DEATH

10. FAMILIARITY WITH STRUCTURE [25]

11. LOCATION AT IGNITION [26]

12. CONDITION BEFORE INJURY [27]

13. CONDITION PREVENTING ESCAPE [28]

14. ACTIVITY AT TIME OF INJURY [29]

15. CAUSE OF INJURY [30]

16. NATURE OF INJURY [31]

17. PART OF BODY INJURED [32]

18. DISPOSITION [33]

REMARKS

1. CASUALTY NAME LAST FIRST MI

2. CASUALTY SEQUENCE NUMBER [34][35][36][37]

3. AGE [36]

4. TIME OF INJURY (USE 24-HR CLOCK) [38][39][40][41]

5. CATEGORY [42]
1. FIRE SERVICE (CIVILIAN)
2. FIRE SERVICE (MILITARY)
3. MILITARY PERSONNEL
4. CIVIL SERVICE PERSONNEL
5. MILITARY DEPENDENTS
6. CONTRACTOR PERSONNEL
7. NON DoD FIRE SERVICE
8. OTHER (GUESTS)

6. SEX [43]
M. MALE
F. FEMALE

7. AFFILIATION [44]
1. NAVY 2. MARINE
3. ARMY 4. AIR FORCE
5. DEFENSE LOG. AGENCY
6. OTHER

8. CASUALTY TYPE [45]
F. FIRE CASUALTY
A. ACTION CASUALTY

9. SEVERITY [46]
I. INJURY D. DEATH

10. FAMILIARITY WITH STRUCTURE [47]

11. LOCATION AT IGNITION [48]

12. CONDITION BEFORE INJURY [49]

13. CONDITION PREVENTING ESCAPE [50]

14. ACTIVITY AT TIME OF INJURY [51]

15. CAUSE OF INJURY [52]

16. NATURE OF INJURY [53]

17. PART OF BODY INJURED [54]

18. DISPOSITION [55]

CARD NO. 0 5 0 [77][78][79]

REMARKS

DoD FIRE INCIDENT REPORT

FOR OFFICIAL USE ONLY

1. CASUALTY NAME LAST FIRST MI	2. CASUALTY SEQUENCE NUMBER [12][13][14][15]	3. AGE	4. TIME OF INJURY (USE 24-HR CLOCK) [16][17][18][19]

5. CATEGORY	6. SEX	7. AFFILIATION	8. CASUALTY TYPE
1. FIRE SERVICE (CIVILIAN) 2. FIRE SERVICE (MILITARY) 3. MILITARY PERSONNEL 4. CIVIL SERVICE PERSONNEL 5. MILITARY DEPENDENTS 6. CONTRACTOR PERSONNEL 7. NON DoD FIRE SERVICE 8. OTHER (GUESTS) [20]	M. MALE F. FEMALE [21]	1. NAVY 2. MARINE 3. ARMY 4. AIR FORCE 5. DEFENSE LOG. AGENCY 6. OTHER [22]	F. FIRE CASUALTY A. ACTION CASUALTY [23]

9. SEVERITY	10. FAMILIARITY WITH STRUCTURE
I. INJURY D. DEATH [24]	[25]
11. LOCATION AT IGNITION	**12. CONDITION BEFORE INJURY**
[26]	[27]

13. CONDITION PREVENTING ESCAPE	14. ACTIVITY AT TIME OF INJURY	15. CAUSE OF INJURY
[28]	[29]	[30]
16. NATURE OF INJURY	**17. PART OF BODY INJURED**	**18. DISPOSITION**
[31]	[32]	[33]

REMARKS

1. CASUALTY NAME LAST FIRST MI	2. CASUALTY SEQUENCE NUMBER [34][35][36][37]	3. AGE	4. TIME OF INJURY (USE 24-HR CLOCK) [38][39][40][41]

5. CATEGORY	6. SEX	7. AFFILIATION	8. CASUALTY TYPE
1. FIRE SERVICE (CIVILIAN) 2. FIRE SERVICE (MILITARY) 3. MILITARY PERSONNEL 4. CIVIL SERVICE PERSONNEL 5. MILITARY DEPENDENTS 6. CONTRACTOR PERSONNEL 7. NON DoD FIRE SERVICE 8. OTHER (GUESTS) [42]	M. MALE F. FEMALE [43]	1. NAVY 2. MARINE 3. ARMY 4. AIR FORCE 5. DEFENSE LOG. AGENCY 6. OTHER [44]	F. FIRE CASUALTY A. ACTION CASUALTY [45]

9. SEVERITY	10. FAMILIARITY WITH STRUCTURE
I. INJURY D. DEATH [46]	[47]
11. LOCATION AT IGNITION	**12. CONDITION BEFORE INJURY**
[48]	[49]

13. CONDITION PREVENTING ESCAPE	14. ACTIVITY AT TIME OF INJURY	15. CAUSE OF INJURY
[50]	[51]	[52]
16. NATURE OF INJURY	**17. PART OF BODY INJURED**	**18. DISPOSITION** / CARD NO.
[53]	[54]	[55] 8 5 8 [77][78][79]

REMARKS

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UNITED STATES ARMY INVESTIGATION ACCIDENT REPORT

For use of this form, see AR 385-40; the proponent agency is DCSPER.

NOTE: SPACES BELOW, DEFINED BY HEAVY LINES ARE FOR "SAFETY CENTER USE ONLY"

1 UNIT IDENTIFICATION		2 TIME AND DATE OF ACCIDENT				3 TIME OF DAY	4 LOCATION
a. UIC	b. DESCRIPTION	c. YEAR	d. MONTH	e. DAY	f. HOUR	a. DAWN ☐ b. DAY ☒ c. DUSK ☐ d. NIGHT ☐	a. ON POST ☒ b. OFF POST ☐
WVAAA	999th Maint Co, Anyplace, MS 39444	1983	June	20	1500		

5. EXACT LOCATION OF ACCIDENT: Motor Pool No 6, Camp Shelby, MS 39407

SECTION A — PERSONNEL INVOLVED

6. NAME (Last, First, MI)	7. ADDRESS (Include organizational address for all Government personnel)	8. SOCIAL SECURITY NUMBER
ANYBODY, I. M.	999th Maint Co Cp Shelby, MS 39407	400-00-0000

9. GRADE	10. AGE	11. SEX	12. MOS OR CIVILIAN JOB SERIES	13. FLIGHT STATUS	14. DUTY STATUS	15. NO. OF HOURS ON CONTINUOUS DUTY BEFORE ACCIDENT	16. NO. OF HOURS SLEEP IN LAST 24 HOURS (For hours not shown, use zero)
E-5	32	a. MALE ☒ b. FEMALE ☐	63B20	a. YES ☐ b. NO ☒	a. ON DUTY ☒ b. OFF DUTY ☐	7	NA

17. CLASSIFICATION AT TIME OF ACCIDENT (Mark appropriate item)

☐ a. ACTIVE ARMY ☐ b. OTHER US MILITARY
NATIONAL GUARD: ☐ a. TECH ☐ b. IDT ☒ c. AT ☐ d. FTTD ☐ e. FTM ☐ f. ADT
☐ b. ARMY CIVILIAN ☐ c. ROTC
ARMY RESERVE: ☐ a. IDT ☐ b. AT ☐ c. ADT ☐ d. FTM
☐ c. ARMY CONTRACTOR ☐ d. DEPENDENT
FOREIGN NATIONAL: ☐ a. DIRECT HIRE ☐ b. CONTRACT HIRE ☐ c. STATUS
☐ d. NONAPPROPRIATED FUND
☐ e. OTHER (Specify)

18. THIS PERSON'S ACTIVITY/TASK AT TIME OF ACCIDENT	19. IF THIS PERSON'S ACTIVITY WAS NECESSARY PART OF TRAINING, GIVE TYPE	20. WAS THIS PERSON'S ACTIVITY PART OF FIELD EXERCISE?	21. WAS THIS PERSON'S ACTIVITY PART OF TACTICAL TRAINING?	22. OPERATIONAL CATEGORY (Identify supervisory category that best describes the overall mission of home of accident)
Lifting Generator, 1.5 KW	a. BASIC (Skill level) ☐ b. ADVANCED (Skill level) ☐ c. PROFICIENCY (Unit) ☐ d. OTHER (Specify) ☐ e. OJT (Civilian) ☒	a. YES ☐ b. NO ☒	a. YES ☐ b. NO ☒	Maintenance

23. SEVERITY OF INJURY TO THIS PERSON (Check only one)

☐ a. FATAL ☐ b. PERMANENT TOTAL DISABILITY ☐ c. PERMANENT PARTIAL DISABILITY ☒ d. LOST WORKDAY — DAYS FROM WORK
☐ e. LOST WORKDAY CASE — RESTRICTED WORK ACTIVITY ☐ f. NONFATAL CASE WITHOUT LOST WORKDAYS
☐ g. FIRST AID ONLY ☐ h. NO INJURY ☐ i. MISSING AND PRESUMED DEAD

24. WORKDAYS LOST (Maximum 180)	25. WORKDAYS RESTRICTED (Maximum 180)	26. TYPE/NATURE OF INJURY/OCCUPATIONAL ILLNESS	27. BODY PART AFFECTED
1	0/2	Pulled Muscle	Right Shoulder

28. CAUSE OF INJURY/OCCUPATIONAL ILLNESS	29. VEHICLE RESTRAINT SYSTEM
Overexertion due to lifting generator	a. USED ☐ b. NOT AVAILABLE ☐ c. NOT APPLICABLE ☒ d. AVAILABLE BUT NOT USED ☐

30. THIS PERSON'S ERRORS WHICH CAUSED OR CONTRIBUTED TO THE ACCIDENT (Describe each mistake and the result)

SGT Anybody made an improper decision to lift heavy generator without proper assistance and, as a result, pulled a muscle.

SECTION B — PROPERTY AND/OR MATERIAL INVOLVED

31. LIST ALL PROPERTY INVOLVED IN THE ACCIDENT, WHETHER DAMAGED OR NOT. IF ACCIDENT INVOLVED ARMY OPERATIONS, SHOW COST OF ANY DAMAGE

NO.	a. NAME OF ITEM (If nonpersonal property, i.e., name, type, model)	b.	c. OWNERSHIP	d.	e. AMOUNT OF DAMAGE
1	Generator, 1.5 KW		ARNG		$ 95.00
2					
3					

32. MATERIAL FAILURE/MALFUNCTION(S) WHICH CAUSED OR CONTRIBUTED TO THE ACCIDENT (Tell what failed and how it failed)

NA

33. CONTROL NUMBER FOR THE EIR COVERING EACH FAILURE/MALFUNCTION (Block 3 of SF 368) NA

SECTION C — ENVIRONMENTAL CONDITIONS INVOLVED

34. ENVIRONMENTAL CONDITION(S) WHICH CAUSED OR CONTRIBUTED TO THE ACCIDENT

None

SECTION D — DESCRIPTION AND CORRECTIVE ACTION

35. FULLY DESCRIBE THE ACCIDENT (In item material is listed in item 31, tell how involved personnel are related to it.)

Routine maintenance was being performed on unit generators in Motor Pool No. 6. A 1.5 KW Generator was in back of a 1 ½ ton maintenance trailer and was required to be unloaded for the maintenance service. SGT Anybody did not request assistance to remove the generator from the trailer. He pulled a muscle in his right shoulder while lifting generator alone and also dropped the generator causing damage to it. Alcohol/drugs did not contribute to this accident.

36. ACTION TAKEN, ANTICIPATED OR RECOMMENDED TO CORRECT THE CAUSE(S) OF THIS ACCIDENT

Recommend Commander counsel SGT Anybody about lifting heavy objects without requesting assistance and about using proper lifting techniques.

37. SIGNATURE OF COMMAND REPRESENTATIVE	38. COMMAND REVIEW		
B. A. Wiseman B. A. WISEMAN, 1LT, OD, SO	a.	b.	c.

SAFETY STAFF USE ONLY

39. REPORT SUBMISSION	40. MACOM	41. LOCAL REPORT NUMBER	42. ACCIDENT TYPE	43. TYPE OF VEHICLE COLLISION
a. INITIAL ☐ b. CHANGE ☐				

44. SAFETY STAFF POINT OF CONTACT (Include printed name and phone)	45. SPECIAL REQUIREMENTS	46. DATE REPORT COMPLETED (YYMMDD)

DA FORM 285 EDITION OF 1 JUN 74 IS OBSOLETE

EMPLOYEE REPORT OF ALLEGED UNSAFE OR UNHEALTHFUL WORKING CONDITIONS

For use of this form, see AR 385-10; the proponent agency is Office of The Inspector General.

This form is provided for the assistance of any complainant and is not intended to constitute the exclusive means by which a complaint may be registered with the local Safety Office (Ref OSHA Poster on rights of employees and their representatives).

The undersigned *(check one)*

☒ Employee ☐ Representative of employees ☐ Other *(Specify)* _____

believes that a job safety or health hazard exists at the following place of employment

Technical Services Library (Main Room), Bldg 6001, School Brigade

Does this hazard(s) immediately threaten serious physical harm? ☒ Yes ☐ No

If "yes" checked, immediately contact your supervisor or safety representative. I did, but he didn't fix it (Union too)

Name of official in charge Mr. M. Rostopovich Telephone x6510

Operation/Activity Library

Exact location of worksite The whole main room, especially near the air conditioning vents

1. Kind of operation Shelving and signing out publications, helping patrons

2. Describe briefly the hazard which exists there including the appropriate number of employees exposed to or threatened by such hazard

White powder blows down from the ceiling when the air conditioning runs. Sometimes it gets all over the desks. A lot of people say it might be asbestos, but no one will check and tell us for sure. Only 4 of us work in the room, but a lot of patrons come through.

3. List by number and/or name the particular occupational safety and health standard(s) which may have been violated, if known

I don't know, but I know it's against the law.

4. *(a)* To your knowledge, has this hazard been the subject of any union/management grievance or have you *(or anyone you know)* otherwise called it to the attention of, or discussed it with the employer or any representative thereof? I don't think so.

(b) If so, please give the results thereof, including any efforts by management to eliminate or reduce the severity of the hazard

The supervisor says it can't be asbestos, cause the building is too new.

5. Please indicate your desire:

☐ I do not want my name revealed to the official in charge.

☒ My name may be revealed to the official in charge.

WORK LOCATION	TELEPHONE NO.	DATE
Technical Services Library, Bldg 6001	x6510	3 Dec 88
TYPED OR PRINTED NAME OF EMPLOYEE OR EMPLOYEE REPRESENTATIVE: Ms. Louise Morra	SIGNATURE: [signature]	

DA FORM 1 OCT 78 4755

APPENDIX S-3
JAN 92
S-3-1

Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix D

Administrative Order Requiring Relocation of Explosives Ordnance Disposal Facility at Camp Shelby, MS

Appendix D

ADMINISTRATIVE ORDER REQUIRING RELOCATION OF EXPLOSIVES ORDNANCE DISPOSAL FACILITY

D-1 Administrative Order dated September 19, 1990

D-2 Administrative Order dated December 9, 1993

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STATE OF MISSISSIPPI

DEPARTMENT OF ENVIRONMENTAL QUALITY

RAY MABUS
GOVERNOR

September 19, 1990

CERTIFIED MAIL NO. P 444 543 947

Brigadier General Charles D. Brackeen
MS Military Department
P.O. Box 5027
Jackson, Mississippi 39296-5027

Sir:

In order to settle certain environmental issues regarding the Mississippi Army National Guard operational area at Camp Shelby, you have agreed to the conditions of Administrative Order No. 1887-90, which is enclosed.

If you have questions about this matter, please contact Mr. Sam Mabry at telephone #601/961-5171.

Very truly yours,

Charles H. Chisolm, Head
Office of Pollution Control

CHC:mh

Enclosure

cc: Mr. Ken Johnson, U.S. Dept. of Agriculture, Forest Service, Jackson, MS (w/enclosure)

MG. Donald Burdick, National Guard Bureau, Washington D.C. (w/enclosure)

MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES
BUREAU OF POLLUTION CONTROL
P.O. Box 10385 - Southport Center
Jackson, Mississippi 39289-0385

BEFORE THE MISSISSIPPI COMMISSION
ON ENVIRONMENTAL QUALITY

MISSISSIPPI COMMISSION ON
ENVIRONMENTAL QUALITY

COMPLAINANT

VS.

ORDER NO. 1[illegible]90

MISSISSIPPI ARMY NATIONAL GUARD
NATIONAL GUARD BUREAU
U.S. DEPARTMENT OF AGRICULTURE,
FOREST SERVICE

RESPONDENTS

AGREED ORDER

COMES NOW THE Mississippi Commission on Environmental Quality, Complainant, and the Mississippi Army National Guard, the National Guard, the U.S. Department of Agriculture, Forest Service (collectively, the "Respondents"), in the above referenced administrative action.

JURISDICTION

1. This Agreed Order is issued pursuant to the authority vested in the Mississippi Commission on Environmental Quality by Mississippi Code Section 49-2-13.

2. Mississippi Army National Guard (the "MSARNG") is a generator and operator of a hazardous waste management facility and is a person within the meaning of Section 1004(15) of the Resource Conservation and Recovery Act of 1976 ("RCRA") and is subject to and must comply with both Federal and State of Mississippi's regulations pertaining to the management of hazardous waste.

3. Pursuant to Section 6001 of RCRA, Respondents the National Guard Bureau and the U. S. Department of Agriculture, Forest Service, departments of the executive branch of the Federal government, are generators, owners or operators of a hazardous waste management facility and are subject to and must comply with both Federal and the State of Mississippi's requirements, including regulations and permit conditions, pertaining to the extent as any person (as defined in Section 1004(15) of RCRA) is subject to such requirements.

FINDINGS

1. Camp Shelby is located in southeast Mississippi and covers portions of Forest, Green and Perry Counties. The total surface area of the installation is approximately 134,820 acres, of which approximately 126,919 acres are used for military operations.

2. The majority of the operational area in [illegible] dedicated impact area is owned by the U. S. Department of Agriculture and administered by the Forest Service. The use of the operational area, including the dedicated impact area, has been granted by the Forest Service under a Special Use Permit to MSARNG.

3. MSARNG operates Camp Shelby, utilizing the Camp for Annual Field Training Encampments and for Inactive Duty Training. The U.S. Active Army sends advisors and evaluators to Camp Shelby during training periods from May through August each year.

4. Portions of the operational area of Camp Shelby have been utilized by the 40th Explosive Ordnance Detachment (the "EOD") of the U.S. Department of the Army as a dedicated impact area. Such EOD is to provide routine and emergency EOD support to military installations, operations, exercises, and to federal and civilian authorities. Such mission includes the neutralization of ordinance and improvised explosive devices at the dedicated impact area of the operational area of Camp Shelby.

5. The National Guard Bureau provides oversight, funding and support to the MSARNG.

6. Camp Shelby personnel contacted the Bureau on September 1, 1988, to solicit our interpretation of the hazardous waste regulations for miscellaneous units with regard to operations at Camp Shelby.

7. Camp Shelby is a large quantity hazardous waste generator under the meaning of Mississippi Hazardous Waste Management Regulations ("MHWMR"). Camp Shelby has been operating under Emergency Hazardous Waste Permits issued by Complainant since January 24, 1989. Pursuant to such permits, EOD has detonated waste explosives approximately every 30 to 90 days as part of the EOD mission. Ordnance awaiting destruction are stored in the Ammunition Supply Point of Camp Shelby, then transported to the dedicated impact area by the EOD.

8. On July 6 and 7, 1989, MSARNG was contacted by Complainant and notified of Complainant's intent to cite MSARNG for a certain violation and/or violations of requirements set forth in MHWMR Sections 262, 265 and 270, a copy of which notice is attached hereto and incorporated herein by reference. Such violations were as follows:

   A. MSARNG failed to have a copy of the closure plan for the miscellaneous unit (open detonation) - MHWMR Section 265.112(a)(1).

   B. MSARNG failed to have a waste analysis for the waste treated at the miscellaneous unit (open detonation) MHWMR Section 265.375.

   C. MSARNG failed to notify the Bureau of an activity that was subject to the hazardous waste regulations MHWMR Section 270.1(b).

FINAL ORDER

Based upon the foregoing findings, Complainant and each of the Respondents, in lieu of the formal filing of a complaint by Complainant, hereby agree to the entry of the following Final Order in this matter:

1. Respondents understand and agree that, upon settlement, Respondents shall comply with the following schedule:

   a. Respondents shall submit a revised Notification of Hazardous Waste Activity Form and Part A of the RCRA permit application within forty-five (45) days of the effective date of this Order for the existing miscellaneous unit.

   b. Respondents shall submit a closure/post-closure plan for the existing miscellaneous unit pursuant to MHWMR Section 264, Subpart G by July 1, 1991.

   c. Respondents shall not commence construction of a new hazardous waste miscellaneous unit, until such time as a RCRA Permit for the unit has been issued to the owner/operator of any such facilities.

   d. The existing open detonation unit shall not be utilized for disposal of hazardous waste after November 8, 1992.

2. Respondents understand and agree that they are fully entitled to an evidentiary hearing pursuant to Sections 49-17-31 and 49-17-41 of the Mississippi Code Annotated, and that they have agreed to the terms of this Order only after having been fully informed of their right to said hearing.

SO ORDERED, this the 18th day of September, 1990.

MISSISSIPPI COMMISSION ON
ENVIRONMENTAL QUALITY

BY: _____
J. L. PALMER, JR.
EXECUTIVE DIRECTOR

AGREED, this the 11th day of September, 1990.

MISSISSIPPI ARMY NATIONAL GUARD,
Respondent

BY: _____

NATIONAL GUARD BUREAU,
Respondent

BY: _____

U.S. DEPARTMENT OF AGRICULTURE,
FOREST SERVICE, Respondent

BY: _____

STATE OF MISSISSIPPI

DEPARTMENT OF ENVIRONMENTAL QUALITY

JAMES I. PALMER, JR.
EXECUTIVE DIRECTOR

December 9, 1993

Major General James H. Garner
Mississippi Military Department
The Adjutant General
P.O. Box 5027
Jackson, MS 39296-5027

Dear Major Garner:

Re: Closure of Open Detonation Unit
Camp Shelby, Mississippi
MSD 981 749 401

We have received the Certificate of Closure for the referenced unit. An inspection of the site on November 17, 1993, detected no deficiencies and clean closure has been accomplished in accordance with the approved closure plan.

Camp Shelby is hereby released from the requirements of MHWMR Parts 264 and 265, Subpart H relative to closure of the Open Detonation Unit. Camp Shelby is still subject to MHWMR 262 as a generator of hazardous waste.

If you have any questions, please call me or Jerry Banks of my staff at 601-961-5171.

Sincerely,

Sam Mabry

Sam Mabry, Chief
Hazardous Waste Division

CLOSURE CERTIFICATION FOR THE CAMP SHELBY OPEN DETONATION AREA

Camp Shelby, near Hattiesburg, Mississippi, was established in 1917 to train soldiers. The camp closed in 1919, but was reopened as a training base in 1940 for World War II and again during the Korean War. Camp Shelby has remained open since 1954 as an annual training encampment. Since 1972, unexploded ordnance items have been disposed of at an open detonation unit at Camp Shelby. The open detonation unit is located within the impact area of active artillery firing ranges.

Prior to November 8, 1992, the open detonation unit operated under Emergency Hazardous Waste Permits issued by the Mississippi Department of Natural Resources on January 24, 1989. In July 1989, the Mississippi Army National Guard was notified that the open detonation unit was operating in violation of Mississippi Hazardous Waste Management Regulations. The case was settled on September 18, 1990; the conditions of the settlement are detailed in Administrative Order No. 1887-90. In accordance with the Administrative Order, a Closure Plan was prepared for the open detonation unit, and disposal operations at the site were discontinued on November 8, 1992.

The Closure Plan was prepared in accordance with all applicable Federal and State Regulations including the requirements of 40 Code of Federal Regulations (CFR) 264.111, 40 CFR 264.600 (Subparts G and X), and the Mississippi Hazardous Waste Management Regulations, Sections 264 and 270. The Closure Plan was approved by the Department of Environmental Quality on November 24, 1992.

Following cessation of disposal operations in the open detonation area, environmental sampling was performed in accordance with the approved Closure Plan to determine if the site posed a risk to human health or to the environment. This sampling effort involved soil, sediment, and water sampling in and around the open detonation area. The environmental sampling was performed in December 1992.

Following, careful environmental sampling of the area, minor contamination was found in the open detonation unit. The analytical results were compared to the health-based remedial goals provided in the approved Closure Plan. None of the contaminants were found in concentrations higher than the health-based remedial goals; therefore, the site poses no further risk to human health or to the environment. Our recommendation is that the open detonation unit should be closed as a clean site, and it is not in need of any future environmentlal monitoring.

The open detonation area will cease to exist following the completion of closure activities and will be re-incorporated into the impact area. After closure, the open detonation area will be revegetated to a degree commensurate with the intended future use of the area. No other landscaping activities or engineering controls are proposed.

Prepared Under the Supervision of

Albert D. O'Rear

Albert D. O'Rear, P.E.
Date: 9 Sept 1993
Mississippi P. E. License No. 10411



Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix E

Status Survey Report on the Camp Shelby Burrowing Crayfish

STATUS SURVEY REPORT

CAMP SHELBY CRAYFISH

Submitted to the U. S. Corps of Engineers,

Contracts Division, Champaign, Illinois

15 April 1991

by

J. F. Fitzpatrick, Jr.

Department of Biological Sciences

University of South Alabama

Mobile, Alabama 36688

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Camp Shelby Crayfish Status Survey Report

The Camp Shelby Burrowing Crayfish (Fallicambarus gordoni), until this study, was known from only two sites in the De Soto National Forest, both on the Camp Shelby National Guard Training Installation. This makes it a rare Mississippi endemic and a candidate species recognized by the Office of Endangered Species of the USFWS. It was necessary to survey the entire Camp Shelby facility to identify the colonies of the species so that necessary steps can be taken to insure that activities do not extirpate it.

The entire Camp Shelby facility was studied in March 1991, and all potential habitats for crayfishes sampled, particular attention being given to the probable habitats of Fallicambarus gordoni: pitcher plant bogs. With the cooperation of the Mississippi National Guard and the US COE, all 132,000 acres as indicated by the special imprint quadrangles furnished by the COE were examined. Where possible, samples of the crayfish fauna were collected, and the samples returned to laboratory for confirmation of the field identifications. Overlays furnished by the COE indicated the wetlands, and these received special attention. All evidences of burrowing activity were explored and the species constructing the structures identified where possible, or the design evaluated to rule out construction by members of the genus Fallicambarus.

All collections and evaluations were conducted according to the standard techniques for crawfishes. Among these were sampling

by dip net in open waters, physical excavation of burrows to ascertain design and probable species involved, physical excavation to capture inhabitants of burrows, and overnight trapping using the system designed by Norrocky and proved effective in Mississippi by the Mississippi Natural Heritage Program. (The initial collection of F. gordoni was by trapping). Specimens were preserved in formalin for transport to the lab and were transferred to 70% ethanol for permanent storage. Eventually they will be deposited in a permanent repository, and if necessary, numbers assigned to voucher specimens can be furnished.

RESULTS

Detailed collection and faunal data are provided in Appendix I. Basically they demonstrate that on the Camp Shelby National Guard Training Installation Fallicambarus gordoni is confined to the upper reaches of the Cypress Creek watershed (T2N, R10W, portions of Operational Areas 34, 41, T-28 and T-40), Perry County, Mississippi. No other potentially endangered decapod crustaceans were found. Several populations of an undescribed species assignable to the genus Orconectes, subgenus Gremicambarus were identified, but this species is known to me, and appears to be relatively widespread in the Leaf and probably Chickasawhay river drainages, not at all rare. It is still undescribed because of taxonomic problems, not scarcity.

Mylar overlays are included as Appendix II. These are keyed

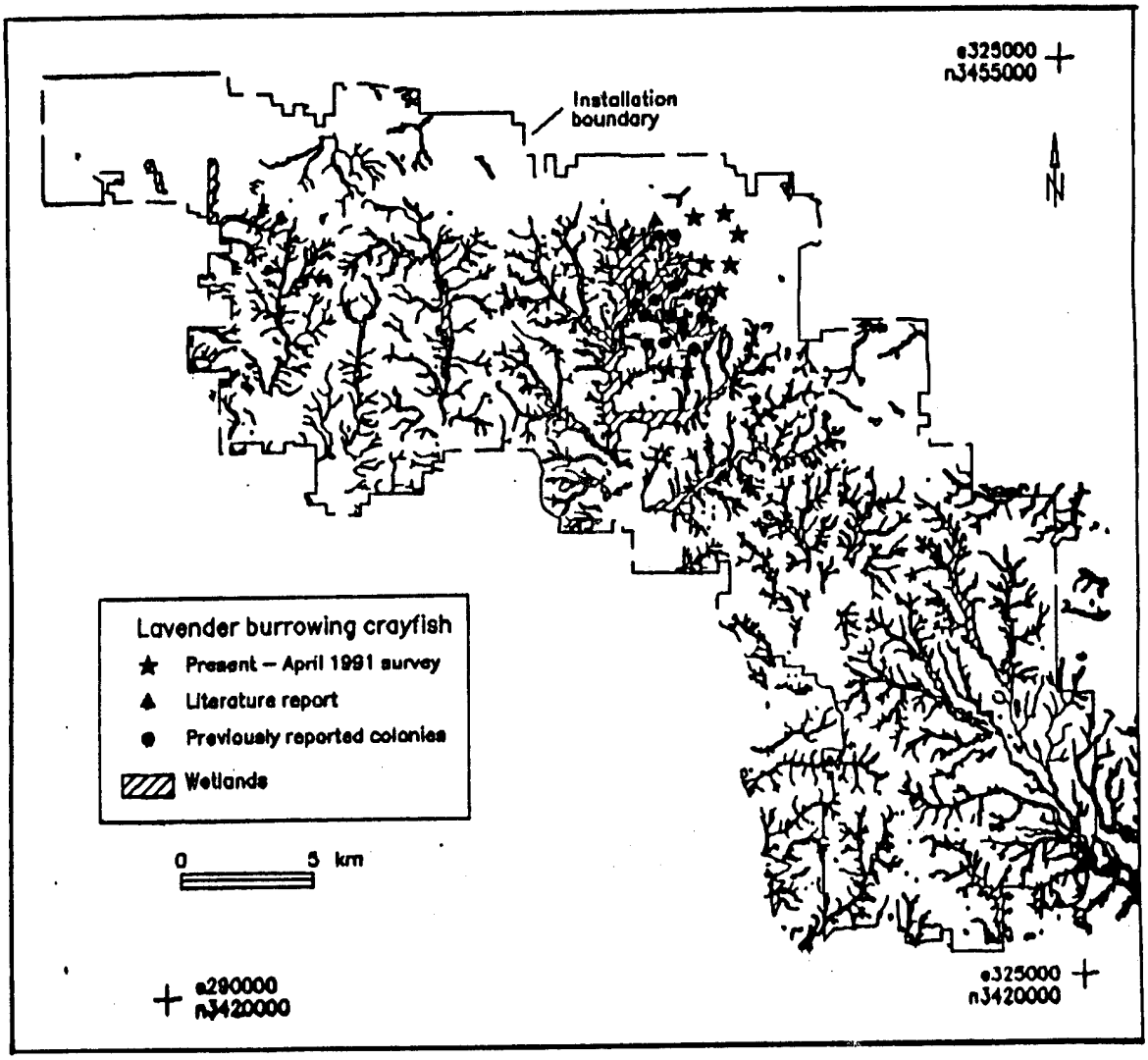
to appropriate quadrangles, indicated on each overlay, and each site studied is marked with a symbol to indicate 1) no decapod crustaceans present (open circle), 2) decapods other than the Camp Shelby Burrowing Crayfish present (filled circle), or 3) Camp Shelby Burrowing Crayfish present (star). A key to these symbols is provided with the Appendix.

Operational areas 34 and 41 are not, according to the special overprint maps furnished by COE, designated for any particularly hazardous activities, except area 41 has two ranges and two designated firing points. A different situation exists with respect to areas T-28 and T-40. These are designated as tank exercise areas, and T-28 has two range areas; both have designated firing points.

Extremely difficult terrain, military needs, and weather conditions precluded detailed sampling of the two tank exercise areas. The Camp Shelby Burrowing Crayfish was found just at the edges of the two tank areas. A second study attempt should focus on detailed examination of them, pinpointing the colonies of the crayfish. Interaction with personnel of the US Forestry Service is necessary because they know the microhabitats better than anyone else and are able to pinpoint the small pitcher plant bogs that are the habitats required by the species. With their help and an additional collection trip, we should be able to determine the exact intrusion of the species into the tank areas. Except for this, the remaining areas appear to be devoid of the rare

species and activties there provide no threat to it.

Reasonable care to avoid damages to the pitcher plant bogs in the upper Cypress Creek watershed, the habitat for F. gordoni, should be adaquate for the protection of the species. The areas should not be designated for tank or other vehicular activity; no impact areas should be allowed to infringe; and they should be excluded from bivouac sites. In general, the species seems secure under protection by the DOD and monitored by the OES-USFWS.



Localities Searched for the camp Shelby Burrowing Crayfish

F. GORDONI LOCALITY DATA

Collections marked with asterisk (*) contain F. gordoni.

03-1491-1 Perry Co., MS. Whiskey Ck at Leaf Pond Rd; T1S, R9W, sec 2 NW/4. leg.: Buchanan, Coggin.
Faxonella clypeata 4 oII, 3 +
Procambarus planirostris 2 oj, 5 +j

03-1491-2 Perry Co., MS. Harverson Mill Ck at Wolf Hill Rd; T1N, R9W, sec 1 w/2. leg.: Buchanan, Coggin.
Procambarus acutus 1 oI, 2 oj, 1 +j
Procambarus planirostris 1 +j
Palaemonetes kadiakensis 1 spec.

03-1491-3 Perry Co., MS. Harverson Mill Ck at Wolf Hill Rd; T1N, R9W, sec 1 SW/4. leg.: Buchanan, Coggin.
Faxonella clypeata 4 +, 1 +j

03-1491-4 Perry Co., MS. Harverson Mill Ck at Wolf Hill Rd; T1N, R9W, sec 12 NW/4. leg.: Buchanan, Coggin.
Faxonella clypeata 1 oI, 2 oj, 2 +j

03-1491-5 Perry Co., MS. Merritt Ck at Wolf Hill Rd; T1N, R9W, sec 12 center. leg.: Buchanan, Coggin.
Faxonella clypeata 3 oI, 3 +, 8 oj, 2 +j

03-1591-1 Perry Co., MS. Flat Branch Ck at Wolf Hill Rd; T1N, R9W, sec 25 center. leg.:Buchanan, Coggin.
Faxonella clypeata 1oI, 3 +
Procambarus planirostris 1 oI, 1 oII, 6 oj, 3 +j

03-1591-2 Perry Co., MS. Whiskey Ck bog at Leaf Pond Rd; T1S, R9W, sec. 2 NW/4. leg.: Buchanan, Coggin.
Faxonella clypeata 2 oI, 1 oII, 8 +, 9 oj, 9 +j
Procambarus planirostris 1 +, 2 oj, 1 +j

03-1591-3 Perry Co., MS. Water Prong Ck at Leaf Pond Rd; T1S, R9W, sec. 11 NW/4. leg.: Buchanan, Coggin.
Cambarus striatus 1 +, 2 oj, 2+j
Orconectes (Gremicambarus) sp. nov. 2 oII, 2 +, 1 +j
Procambarus clemmeri 1 oII, 2 oj

03-1591-3A Perry Co., MS. Boggy area of Water Prong Ck at Leaf Pond Rd; T1S, R9W, sec 11 NW/4.
No evident burrows, no crawfishes

03-1591-4 Perry Co., MS. Branch of Water Prong Ck at Leaf Prong

Rd.; T1 S, R9W, sec 10 center. leg.: Buchanan, Coggin.
Orconectes (Gremicambarus) sp. nov. 3 oII, 1 +, 1 +ov.
Procambarus clemmeri 2 oII, 1 oj, 2 +j

03-1591-4A Perry Co., MS. Unable to sample Burnt Rock Ck and Whiskey Ck in this immediate area.

03-1591-5 Perry Co., MS. Burnt Rock Ck at Burnt Rock Rd; T1S, R9W, sec 14 E/2. leg.: Buchanan, Coggin.
Cambarus striatus 1 oj
Orconectes (Gremicambarus) sp. nov. 1 oII, 1 +
Procambarus clemmeri 1 oj, 3 +j

03-1591-6 Perry Co., MS. Flat Br. of Black Ck at unnamed road; T1S, R8W, sec 19/30. leg.: Buchanan, Coggin,
Orconectes (Gremicambarus) sp. nov. 2 +
Procambarus clemmeri 7 oj, 5 +j

03-1591-7 Perry Co., MS. Sweetwater Ck at unnamed road; T1S, R9W, sec 35 SW/4. leg.: Buchanan, Coggin.
Procambarus lecontei 1 oj
Procambarus clemmeri 1 oj, 3 +j

03-1591-7A George Co., MS. Flat Branch Ck at Wiggins Rd; T1S, R8W, sec 30 N/2. leg.: Buchanan, Coggin.
Nearly dry; no burrows; no crawfishes

03-1591-8 George Co., MS. Whiskey Ck at Wiggins Rd; T1S, R8W, sec 19 S/2. leg.: Buchanan, Coggin.
Cambarus striatus 1 oj, 1 +j
Orconectes (Gremicambarus) sp. nov. 1 oI, 1 oj
Procambarus clemmeri 1 +, 3 +j
Palaemonetes kadiakensis 4 specimens

03-1591-9 George Co., MS. Whiskey Ck at unnamed road; T1S, R8W, sec 18 SW/4. leg.: Buchanan, Coggin.
Faxonella clypeata 1 oI, 2 +
Procambarus planirostris 1 oj, 2 +j

03-1591-10 Perry Co., MS. Deep Ck at Wiggins Rd; T1S, R10W, sec 36 S/2. leg.: Buchanan, Coggin.
Cambarus striatus 1 +j
Procambarus clemmeri 1 +, 9 oj, 2 +j

03-1591-11 Perry Co., MS. Beaver Ck at Beaver Rd; t!s, R10W, sec 12 E/2. leg.: Buchanan, Coggin.
Cambarus striatus 1 oj
Procambarus clemmeri 3 oj, 3 +j

03-1591-12 Perry Co., MS. Hickory Ck at Turkey Branch Rd; T1N, R10W, sec 36 NE/4. leg.: Buchanan, Coggin.
No crawfishes; no suitable habitat.

03-1591-13 Perry Co., MS. Joes Ck at Co. Rd. 29; T1N, R10W, sec 3 SE/4. leg.: Buchanan, Coggin.
Orconectes (Gremicambarus) sp. nov. 1 +j
Procambarus acutus 1 oI, 2 oj, 1 +j

03-1691-1 Perry Co., MS. Branch of Leaf R. at U.S. Hwy. 98; T3N, R10W, sec 36 NE/4. leg.: Buchanan, Coggin.
Procambarus acutus 2 +j
Procambarus planirostris 1 +, 7 oj, 2 +j

03-1691-2 Perry Co., MS. Shut-eye Ck at Beaumont-Brooklyn Rd; T2N, R10W, sec 26 W/2. leg.: Buchanan, Coggin.
Procambarus acutus 1 oj
Procambarus planirostris 2 oj, 2 +j

03-1691-3 Perry Co., MS. Silver Run Br at Brooklyn-Mclain Rd; T1N, R10W, sec 13 W/2. leg.: Buchanan, Coggin.
Procambarus acutus 1 oII, 3 oj, 4 +j
Procambarus clemmeri 1 oII, 4 +j

03-1691-4 Perry Co., MS. Hickory Flat Ck at Brooklyn-Mclain Rd; T1N, R10W, sec 18 NW/4. leg.: Buchanan, Coggin.
Procambarus acutus 1 +
Procambarus planirostris 1 oj, 2 +j
Palaemonetes kadiakensis 1 specimen

03-1691-4A Perry Co., MS. Hickory Flat Br at unnamed road; T1N, R9W, sec 7/9. leg.: Buchanan, Coggin.

03-1691-5 Perry Co., MS. Harverson Mill Ck at Brooklyn-Mclain Rd; T1N, R9W, sec 3 SE/4. leg.: Buchanan, Coggin.
Procambarus acutus 2 +
Procambarus planirostris 1 +, 1 +j

03-1691-6 Perry Co., MS. Harverson Mill Ck at Brooklyn-Mclain Rd; T1N, R9W, sec 1 NW/4. leg.: Buchanan, Coggin.
Procambarus acutus 3 +, 2 oj

03-1691-7 Perry Co., MS. Weldy Ck at Little Creek Rd; T2N, R9W, sec 26 SW/4. leg.: Buchanan, Coggin.
Cambarus striatus 1 +
Procambarus clemmeri 1 oI, 2 oII, 2 +, 4 oj, 6 +j

03=1691-8 Perry Co., MS. Little Ck at Little Creek Rd; T2N, R9W,

sec 23 SW/4. leg.: Buchanan, Coggin.
Procambarus clemmeri 1 oII, 4 +, 3 oj, 4 +j

03-1691-9 Perry Co., MS. Cypress Ck at Co. Rd. 29; T2N, R10W, sec 20 NE/4. leg.: Buchanan, Coggin.
Orconectes (Gremicambarus) sp. nov. 1 +j

03-1691-10 Perry Co., MS. Richland Ck at Co. Rd. 29; T2N, R10W, sec 28 N/2. leg.: Buchanan, Coggin.
Procambarus acutus 1oI, 1 oII, 1 +

03-1691-11 Perry Co., MS. Ashley Ck at Agnes Rd; T1N, R10W, sec 5 N/2. leg.: Buchanan, Coggin.
Cambarus striatus 1 oII, 1 +, 1 +j
Procambarus clemmeri 2 +, 9 oj, 4 +j
Palamonetes kadiakensis 1 specimen

03-1691-12 Perry Co., MS. Mill Ck West Prong at Middle Rd.; T1N, R10W, sec 2 NE/4. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat.

03-1691-13 Pearless Ck at Middle Rd; T1N, R11W, sec 3 SE/4; leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat.

03-1691-14 Perry Co., MS. Long Br at Middle Rd; T1N, R11W, sec 8 SE/4. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat.

03-1691-15 Perry Co., MS. Middle Ck at Middle Rd; T1N, R 11W, sec 8 SW/4. leg.: Buchanan, Coggin.
Faxonella clypeata 1 oj
Procambarus clemmeri 2 oII, 2 +, 1 oj
Palaemonetes kadiakensis 8 specimens

03-1691-16 Perry Co., MS. Clear Ck at Middle Rd; T1N, R11W, sec 7 S/2. leg.: Buchanan, Coggin.
Procambarus acutus 1 oII, 2 +, 4 oj, 4 +j

03-1691-17 Forrest Co., MS. Branch of Black Ck at Middle Rd; T1N, R12W, sec 12 center. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat.

03-1691-18 Forrest Co., MS. Confluence of Chaney and Poplar creeks at Middle Rd; T1N, R12W, sec 12 W/2. leg: Buchanan, Coggin.
Cambarus striatus 2 oII, 2 oj, 4 +j
Procambarus acutus 1 +j
Procambarus clemmeri 1 oII, 1 +j

03-1791-1 Forrest Co., MS. Poplar Ck at Range Contgrol Rd; T2N, R12W, sec 12 SE/4. leg.: Buchanan, Coggin.
Cambarus striatus 1 +
Procambarus acutus 1 +, 3 +j

03-1791-2 Perry Co., MS. Dry Prong Ck at Range Control Rd; T2N, R11W, sec 7 W/2. leg.: Buchanan, Coggin.
Burrows present, but no crawfishes present. Burrow structure not compatible with Fallicambarus.

03-1791-3 Perry Co., MS. Pierce Ck at Range Control Rd.; T2N, R11W, sec 15 center. leg.: Buchanan, Coggin.
Cambarus striatus 1 oII
Procambarus planirostris 2 oj, 9 +j

03-1791-4 Perry Co., MS. Red Hill Br at Red Hill Rd; T2N, R11W, sec 1 E/2. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat

03-1791-5 Perry Co., MS. Sm branch to Milky Ck at Red Hill Rd; T2N, R10W, sec 6 SW/4. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat

03-1791-6 Perry Co., MS. Sweetwater Ck & Lake at Red Hill Rd; T2N, R10W, sec 6 SW/4. leg.: Buchanan, Coggin.
Procambarus acutus 1 oj, 5 +j

03-1791-7 Perry Co., MS. Milky Ck at U.S. Hwy. 98; T3N, R11W, sec 24 SW/4. leg.: Buchanan, Coggin.
Procambarus clemmeri 6 oj, 4 +j

03-1791-8 Perry Co., MS. Denham Ck at U.S. Hwy. 98; T3N, R11W, sec 23 NW/4. leg.: Buchanan, Coggin.
Cambarus striatus 1 +
Procambarus clemmeri 3 oj, 1 +j

03-1791-9 Perry Co., MS. Miles Br of Denham Ck at Denham Rd; T3N, R11W, sec 22 S/2. leg.: Buchanan, Coggin.
Cambarus striatus 1 oj, 1 +j
Procambarus clemmeri 1 oj, 2 +j

03-1791-10 Perry Co., MS. Pierces Ck at Denham Rd; T2N, R11W, sec 4 NE/4. leg.: Buchanan, Coggin.
Faxonella clypeata 1 oI, 5 oII, 7 +
Procambarus acutus 1 oII
Procambarus planiristris 3 oj, 4 +j

03-1791-11 Perry Co., MS. Pierces Ck at Denham Rd; T2N, R11W, sec

4 NE/4 [0.2 mi S of 03-1791-10]. leg.: Buchanan; Coggin.
Faxonella clypeata 1 oI, 2 oII, 2 +, 1 oj, 2 +j
Procambarus planirostris 1 oI, 1 +, 2 +j

03-1791-12 Perry Co., MS. WAter Prong at Denham Rd; T2N, R11W, sec 9 NW/4. leg.: Buchanan, Coggin.
Procambarus acutus 1 oII, 1 oj, 2 +j

03-1791-13 Forrest Co., MS. Davis Ck at Rifle Range Rd; T2N, R12W, sec 10 NE/4. leg.: Buchanan, Coggin.
Cambarus striatus 1 oII
Procambarus acutus 1 +j
Palaemonetes kadiakensis

03-1791-14 Forrest Co., MS. Morris Ck at Old Hwy 49; T3N, R12W, sec. 30 SE/4. leg.: Buchanan, Coggin.
Faxonella clypeata 5 oII, 12 +
Procambarus acutus 3 oj
Procambarus planirostris 1 oj

03-1791-15 Perry Co., MS. Dogwood Lake at Camp Shelby; T3N, R12W, sec 19 SE/4. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat

03-1791-16 Forrest Co., MS. Jacobs Ck at Lee St; T3N, R12W, sec 19 center. leg.: Buchanan, Coggin.
no crawfishes; no suitdable habitat.

03-1791-17 Forrest Co., MS. Davis Ck at South St; T3N, R12W, sec sec 26 NW/4. leg.: Buchanan, Coggin.
Procambarus acutus 1 oII
Procambarus planirostris 1 oII, 4 oj, 3 +j

03-1791-18 Perry Co., MS. Garraway Ck at Lee Ave; T3N, R11W, sec 28 SW/4. leg.:Buchanan, Coggin.
Cambarus striatus 1 oII
Procambarus clemmeri 2 +, 4 +j

HEAVY RAINS OF 17 - 18 MARCH MADE SEVERAL AREAS INACCESSABLE BY VEHICLE.

*03-1891-1 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 0.7 mi SSW of Airfield 505; T2N, R10W, sec 22 (NW/4 NW/4 SW/4) & (SW/4 SE/4 NW/4). leg.: Buchanan, Coggin.
Faxonella clypeata 4 oI, 1 oII, 6 +, 1 oj, 2 +j
Procambarus planirostris 5 oj, 1 +j

* Fallicambarus gordoni 1 oII, 1 +

*03-1891-2 Perry Co., MS. Pitcher plant bog in Cypress Ck. watershed, 0.5 mi SSW of Airfield 505; T2N, R10W, sec 16 SE/4 SE/4 SE/4. leg.: Buchanan, Coggin.
* Fallicambarus gordoni 1 oII

*03-1891-3 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 1.6 mi NNW of Airfield 505; T2N, R10W, sec 3 SW/4 SW/4 (SW/4 & NW/4) . leg.: Buchanan, Coggin.
* Fallicambarus gordoni 2 +
Faxonella clypeata 1 oj, 4 +j
Procambarus planirostris 2 +

*03-1891-4 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 1.6 mi E of jct. Co Rd 29 and Wingate Rd; T2N, R10W, sec 4 SE/4 NW/4 SE/4. leg.: Buchanan, Coggin.
* Fallicambarus gordoni 2 +

*03-1891-5 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 1.1 mi E of jct. Co Rd 29 and Wingate Rd, 0.9 mi S on unnumbered rd; T2N, R10W, sec 9 NE/4 NE/4 Ne/4. leg.: Buchanan; Coggin.
* Fallicambarus gordoni 1 oI

03-1991-1 Perry Co., MS. Boggy area of Leaf R at U.S. Hwy 98; T3N, R11W, sec 21 E/2. leg.: Buchanan, Coggin.
Procambarus acutus 2 +

03-1991-2 Forrest Co., MS. Hartfield Ck at Hageler Field Rd; T3N, R12W, sec 33 S/2. leg.: Buchanan, Coggin.
Procambarus planirostris 5 oII, 2 +, 5 oj, 7 +j

03-1991-3 Forrest Co., MS. Hartfield Ck. at Hagler Field Rd; T3N, R12W, sec 33 S/2 [0.5 mi E of 03-1991-2]. leg.: Buchanan, Coggin.
Procambarus acutus 1 +, 3oj, 2 +j
Procambarus planirostris 1 oII, 1 +

03-1991-4 Forrest Co., MS. Davis Ck at Hagler Field Rd; T3N, R12W, sec 35 NW/4. leg.: Buchanan, Coggin.
Cambarus striatus 1 oII
Procambarus acutus 1 oI, 2 +j

03-1991-5 Forrest Co., MS. Branch of Davis Ck at Barron Rd; T2N, R12W, sec 2 NE/4. leg.: Buchanan, Coggin.
Procambarus acutus 1 oj, 1 +j

03-1991-5A Forrest Co., MS. Branch of Davis Ck at Barron Rd; T2N, R12W, sec 2 S/4 [0.5 mi S of 03-1991-5]. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat.

03-1991-6 Perry Co., MS. Red Hill Br/Sweetwater Br at Range Control Rd; T2N, R10W, sec 20 center. leg.: Buchanan, Coggin.
Procambarus acutus 1 oI
Procambarus clemmeri 1 oI, 2 +, 1 oj, 2 +j

03-1991-7 Perry Co., MS. Howard Reed Brake, branch of Cypress Ck, at Reed Rd; T1N, R10W, sec 5 S/2. leg.: Buchanan, Coggin.
Procambarus clemmeri 2 +j

03-1991-8 Perry Co., MS. Cypress Ck at Howard Rd; T1N, R10W, sec 8 S/2. leg.: Buchanan, Coggin.
no crawfish; habitat unsuited to Fallicambarus.

03-1991-9 Perry Co., MS. Howard Reed Brake at Agnes Rd; T2N, R10W, sec 31 SW/4. leg.: Buchanan, Coggin.
Procambarus acutus 1 oII.

END OF RECORD

N.B.: Two morphological forms are recognized for adult crawfishes. On is the breeding form, called Form I (oI), and the other the non-breeding From II (oII). They are so recorded above.

All identifications are by J. F. Fitzpatrick, Jr.

APPENDIX II
Map Overlays for Camp Shelby Crawfish Colections
Survey of 15 - 19 March 1991

Key to Symbols:
Open circles: No crawfishes present.
Filled circles: Crawfishes present, but no Camp Shelby Burrowing Crawfishes encountered.
Stars: Camp Shelby Burrowing Crawfishes present.
[total of 6 mylar overlays, separately provided.

POPULATION SURVEY

CAMP SHELBY BURROWING CRAYFISH

Submitted to the U. S. Corps of Engineers,

Contracts Division, Champaign, Illinois

05 June 1991

by

J. F. Fitzpatrick, Jr.

Department of Biological Sciences

University of South Alabama

Mobile, Alabama 36688

Camp Shelby Crayfish Population Survey

The Camp Shelby Burrowing Crayfish (Fallicambarus gordoni), is a rare endemic species, restricted to the DeSoto National Forest on the Camp Shelby [MS] Military Reservation, and is a candidate species for "Endangered" status of the USFWS. The entire Camp Shelby facility was surveyed to identify the colonies of the species so that necessary steps can be taken to insure that activities do not extirpate it.

The entire Camp Shelby facility was studied in March, 1991, and all potential habitats for crayfishes sampled, particular attention being given to the the probable habitats of Fallicambarus gordoni: pitcher plant bogs. With the cooperation of the Mississippi National Guard and the US COE, all 132,000 acres as indicated by the special imprint quadrangles furnished by the COE were examined, where possible samples of the crayfish fauna were collected, and the samples returned to laboratory for confirmation of the field identifications. Overlays furnished by the COE indicated the wetlands, and these received special attention. All evidences of burrowing activity were explored and the species constructing the structures identified where possible, or the design evaluated to rule out construction by members of the genus Fallicambarus.

All collections and evaluations were conducted according to the standard techniques for crawfishes. Among these were sampling by dip net in open waters, physical excavation of burrows to ascertain design and probable species involved, physical

excavation to capture inhabitants of burrows, and overnight trapping using the system designed by Norrocky and proved effective in Mississippi by the Mississippi Natural Heritage Program. (The initial collection of F. gordoni was by trapping.) Specimens were preserved in formalin for transport to the lab and were transferred to 70% ethanol for permanent storage. Eventually they will be deposited in a permanent repository, and if necessary, numbers assigned to voucher specimens can be furnished. Following this study, reported to the COE on 15 April 1991 (contract no. DACA8891M0293), in which it was determined that the species is restricted to the upper Cypress Creek watershed, a supplemental survey provided more detailed data on the precise localities within this limited area and the infringement of colonies of the species on designated training areas.

RESULTS

Detailed collection and faunal data are provided in Appendicx I. Basically they demonstrate that on the Camp Shelby National Guard Training Installation Fallicambarus gordoni is confined to the upper reaches of the Cypress Creek watershed (T2N, R10W, portions of Operational Areas 34, 41, T-28 and T-40), Perry County, Mississippi. No other potentially endangered decapod crustaceans were found. Several populations of an undescribed species assignable to the genus Orconectes, subgenus Gremicambarus were identified, but this species is known to me,

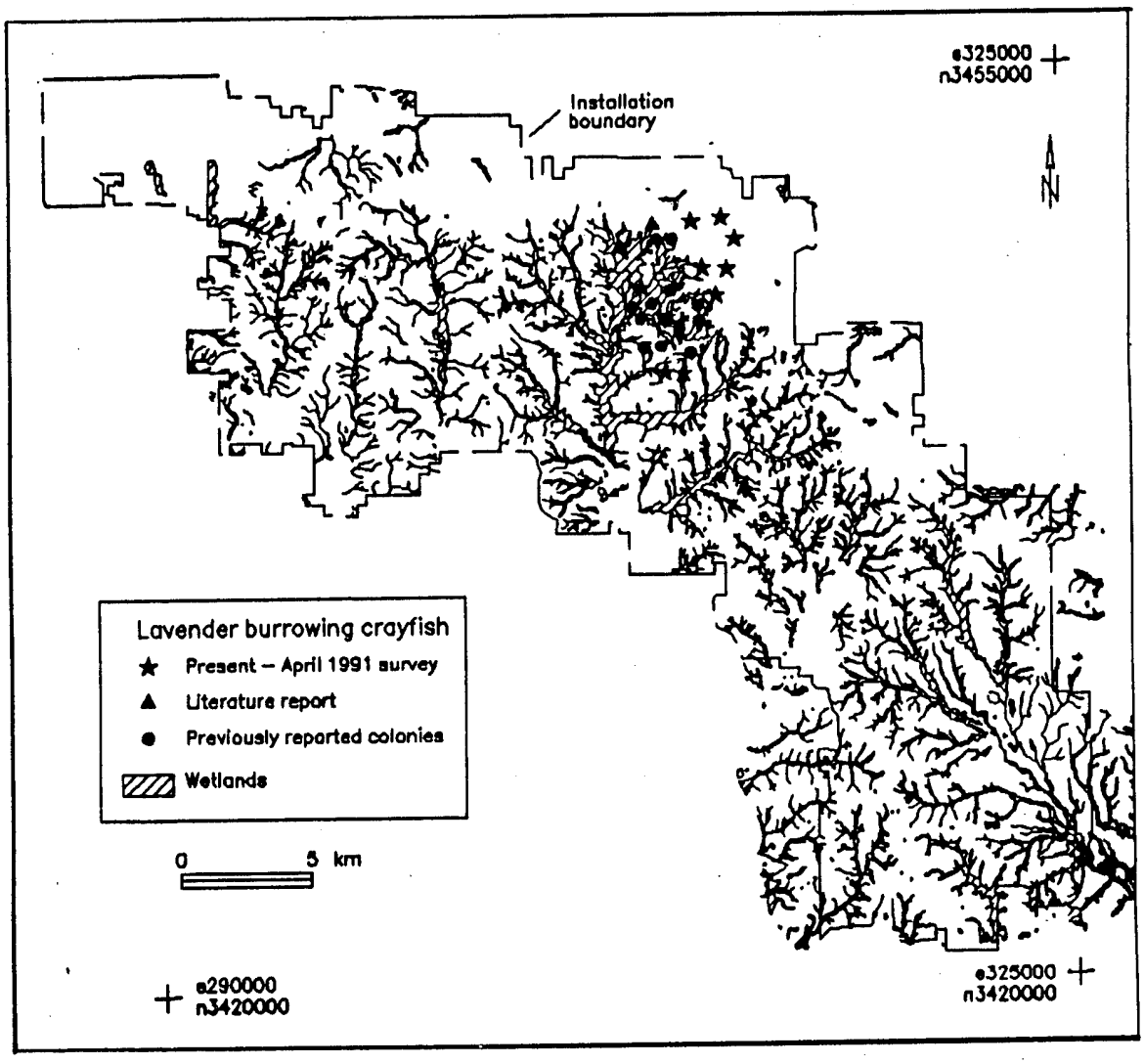
and appears to be relatively widespread in the Leaf and probably Chickasawhay river drainages, not at all rare. It is still undescribed because of taxonomic problems, not scarcity.

Mylar overlays are included as Appendix II. These are keyed to appropriate quadrangles, indicated on each overlay, and each site studied is marked with a symbol to indicate 1) no decapod crustaceans present (open circle), 2) decapods other than the Camp Shelby Burrowing Crayfish present (filled circle), or 3) Camp Shelby Burrowing Crayfish present (star). A key to these symbols is provided with the Appendix.

The colonies of the crayfish were pinpointed within the areas of concern designated in the earlier report and estimates of population size made.

Reasonable care to avoid damages to the pitcher plant bogs in the upper Cypress Creek watershed, the habitat for F. gordoni, should be adaquate for the protection of the species. The areas should not be designated for tank or other vehicular activity; no impact areas should be allowed to infringe; and they should be excluded from bivouac sites. In general, the species seems secure under protection by the DOD and monitored by the OES-USFWS.

Camp Shelby Crayfish Population Survey



Localities Searched for the Camp Shelby Burrowing Crawfish

F. GORDONI LOCALITY DATA

Collections marked with asterisk (*) contain F. gordoni.

LOCALITIES IN THE LITERATURE
(On the Camp Shelby Reservation)

* Perry Co., MS. DeSoto National Forest, Camp Shelby Military Reservation; T2N, R10W, sec 5 SE/4 NE/4 SE/4.

* Perry Co., MS. DeSoto National Forest, Camp Shelby Military Reservation; T2N, R10W, sec 4 NW/4 SW/4 SW/4.

* Perry Co., MS. DeSoto National Forest, Camp Shelby Military Reservation; T2N, R10W, sec 15 SE/4 SW/4 NW/4.

LOCALITIES PREVIOUSLY REPORTED

03-1491-1 Perry Co., MS. Whiskey Ck at Leaf Pond Rd; T1S, R9W, sec 2 NW/4. leg.: Buchanan, Coggin.
Faxonella clypeata 4 oII, 3 +
Procambarus planirostris 2 oj, 5 +j

03-1491-2 Perry Co., MS. Harverson Mill Ck at Wolf Hill Rd; T1N, R9W, sec 1 w/2. leg.: Buchanan, Coggin.
Procambarus acutus 1 oI, 2 oj, 1 +j
Procambarus planirostris 1 +j
Palaemonetes kadiakensis 1 spec.

03-1491-3 Perry Co., MS. Harverson Mill Ck at Wolf Hill Rd; T1N, R9W, sec 1 SW/4. leg.: Buchanan, Coggin.
Faxonella clypeata 4 +, 1 +j

03-1491-4 Perry Co., MS. Harverson Mill Ck at Wolf Hill Rd; T1N, R9W, sec 12 NW/4. leg.: Buchanan, Coggin.
Faxonella clypeata 1 oI, 2 oj, 2 +j

03-1491-5 Perry Co., MS. Merritt Ck at Wolf Hill Rd; T1N, R9W, sec 12 center. leg.: Buchanan, Coggin.
Faxonella clypeata 3 oI, 3 +, 8 oj, 2 +j

03-1591-1 Perry Co., MS. Flat Branch Ck at Wolf Hill Rd; T1N, R9W, sec 25 center. leg.:Buchanan, Coggin.
Faxonella clypeata 1oI, 3 +
Procambarus planirostris 1 oI, 1 oII, 6 oj, 3 +j

03-1591-2 Perry Co., MS. Whiskey Ck bog at Leaf Pond Rd; T1S, R9W, sec. 2 NW/4. leg.: Buchanan, Coggin.
Faxonella clypeata 2 oI, 1 oII, 8 +, 9 oj, 9 +j

Procambarus planirostris 1 +, 2 oj, 1 +j

03-1591-3 Perry Co., MS. Water Prong Ck at Leaf Pond Rd; T1S, R9W, sec. 11 NW/4. leg.: Buchanan, Coggin.
Cambarus striatus 1 +, 2 oj, 2+j
Orconectes (Gremicambarus) sp. nov. 2 oII, 2 +, 1 +j
Procambarus clemmeri 1 oII, 2 oj

03-1591-3A Perry Co., MS. Boggy area of Water Prong Ck at Leaf Pond Rd; T1S, R9W, sec 11 NW/4.
No evident burrows, no crawfishes

03-1591-4 Perry Co., MS. Branch of Water Prong Ck at Leaf Prong Rd.; T1 S, R9W, sec 10 center. leg.: Buchanan, Coggin.
Orconectes (Gremicambarus) sp. nov. 3 oII, 1 +, 1 +ov.
Procambarus clemmeri 2 oII, 1 oj, 2 +j

03-1591-4A Perry Co., MS. Unable to sample Burnt Rock Ck and Whiskey Ck in this immediate area.

03-1591-5 Perry Co., MS. Burnt Rock Ck at Burnt Rock Rd; T1S, R9W, sec 14 E/2. leg.: Buchanan, Coggin.
Cambarus striatus 1 oj
Orconectes (Gremicambarus) sp. nov. 1 oII, 1 +
Procambarus clemmeri 1 oj, 3 +j

03-1591-6 Perry Co., MS. Flat Br. of Black Ck at unnamed road; T1S, R8W, sec 19/30. leg.: Buchanan, Coggin,
Orconectes (Gremicambarus) sp. nov. 2 +
Procambarus clemmeri 7 oj, 5 +j

03-1591-7 Perry Co., MS. Sweetwater Ck at unnamed road; T1S, R9W, sec 35 SW/4. leg.: Buchanan, Coggin.
Procambarus lecontei 1 oj
Procambarus clemmeri 1 oj, 3 +j

03-1591-7A George Co., MS. Flat Branch Ck at Wiggins Rd; T1S, R8W, sec 30 N/2. leg.: Buchanan, Coggin.
Nearly dry; no burrows; no crawfishes

03-1591-8 George Co., MS. Whiskey Ck at Wiggins Rd; T1S, R8W, sec 19 S/2. leg.: Buchanan, Coggin.
Cambarus striatus 1 oj, 1 +j
Orconectes (Gremicambarus) sp. nov. 1 oI, 1 oj
Procambarus clemmeri 1 +, 3 +j
Palaemonetes kadiakensis 4 specimens

03-1591-9 George Co., MS. Whiskey Ck at unnamed road; T1S, R8W, sec 18 SW/4. leg.: Buchanan, Coggin.
Faxonella clypeata 1 oI, 2 +
Procambarus planirostris 1 oj, 2 +j

03-1591-10 Perry Co., MS. Deep Ck at Wiggins Rd; T1S, R10W, sec 36 S/2. leg.: Buchanan, Coggin.
Cambarus striatus 1 +j
Procambarus clemmeri 1 +, 9 oj, 2 +j

03-1591-11 Perry Co., MS. Beaver Ck at Beaver Rd; t!s, R10W, sec 12 E/2. leg.: Buchanan, Coggin.
Cambarus striatus 1 oj
Procambarus clemmeri 3 oj, 3 +j

03-1591-12 Perry Co., MS. Hickory Ck at Turkey Branch Rd; T1N, R10W, sec 36 NE/4. leg.: Buchanan, Coggin.
No crawfishes; no suitable habitat.

03-1591-13 Perry Co., MS. Joes Ck at Co. Rd. 29; T1N, R10W, sec 3 SE/4. leg.: Buchanan, Coggin.
Orconectes (Gremicambarus) sp. nov. 1 +j
Procambarus acutus 1 oI, 2 oj, 1 +j

03-1691-1 Perry Co., MS. Branch of Leaf R. at U.S. Hwy. 98; T3N, R10W, sec 36 NE/4. leg.: Buchanan, Coggin.
Procambarus acutus 2 +j
Procambarus planirostris 1 +, 7 oj, 2 +j

03-1691-2 Perry Co., MS. Shut-eye Ck at Beaumont-Brooklyn Rd; T2N, R10W, sec 26 W/2. leg.: Buchanan, Coggin.
Procambarus acutus 1 oj
Procambarus planirostris 2 oj, 2 +j

03-1691-3 Perry Co., MS. Silver Run Br at Brooklyn-Mclain Rd; T1N, R10W, sec 13 W/2. leg.: Buchanan, Coggin.
Procambarus acutus 1 oII, 3 oj, 4 +j
Procambarus clemmeri 1 oII, 4 +j

03-1691-4 Perry Co., MS. Hickory Flat Ck at Brooklyn-Mclain Rd; T1N, R10W, sec 18 NW/4. leg.: Buchanan, Coggin.
Procambarus acutus 1 +
Procambarus planirostris 1 oj, 2 +j
Palaemonetes kadiakensis 1 specimen

03-1691-4A Perry Co., MS. Hickory Flat Br at unnamed road; T1N, R9W, sec 7/9. leg.: Buchanan, Coggin.

03-1691-5 Perry Co., MS. Harverson Mill Ck at Brooklyn-Mclain Rd;

T1N, R9W, sec 3 SE/4. leg.: Buchanan, Coggin.
Procambarus acutus 2 +
Procambarus planirostris 1 +, 1 +j

03-1691-6 Perry Co., MS. Harverson Mill Ck at Brooklyn-Mclain Rd; T1N, R9W, sec 1 NW/4. leg.: Buchanan, Coggin.
Procambarus acutus 3 +, 2 oj

03-1691-7 Perry Co., MS. Weldy Ck at Little Creek Rd; T2N, R9W, sec 26 SW/4. leg.: Buchanan, Coggin.
Cambarus striatus 1 +
Procambarus clemmeri 1 oI, 2 oII, 2 +, 4 oj, 6 +j

03=1691-8 Perry Co., MS. Little Ck at Little Creek Rd; T2N, R9W, sec 23 SW/4. leg.: Buchanan, Coggin.
Procambarus clemmeri 1 oII, 4 +, 3 oj, 4 +j

03-1691-9 Perry Co., MS. Cypress Ck at Co. Rd. 29; T2N, R10W, sec 20 NE/4. leg.: Buchanan, Coggin.
Orconectes (Gremicambarus) sp. nov. 1 +j

03-1691-10 Perry Co., MS. Richland Ck at Co. Rd. 29; T2N, R10W, sec 28 N/2. leg.: Buchanan, Coggin.
Procambarus acutus 1oI, 1 oII, 1 +

03-1691-11 Perry Co., MS. Ashley Ck at Agnes Rd; T1N, R10W, sec 5 N/2. leg.: Buchanan, Coggin.
Cambarus striatus 1 oII, 1 +, 1 +j
Procambarus clemmeri 2 +, 9 oj, 4 +j
Palamonetes kadiakensis 1 specimen

03-1691-12 Perry Co., MS. Mill Ck West Prong at Middle Rd.; T1N, R10W, sec 2 NE/4. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat.

03-1691-13 Pearless Ck at Middle Rd; T1N, R11W, sec 3 SE/4; leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat.

03-1691-14 Perry Co., MS. Long Br at Middle Rd; T1N, R11W, sec 8 SE/4. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat.

03-1691-15 Perry Co., MS. Middle Ck at Middle Rd; T1N, R 11W, sec 8 SW/4. leg.: Buchanan, Coggin.
Faxonella clypeata 1 oj
Procambarus clemmeri 2 oII, 2 +, 1 oj
Palaemonetes kadiakensis 8 specimens

03-1691-16 Perry Co., MS. Clear Ck at Middle Rd; T1N, R11W, sec 7 S/2. leg.: Buchanan, Coggin.
Procambarus acutus 1 oII, 2 +, 4 oj, 4 +j

03-1691-17 Forrest Co., MS. Branch of Black Ck at Middle Rd; T1N, R12W, sec 12 center. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat.

03-1691-18 Forrest Co., MS. Confluence of Chaney and Poplar creeks at Middle Rd; T1N, R12W, sec 12 W/2. leg: Buchanan, Coggin.
Cambarus striatus 2 oII, 2 oj, 4 +j
Procambarus acutus 1 +j
Procambarus clemmeri 1 oII, 1 +j

03-1791-1 Forrest Co., MS. Poplar Ck at Range Contgrol Rd; T2N, R12W, sec 12 SE/4. leg.: Buchanan, Coggin.
Cambarus striatus 1 +
Procambarus acutus 1 +, 3 +j

03-1791-2 Perry Co., MS. Dry Prong Ck at Range Control Rd; T2N, R11W, sec 7 W/2. leg.: Buchanan, Coggin.
Burrows present, but no crawfishes present. Burrow structure not compatible with Fallicambarus.

03-1791-3 Perry Co., MS. Pierce Ck at Range Control Rd.; T2N, R11W, sec 15 center. leg.: Buchanan, Coggin.
Cambarus striatus 1 oII
Procambarus planirostris 2 oj, 9 +j

03-1791-4 Perry Co., MS. Red Hill Br at Red Hill Rd; T2N, R11W, sec 1 E/2. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat

03-1791-5 Perry Co., MS. Sm branch to Milky Ck at Red Hill Rd; T2N, R10W, sec 6 SW/4. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat

03-1791-6 Perry Co., MS. Sweetwater Ck & Lake at Red Hill Rd; T2N, R10W, sec 6 SW/4. leg.: Buchanan, Coggin.
Procambarus acutus 1 oj, 5 +j

03-1791-7 Perry Co., MS. Milky Ck at U.S. Hwy. 98; T3N, R11W, sec 24 SW/4. leg.: Buchanan, Coggin.
Procambarus clemmeri 6 oj, 4 +j

03-1791-8 Perry Co., MS. Denham Ck at U.S. Hwy. 98; T3N, R11W, sec 23 NW/4. leg.: Buchanan, Coggin.
Cambarus striatus 1 +
Procambarus clemmeri 3 oj, 1 +j

03-1791-9 Perry Co., MS. Miles Br of Denham Ck at Denham Rd; T3N, R11W, sec 22 S/2. leg.: Buchanan, Coggin.
Cambarus striatus 1 oj, 1 +j
Procambarus clemmeri 1 oj, 2 +j

03-1791-10 Perry Co., MS. Pierces Ck at Denham Rd; T2N, R11W, sec 4 NE/4. leg.: Buchanan, Coggin.
Faxonella clypeata 1 oI, 5 oII, 7 +
Procambarus acutus 1 oII
Procambarus planiristris 3 oj, 4 +j

03-1791-11 Perry Co., MS. Pierces Ck at Denham Rd; T2N, R11W, sec 4 NE/4 [0.2 mi S of 03-1791-10]. leg.: Buchanan; Coggin.
Faxonella clypeata 1 oI, 2 oII, 2 +, 1 oj, 2 +j
Procambarus planirostris 1 oI, 1 +, 2 +j

03-1791-12 Perry Co., MS. WAter Prong at Denham Rd; T2N, R11W, sec 9 NW/4. leg.: Buchanan, Coggin.
Procambarus acutus 1 oII, 1 oj, 2 +j

03-1791-13 Forrest Co., MS. Davis Ck at Rifle Range Rd; T2N, R12W, sec 10 NE/4. leg.: Buchanan, Coggin.
Cambarus striatus 1 oII
Procambarus acutus 1 +j
Palaemonetes kadiakensis

03-1791-14 Forrest Co., MS. Morris Ck at Old Hwy 49; T3N, R12W, sec. 30 SE/4. leg.: Buchanan, Coggin.
Faxonella clypeata 5 oII, 12 +
Procambarus acutus 3 oj
Procambarus planirostris 1 oj

03-1791-15 Perry Co., MS. Dogwood Lake at Camp Shelby; T3N, R12W, sec 19 SE/4. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat

03-1791-16 Forrest Co., MS. Jacobs Ck at Lee St; T3N, R12W, sec 19 center. leg.: Buchanan, Coggin.
no crawfishes; no suitdable habitat.

03-1791-17 Forrest Co., MS. Davis Ck at South St; T3N, R12W, sec sec 26 NW/4. leg.: Buchanan, Coggin.
Procambarus acutus 1 oII
Procambarus planirostris 1 oII, 4 oj, 3 +j

03-1791-18 Perry Co., MS. Garraway Ck at Lee Ave; T3N, R11W, sec 28 SW/4. leg.:Buchanan, Coggin.

Cambarus striatus 1 oII
Procambarus clemmeri 2 +, 4 +j

HEAVY RAINS OF 17 - 18 MARCH MADE SEVERAL AREAS INACCESSABLE BY VEHICLE.

*03-1891-1 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 0.7 mi SSW of Airfield 505; T2N, R10W, sec 22 (NW/4 NW/4 SW/4) & (SW/4 SE/4 NW/4). leg.: Buchanan, Coggin.
Faxonella clypeata 4 oI, 1 oII, 6 +, 1 oj, 2 +j
Procambarus planirostris 5 oj, 1 +j
* Fallicambarus gordoni 1 oII, 1 +

*03-1891-2 Perry Co., MS. Pitcher plant bog in Cypress Ck. watershed, 0.5 mi SSW of Airfield 505; T2N, R10W, sec 16 SE/4 SE/4 SE/4. leg.: Buchanan, Coggin.
* Fallicambarus gordoni 1 oII

*03-1891-3 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 1.6 mi NNW of Airfield 505; T2N, R10W, sec 3 SW/4 SW/4 (SW/4 & NW/4) . leg.: Buchanan, Coggin.
* Fallicambarus gordoni 2 +
Faxonella clypeata 1 oj, 4 +j
Procambarus planirostris 2 +

*03-1891-4 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 1.6 mi E of jct. Co Rd 29 and Wingate Rd; T2N, R10W, sec 4 SE/4 NW/4 SE/4. leg.: Buchanan, Coggin.
* Fallicambarus gordoni 2 +

*03-1891-5 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 1.1 mi E of jct. Co Rd 29 and Wingate Rd, 0.9 mi S on unnumbered rd; T2N, R10W, sec 9 NE/4 NE/4 Ne/4. leg.: Buchanan; Coggin.
* Fallicambarus gordoni 1 oI

03-1991-1 Perry Co., MS. Boggy area of Leaf R at U.S. Hwy 98; T3N, R11W, sec 21 E/2. leg.: Buchanan, Coggin.
Procambarus acutus 2 +

03-1991-2 Forrest Co., MS. Hartfield Ck at Hageler Field Rd; T3N, R12W, sec 33 S/2. leg.: Buchanan, Coggin.

Procambarus planirostris 5 oII, 2 +, 5 oj, 7 +j

03-1991-3 Forrest Co., MS. Hartfield Ck. at Hagler Field Rd; T3N, R12W, sec 33 S/2 [0.5 mi E of 03-1991-2]. leg.: Buchanan, Coggin.
Procambarus acutus 1 +, 3oj, 2 +j
Procambarus planirostris 1 oII, 1 +

03-1991-4 Forrest Co., MS. Davis Ck at Hagler Field Rd; T3N, R12W, sec 35 NW/4. leg.: Buchanan, Coggin.
Cambarus striatus 1 oII
Procambarus acutus 1 oI, 2 +j

03-1991-5 Forrest Co., MS. Branch of Davis Ck at Barron Rd; T2N, R12W, sec 2 NE/4. leg.: Buchanan, Coggin.
Procambarus acutus 1 oj, 1 +j

03-1991-5A Forrest Co., MS. Branch of Davis Ck at Barron Rd; T2N, R12W, sec 2 S/4 [0.5 mi S of 03-1991-5]. leg.: Buchanan, Coggin.
no crawfishes; no suitable habitat.

03-1991-6 Perry Co., MS. Red Hill Br/Sweetwater Br at Range Control Rd; T2N, R10W, sec 20 center. leg.: Buchanan, Coggin.
Procambarus acutus 1 oI
Procambarus clemmeri 1 oI, 2 +, 1 oj, 2 +j

03-1991-7 Perry Co., MS. Howard Reed Brake, branch of Cypress Ck, at Reed Rd; T1N, R10W, sec 5 S/2. leg.: Buchanan, Coggin.
Procambarus clemmeri 2 +j

03-1991-8 Perry Co., MS. Cypress Ck at Howard Rd; T1N, R10W, sec 8 S/2. leg.: Buchanan, Coggin.
no crawfish; habitat unsuited to Fallicambarus.

03-1991-9 Perry Co., MS. Howard Reed Brake at Agnes Rd; T2N, R10W, sec 31 SW/4. leg.: Buchanan, Coggin.
Procambarus acutus 1 oII.

LOCALITIES ADDED BY THIS REPORT

*04-1991-1 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, ca. 6.1 mi S of jct US Hwy 98 & Co Rd 29, 0.4 mi E on unnamed rd; T2N, R10W, sec 21 SW/4 NW/4 NW&SW/4. leg.: Coggin, Buchanan.
* Fallicambarus gordoni 2 oII

*04-1991-2 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 6.1 mi S of jct US Hwy 98 & Co Rd 29, 0.7 mi E on unnamed rd; T2N, R10W, sec 16 SW/4 SW/4 SW&NW/4. leg.: Coggin, Buchanan.
* Fallicambarus gordoni 2 oI, 2 +

*04-1991-3 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 6.1 mi S of jct US Hwy 98 & Co Rd 29, 1 mi E on unnamed rd; T2N, R10W, sec 16 NW/4 SW/4 SW/4. leg.: Coggin, Buchanan.
* Fallicambarus gordoni 1 oI, 1 oII, 2 +, 1 oj

04-1991-4 Perry Co., MS. T2N, R10W, sec 16 NW/4 (up to Cypress Ck).
no suitable habitats; no crawfishes.

*04-1991-5 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 1.1 airmi WNW of Airfield 505; T2N, R10W sec 16 NE/4 SW/4 SW/4. leg.: Coggin, Buchanan.
* Fallicambarus gordoni 2 oI, 2 +

*04-1991-6 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 0.4 airmi NNE of Firing Point 507; T2N, R10W, sec 21 SE/4 NW/4 SW/4. leg.: Coggin, Buchanan.
* Fallicambarus gordoni 1 oII, 2 +, 1 +j

04-1991-6A Perry Co., MS. Area between Firing Point 509 & T40; T2N, R10W sec 27.
no suitable habitat; no crawfishes.

04-1991-6B Perry Co., MS. Area between Firing Point 509 & T40; T2N, R10W, sec 28.
no suitable habitat; no crawfishes.

*04-1991-7 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 0.3 mi E of Firing Point 508; T2N, R10W, sec 22 SW/ SE/4 & 23 NW/4. leg.: Coggin, Buchanan
* Fallicambarus gordoni 3 oI, 2 oII, 1 +, 1 oj

*04-1991-8 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed; ca. 1 airmi WSW of airfield 505; T2N, R10W, sec 15 NE/4 & SW/4 & sec 22 NE/4 & NW/4. leg.: Coggin, Buchanan.
* Fallicambarus gordoni 3 +

04-1991-9 Perry Co., MS. Area between Range 202E and Range 1; T2N, R10W, sec 14 SW/4 & NW/4.
no suitable habitat; no crawfishes.

04-1991-10 Perry Co., MS. Area between RAnge 2 and Firing Point 503; T2N, R10W, sec 11 W/2.
no suitable habitats; no crawfishes.

04-1991-11 Perry Co., MS. Area between Firing Points 502 and 503; T2N, R10W, sec 2 SW/4.
no suitable habitat; no crawfishes.

04-1991-12 Perry Co., MS. Firing Point 501; T2N, R10W, sec 2 NW/4.
no suitable habitat; no crawfishes.

04-1991-13 Perry Co., MS. Firing Point 500; T2N, R10W, sec 3 S/2.
no suitable habitat; no crawfishes.

04-1991-14 Perry Co., MS. Site 0.4 airmi SSW of Firing Point 503; T2N, R10W, sec 10 E/2 & SW/4.
no suitable habitat; no crawfishes.

*04-1991-15 Perry Co., Ms. Pitcher plant bog in Cypress Ck watershed, ca. 1.1 mi WSW of Range 2; T2N, R10W, sec 15 NW/4 SE/4 S/2. leg.: Coggin, Buchanan.
* Fallicambarus gordoni 2 +

*04-1991-16 Perry Co., MS. Pitcher plant bog in Cypress Ck watershed, 1.8 airmi NNW of Airfield 505; T2N, R10W, sec 4 Se/4 W/2. leg.: Coggin, Buchanan.
* Fallicambarus gordoni 1 oI

END OF RECORD

N.B.: Two morphological forms are recognized for adult crawfishes. On is the breeding form, called Form I (oI), and the other the non-breeding From II (oII). They are so recorded above.
All identifications are by J. F. Fitzpatrick, Jr.

APPENDIX II
Map Overlays for Camp Shelby Crawfish Colections
Survey of 15 - 19 March 1991
and 19 April 1991

Key to Symbols:

Open circles: Camp Shelby Burrowing Crawfishes present. (April, 1991, survey)

Stars: Literature reports.

Encircled stars: Previously reported colonies.

[total of 3 mylar overlays, separately provided.]

Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix F

Recreation Usage Survey of Camp Shelby and Adjacent National Forest Lands

CAMP SHELBY RECREATION USE STUDY

A recreation use study was conducted on lands in and around Camp Shelby, Mississippi as part of the overall environmental impact statement. These lands included Camp Shelby, parts of De Soto National Forest, the Leaf River Game Management Area, and areas adjacent to these (Figure 1). The purpose of this study was to gather and analyze data from people participating in, or having an interest in, outdoor recreation activities in the Camp Shelby area.

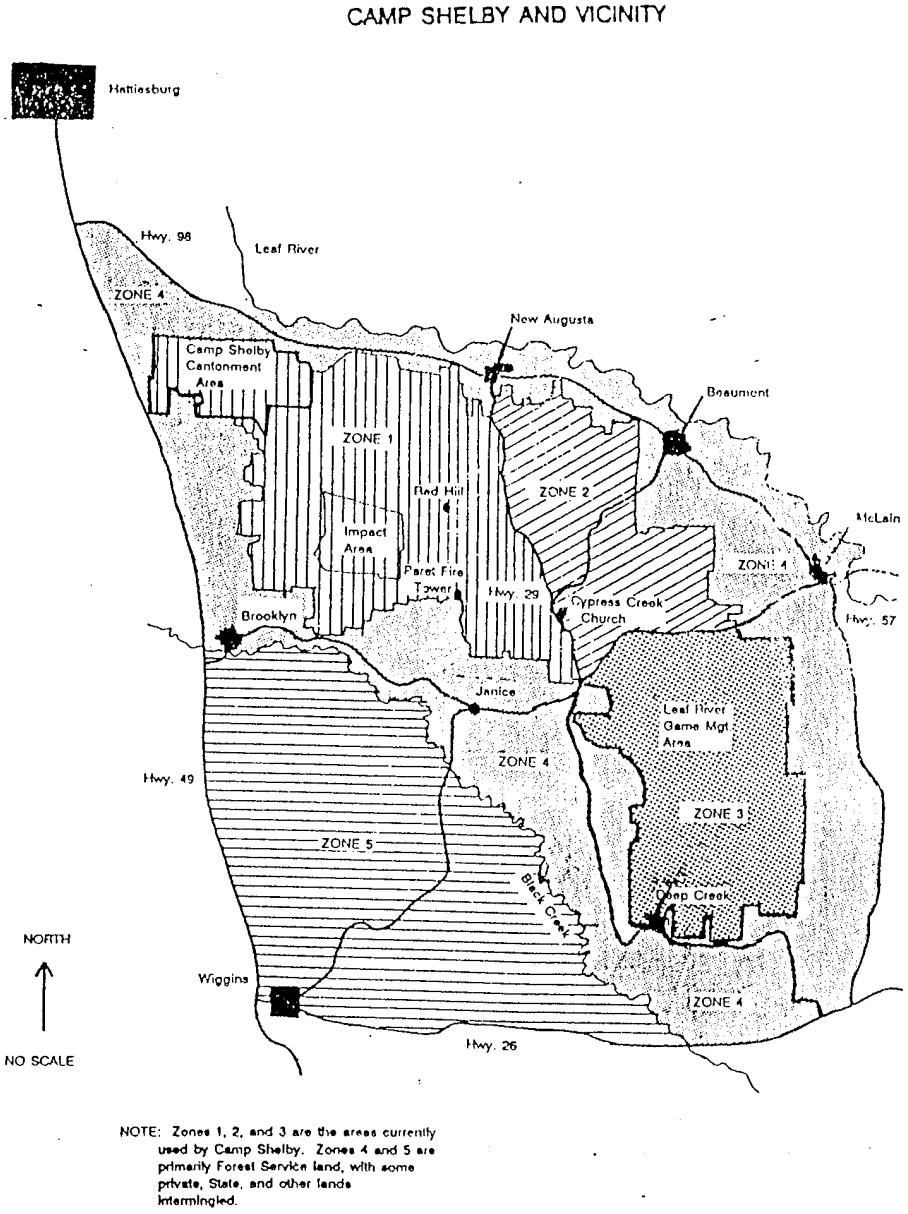


Figure 1. Map of Study Area.

Recreation Survey

Activities of particular interest in this study were hunting, fishing, camping, backpacking, canoeing, kayaking, rafting, tubing, hiking, birdwatching, nature study, horseback riding, off-road driving, and picnicking. These activities were expected to occur on the lands of Camp Shelby and the surrounding area.

The study actually consisted of two distinct parts. Part I was an evaluation of the Mississippi State Comprehensive Outdoor Recreation Plan (SCORP) to determine potential demand for recreation activities in the areas. Part II was an in-depth questionnaire that provided an understanding of actual use and the concerns of recreationists who use the area.

Scorp Data

The 1985 Mississippi SCORP was obtained for review. Although the SCORP only reports on either state-wide or Planning and Development District (PDD) level, we feel the data are representative of activities (especially hunting, fishing, camping, and canoeing) in Forrest and Perry counties, since they encompass the majority of Camp Shelby. This was based on the fact that these counties (especially Perry) include significant portions of De Soto National Forest, and contain a wilderness area, scenic river, and a game management area, all of which provide a significant portion of the public recreation area found in Mississippi. Also, according to the SCORP, 39.5 percent of the total recreation acreage for the state is found in the Southern PDD, which includes these two counties.

In general, the SCORP provides documentation on existing outdoor recreation resources and the demand for additional facilities/opportunities. It also serves as a basis for planning courses of action and allocating Land and Water Conservation Fund monies for the next five years, which is the planning horizon for each SCORP.

The SCORP showed that outdoor recreation activities are important to most Mississippians. Outdoor recreation activities were ranked as either the most important or one of the most important events in the lives of 45 percent of the respondents; another 54 percent of the respondents ranked outdoor recreation as above average in importance. However, many of the respondents indicated that local and state governments were not spending enough money for outdoor recreation facilities and programs (61 percent for local, 58 percent for state).

Hunting and fishing needs assessment

Two of the most popular outdoor recreation activities in Mississippi are hunting and fishing. According to the SCORP, 64.1 percent and 31.5 percent of the population fish or hunt, respectively, at least once a year. The average number of days participants fish or hunt per year is 36.29 and 36.06, respectively.

However, much of the land previously used for hunting and fishing is no longer available for general public use because of leasing by clubs. Additionally, many of those clubs are now being supplanted by out-of-state users who are willing to pay much higher prices to lease the land. The SCORP emphasizes the need to ensure that all Mississippians will have adequate hunting and fishing opportunities in the future and that outdoor resources should be identified and protected against loss.

Other activities needs assessment

Both the 1985 and the raw survey data from the 1990 SCORP show a definite need for additional facilities to support other outdoor recreation activities besides hunting and fishing in the Southern PDD. Table 1 shows the current supply and predicted needs for facilities.

Table F-1

Southern Planning and Development District Facilities Supply and Demand

Activity	Supply by Facilities	Need in Normal Size Facility
Camping, Backpacking	1,383 sites	5,738 sites
Canoeing, Kayaking, Rafting, Tubing	15 launches	8,953 launches
Horseback Riding	12 miles of trails	393 miles of trails
Off-Road Driving, Four/Three Wheeling, Dirt Biking	6 miles of trails	4,119 miles of trails
Picnicking	869 tables	10,753 tables

Note: Hiking, birdwatching, and nature study activities are considered to be non-standard activities; supply and needs are not reported in the SCORP

However, these data provided no specific guidance on what facilities are available in the Camp Shelby area and what facilities are needed. In order to determine this, a request was made to Mr. Bob Daley, Director, Department of Government Services, Mississippi Center for Policy Research and Planning (Pers. Comm.), to provide SCORP information specifically for Forrest and Perry counties, since the area under study is contained almost entirely within these two counties. The only available data were from field work recently completed for the 1990 SCORP. These data provide statistics only on the number of facilities currently available within the counties, not on the projected needs. Table 2 shows the number of facilities currently available in the two counties.

Table F-2
Current Recreation Facilities in Forrest and Perry Counties, Mississippi

Activity	Forrest County Facilities	Perry County Facilities
Boat Ramps	10	6
Canoes launches	5	1
Canoes for Rent	105	20
Single Campsites (developed)	247	27
Group Campsites (developed)	186	-
Primitive Camping (acres)	773	1
Picnic Tables	195	61
Group Picnic Areas	14	-
Group Shelters	29	-
Fishing (acres)	337	210

While the SCORP is an indicator of demand for outdoor recreation in Mississippi, especially for the two primary activities (hunting and fishing), additional data was required to adequately characterize recreation use in the Camp Shelby area. In order to obtain information about current recreation activities in the area, a questionnaire was developed and mailed to individuals who participate, or potentially participate, in outdoor recreation activities within the area.

Recreation Questionnaire

Because of time constraints, a mailing list of all potential users (county, state, and Federal) could not be generated. Ideally, a random sample would be taken from such a list and the questionnaire mailed to those individuals. Therefore, an alternative mailing list was generated and the questionnaire was mailed to all individuals on that list. The first list was generated from hunting permits for the Leaf River Game Management Area, which occupies a significant portion of the Camp Shelby area. All 1989 permits were obtained from the Mississippi Wildlife, Fisheries, and Parks Department (MWF&PD) and input into a data base. However, there are several shortcomings in this list. First, although anyone who hunts game in the area is required by MWF&PD to complete a permit and deposit it in a collection box as they leave the area, many either do not complete the permit or they fail to leave it when they depart the area. Second, some of the hunters who filled out the permits did not write down a complete address and therefore could not be included on the mailing list. Third, it was anticipated that a number of people had changed addresses and that any questionnaire mailed to them would be returned as undeliverable.

A second mailing list was generated in an effort to include anyone participating in any outdoor recreation activities in the Camp Shelby area, since the first list included only hunters. Advertisements were placed in the Gulfport Sun-Herald and the Hattiesburg American newspapers, that provided a 1-800 telephone number and an address that people could use to request a questionnaire be mailed to them. People were instructed to call or write if they wished to participate in the study. A total of 750 people responded and requested a questionnaire. These individuals, along with those from the hunting permits, provided a consolidated mailing list of approximately 2400 names (duplicate names were removed).

Questionnaire Administration

The map in Figure 1 was provided with each questionnaire to help respondents locate where they participate in outdoor recreation activities in and around Camp Shelby. Detailed military attributes not on that map are listed here along with a description of each zone. Zone One consists of all land currently used by Camp Shelby West of Highway 29. It includes military firing ranges and observation posts numbers 4A through 50 and 201W; training areas 1-11S, 14-27, 29-33, 35-39, T40W, T43-45S, 46W,50, and 51; field artillery firing points 60-154; and mortar firing points 20-34. Zone two consists of all lands currently being used by Camp Shelby east of Highway 29 and north of the Leaf River Game Management Area. This zone includes military firing ranges 1-3 and 202E; training areas 12, 13, T28, 34, T40E, 41, 42, T47-T49, 52-55; and field artillery firing points 501-520. Zone three is the Leaf River Game Management Area and contains military training areas 56-64. Zone four consists of the area northeast of Black Creek that surrounds Camp Shelby. It is made up primarily of Forest Service land, with some private, State and other land intermingled. Zone five consists of the area southwest of Black Creek, east of Highway 49, and north of Highway 26. It is also made up primarily of Forest Service land, with some private, State, and other land intermingled.

The questionnaire package was first mailed on December 21, 1990 and contained 1) a letter asking for participation and explaining the importance of the study, 2) the questionnaire, 3) the Camp Shelby vicinity map, and 4) a postage paid envelope to return the questionnaire not later than January 11, 1991. A follow-up questionnaire was mailed on January 9, 1991 and included the same items as the first mailing plus a letter stating that if the first questionnaire had already been returned, then the follow-up should be ignored. The letter also stated that questionnaires must be received by the U.S. Army Engineer Waterways Experiment Station not later than January 18, 1991 to be included as part of the study.

Demographic Profile

The majority of respondents to the questionnaire live within of 75 mile radius of Camp Shelby. There were very few respondents who live north of Hattiesburg. Almost half of the respondents are located in Bay Saint Louis, Biloxi, Pascagoula, and other cities on the Gulf coast.

Almost 90 percent of the respondents were male, with the majority between the ages of 25 and 58. Eighty nine percent have at least a high school education, while 27 percent have attended at least three additional years of school. As Table 3 shows, 43 percent of the respondents yearly household income was less than $30,000 while 23 percent indicated their income was over $50,000.

Table F-3
Household Income

INCOME	PERCENT
Under $10,000	7.6
$10,000-$19,999	12.8
$20,000-$29,999	22.8
$30,000-$39,999	18.8
$40,000-$49,999	14.9
$50,000-$74,999	13.3
$75,000-$99,999	6.9
$100,000+	3.1

Hunters are 98 percent male, while canoeist and campers each are 82 percent male. The age of hunters is similar to the overall respondent population. Most hunters range in age from 20 to 58 and average 39 years old. None of the respondents who canoed are less than 22 years old and their average age is also 39. However, campers indicated that they are a slightly older group with an average age of 44. All of the respondents who canoe indicated they have at least a high school education, while only 56 percent of campers and 49 percent of hunter have a high school education. Hunter and campers have about the same yearly household income with 65 percent and 64 percent respectively having incomes of less than $40,000. Only 35 percent of the canoeists, on the other hand, have a yearly household income of less than $40,000.

Overall Outdoor Recreation Activity Participation

Analysis of data provided by respondents to the questionnaire indicate the Camp Shelby area is used for a wide variety of recreation activities. Each respondent listed all the outdoor recreation activities in which they participate (without regard to which they participate in

most often) in the Camp Shelby area. There were a total of 3,559 responses provided by 917 (n=917) people, for an average of four recreation activities per person. Hunting made up 20 percent of the 3,559 responses and was the most popular outdoor recreation activity with 80 percent (Table 4) of the respondents indicating they hunt. Other frequently selected activities include camping listed by 59 percent of respondents, 55 percent fishing, 55 percent driving for pleasure, 43 percent hiking, and 35 percent canoeing.

When respondents were asked to select the one activity they participated in most, 69 percent chose hunting. The second most popular selection is canoeing with 8 percent, followed by 7 percent for camping (Table 5). The remaining activities shown in Table 5 were each listed by less than 4 percent of respondents.

Table F-4
Activity Participation at Camp Shelby

ACTIVITY	PERCENT
Hunting	80.0
Camping	59.3
Driving for Pleasure	55.4
Fishing	55.3
Hiking	43.3
Canoeing	35.2
Off Road Vehicle Riding	25.7
Birdwatching	18.5
Horseback Riding	8.1

Those outdoor recreation activities receiving less than a four percent response rate will not be discussed in detailed analysis.

Table F-5
Primary Activity Participation at Camp Shelby

ACTIVITY	PERCENT
Hunting	69.0
Canoeing	8.2
Camping	7.0
Hiking	3.3
Fishing	2.7
Driving for Pleasure	2.7
Horseback Riding	2.0
Birdwatching	1.7
Off Road Vehicle Riding	1.3

Recreation Activity Participation by Zone

In an effort to determine where people recreate, respondents where asked how many days they participated in their most popular outdoor recreation activity in each of the five zones shown on the map. Use will be discussed in terms of all activities grouped together and then the three most popular activities (hunting, canoeing, and camping) will each be discussed separately.

Weekday use by zone. If responses from all the people participating in outdoor recreation activities are grouped together, less than 27 percent of the respondents participate in their most popular outdoor recreation activity during any weekday in Zone One. Those 27 percent had a total of 4,154 weekdays of recreation use in the area. The average number of weekdays of participation for those who did use Zone One was 16 and ranged from 1 weekday to 112 weekdays of use. Only 18 percent of the respondents participated in outdoor recreation activities in Zone Two on weekdays for a total of 1,813 weekdays of recreation use. They used Zone Two an average of almost 11 weekdays last year. The range of weekday use for Zone Two was from 1 day to 150 days. A significantly larger percentage (51 percent) of the total respondents participate in their most popular recreation activity in Zone Three. In Zone Three in 1990 there were a total of 5,533 weekdays of recreation use, with a range of 1 weekday to 196 weekdays. Respondents spent an average of 11.7 weekdays in the area. Zone Four had the second highest percentage of use with 41 percent of respondents recreating in the area for a total of 4,260 weekdays of recreation use. The weekdays of use ranged from 1 to 200 with an average of 11.4. In zone 5 during 1990 there were a total of 2260 weekdays of outdoor recreation use. Those respondents using the zone did so for an average of 9.1 weekdays.

As shown in Table 6, more respondents (64 percent) hunt in zone 3 on weekdays than in any of the other four zones. They hunted in zone 3 an average of 12 weekdays last year which resulted in a total 4,762 hunting days. There were a total of 12,790 hunting days of recreation weekday use reported by respondents.

Table F-6
Weekday Hunting by Zone

ZONE	NUMBER	PERCENT	AVG DAYS	DAYS
1	176	28	16.0	2,814
2	125	20	10.1	1,270
3	396	64	12.0	4,762
4	231	37	11.6	2,671
5	127	20	10.1	1,273

Those camping in zone 3 averaged almost ten days last year. Zones Three and Four accounted for 472 camping days of weekday recreation use which is 58 percent of the 819 total camping days of weekday use.

Table 7 shows that forty nine percent of respondents camped in Zone 4 while 36 percent camped in zone 3 on weekdays. Those camping in zone 4 averaged camping there eight days last year.

Table F-7
Weekday Camping by Zone

ZONE	NUMBER	PERCENT	AVG DAYS	DAYS
1	9	14	16.1	145
2	8	13	5.6	45
3	23	36	9.8	225
4	31	49	8.0	247
5	24	38	6.5	157

The third most popular activity, canoeing, occurs primarily in Zones Four and Five. Zone Four was used by almost 49 percent of weekday canoeists (Table 8). Zone five was used by 38 percent of those canoeing on weekdays. Responses indicated a total of 453 recreation days of use for canoeing.

Table F-8
Weekday Canoeing by Zone

ZONE	NUMBER	PERCENT	AVG DAYS	DAYS
1	3	4	3.0	9
2	1	1	5.0	5
3	6	8	5.5	33
4	36	49	6.0	215
5	28	38	6.8	191

Weekend Use by zone. When all activities are grouped together, the two most popular zones for weekend outdoor recreation activities are Three and Four. Only 247 respondents used Zone One for their most popular outdoor recreation activity. They indicated 3133 weekend days of use for an average of 12.7. Zone Two was used even less, with only 20 percent of respondents using the area for a total of 1,545 weekend days of outdoor recreation. Each respondent used the area for an average of 8.6 days. The most popular zone for weekend use was Zone Three. Over 66 percent of the respondents (521) used Zone Three for weekend participation in their favorite outdoor recreation activity. The area was used for a total of 5,380 weekend days during 1990. Each respondent used Zone Three for an average of 10.5 weekend days. Respondents also used Zone Four for a total of 4,492 weekend days. Their average use of 10.7 is a higher average number of weekend days than the users of Zone Three. The users of Zone Five only generated 2,387 weekend days of use and averaged 7.8 days for each user.

For hunting activities, 68 percent of respondents hunted in Zone Three on weekend days (Table 9). They hunted Zone Three an average of 10 weekend days last year which resulted in a total of 4,247 hunting days of recreation use.

Table F-9
Weekend Hunting by Zone

ZONE	NUMBER	PERCENT	AVG DAYS	DAYS
1	174	28	12.9	2,263
2	121	19	9.1	1,104
3	420	68	10.1	4,247
4	246	40	10.1	2,489
5	139	22	8.6	1,202

As shown in Table 10, 63 percent of respondents camped in Zone Four on weekends, while 52 percent camped in Zone Five. They camped an average of 14 weekend days in Zone Four and an average of 10 weekend days in Zone Three. Zones Three, Four, and Five are used for 1,110 weekend days of camping, which is 86 percent of the 1,296 total for all five zones.

Table F-10
Weekend Camping by Zone

ZONE	NUMBER	PERCENT	AVG DAYS	DAYS
1	10	16	11.4	114
2	10	16	7.2	72
3	28	44	10.0	282
4	40	63	14.4	577
5	33	52	7.6	251

The majority of weekend canoeing occurred on Black Creek in Zones Four and Five (Table 11). An average of almost 75 percent of respondents canoed in Zones Four and Five. The 800 weekend days of canoeing in these two zones was 87 percent of the total 920 weekend days of use in all five zones.

Table F-11
Weekend Canoeing by Zone

ZONE	NUMBER	PERCENT	AVG DAYS	DAYS
1	4	5	6.0	24
2	2	3	10.0	20
3	12	16	6.3	76
4	53	72	7.5	400
5	56	76	7.1	400

Outdoor recreation participation by time of year

Hunting. About 40 percent of hunters indicated they hunted during February, March, and April which are quail, rabbit, and turkey seasons. A much larger percentage hunted deer and or squirrel: 72 percent in October, 93 percent in November, 96 percent in December, and 92 percent in January.

Canoeing. December, January, February, and to a certain extent March are the months when fewer people are participating in canoeing. The majority of participation is spread out

evenly over the remaining months of the year.

Camping Less than 50 percent of the people who camp do so during December, January, and February. Well over 50 percent of the people camp during the remaining months with a high of 68 percent stating they camp in the month of May.

Impact of military training activities on recreation by zone

A review of the annual schedule for training year 1990 (May through September) indicates the majority of training occurred in those training facilities west of Highway 29. The impact area and most of the ranges and firing points are located west of Highway 29. Any firing from firing points east of Highway 29 necessitates closing of the Highway 29 during firing, which may account for their lower use. There are also a number of training and maneuver areas on both sides of Highway 29, with most training concentrated in those areas on the west side.

The effect of training activities on people using the Camp Shelby area for outdoor recreation was of particular interest in this study. Past studies of the effects of other activities (and especially noise) on recreationists, helped to provide some understanding of what might be expected at Camp Shelby. In a camping study in Washington State, 88 percent of the respondents felt that noise such as talking and singing have little to no impact on their experience. Noise from motorbikes was "somewhat distracting" to "a great deal distracting" to 73 percent of the campers (Clark, Hendee and Campbell 1971). Campers at three Canadian national parks were surveyed for their assessment of campground noise. They indicated that nature related sounds such as wind, water running in a stream, and birds singing were pleasing; sounds such as people talking, chopping wood, and pets to be somewhat annoying; while technology related sounds such as trains, cars, motorboats, and television as generally annoying (Kariel 1980).

To determine the effect of training activities on recreationists in the Camp Shelby area, the following specific activities were presented in the questionnaire: 1) military vehicles driving on the roads, 2) artillery firing, 3) vehicles/troops moving through the area, 4) aircraft noise and 5) an other category.

Impacts of military training on recreation participation

Almost 50 percent (360 respondents) of the people making a selection on the disturbance scale stated that military vehicles driving on roads did not disturb their recreation activity (Table 12). Military vehicles driving on roads disturbed 223 respondents (32 percent) "some" during their recreation outing. One hundred and eleven respondents (18 percent) indicated the military vehicles disturbed them "more than some" or "very much." The average disturbance of those who responded is 2.2 on a scale where 1 is not disturbed at all,

3 is some disturbance, and 5 is being disturbed very much.

Artillery firing had more of an impact on recreationists than military vehicles. Only 33 percent (268 respondents) indicated that artillery firing did not disturb their recreation activity. The artillery firing did disturb another 30 percent (246 respondents) at least "some." The largest number of respondents (37 percent) are disturbed more than "some" or "very much." Artillery firing has an average disturbance of 2.9 on the 1 to 5 scale.

Table F-12
Military Training Disturbance - All Recreation Activities

DISTURBANCE	PERCENT OF RESPONDENTS				
	Not At All		Some		Very Much
Military Vehicles Driving on Roads	50	14	18	7	11
Artillery Firing	33	9	21	11	26
Vehicles/Troops Moving in Area	50	11	13	9	17
Aircraft Noise	27	9	23	13	28
Other Disturbances	56	2	7	7	28

Aircraft noise also has an impact on a large number of recreationists. Over 72 percent of the respondents indicated aircraft noise has an impact on their enjoyment of recreation in the Camp Shelby area. Over 32 percent stated it had "some" impact, while 28 percent indicated it impacted their recreation "very much."

Another training activity that sometimes disturbs recreationists is vehicles/troops moving through the area. However, 50 percent (353 respondents) stated that the activity had no effect on them at all.

Impacts of military training on specific recreation activities

Responses concerning military training effects on individual outdoor recreation activities were very similar to those for recreation in general.

Hunting. As shown in Table 13, an average of 50 percent of the hunters indicated that military vehicles driving on the road or vehicles/troops moving through the areas had no effect on their enjoyment of hunting. Over 28 percent of the hunters stated that aircraft noise disturbs their hunting "very much." Artillery firing disturbs 20 percent of the hunters "very much."

Camping. Results in Table 14 show that 29 percent of camper respondents are disturbed "very much" by aircraft noise. Over 24 percent of the campers are disturbed "very much" by artillery firing. Almost two thirds (63 percent) of the campers were not disturbed at all by vehicles/troops moving through the area, and 53 percent of the campers were not disturbed at all by military vehicles driving on roads.

Table F-13
Military Training Disturbance - Hunting

DISTURBANCE	PERCENT OF RESPONDENTS				
	Not At All		Some		Very Much
Military Vehicles Driving on Roads	51	14	21	5	9
Artillery Firing	32	11	22	11	24
Vehicles/Troops Moving in Area	49	12	16	8	15
Aircraft Noise	27	9	24	15	28
Other Disturbances	54	3	7	8	29

Table F-14
Military Training Disturbance - Camping

DISTURBANCE	PERCENT OF RESPONDENTS				
	Not At All		Some		Very Much
Military Vehicles Driving on Roads	53	14	11	11	11
Artillery Firing	38	5	22	11	24
Vehicles/Troops Moving in Area	63	4	8	6	19
Aircraft Noise	31	12	21	7	29
Other Disturbances	80	-	-	-	20

Canoeing. Persons who canoe in the Camp Shelby area are disturbed by the same training activities (Table 15). Vehicles/troops moving through the area and vehicles driving of roads did not disturb 63 percent and 58 percent of the canoeists, respectively. However, 35 percent of the canoeists are "very much" disturbed by artillery firing and over 20 percent by aircraft noise.

Table F-15
Military Training Disturbance - Canoeing

DISTURBANCE	PERCENT OF RESPONDENTS				
	Not At All		Some		Very Much
Military Vehicles Driving on Roads	58	15	16	5	6
Artillery Firing	33	4	19	9	35
Vehicles/Troops Moving in Area	63	13	8	5	11
Aircraft Noise	33	7	31	9	20
Other Disturbances	68	-	16	-	16

Expenditures associated with outdoor recreation participation

Mean expenditures for all respondents participating in outdoor recreation activities in the Camp Shelby area averaged $1,212.21 (Table 16). Respondents indicated about 76 percent ($921.28) of that amount was spent in Hattiesburg. Major items of expense last year included an average of $221.57 for gas and oil, $188.07 for groceries, and $81.22 for organization fees. Expenses broken down by individual activities are very similar.

Hunting. Respondents spent an average of $1,249.51 last year associated with hunting activities. As one would expect, hunting equipment expenses were a large portion of total expenditures. Each respondent who hunted spent an average of $402.96 for hunting equipment, $224.50 for gas and oil, and $172.96 for groceries last year. Table 17 shows the complete list for all expenditures associated with hunting. Hunters responded that they spent 74 percent ($924.95) of their total expenses in Hattiesburg.

Table 16 Mean Expenditures - All Recreation Activities	
Campground Fees	$14.24
Lodging	43.25
Restaurant Meals	62.92
Organization Fees	81.22
Groceries	188.06
Gas and Oil	221.57
Automobile Reparis	96.00
Entertainment	22.49
Hunting Equipment	329.90
Equipment Rental	23.06
Alcoholic Beverages	22.67
Other	106.83
Total Expenditures	$1,212.21

Table F-17 Mean Expenditures - Hunting, Canoeing, Camping			
CATEGORY	HUNTING	CANOEING	CAMPING
Campground Fees	$ 8.54	$ 18.97	$ 45.25
Lodging	41.36	27.50	2.14
Restaurant Meals	49.20	62.84	32.70
Organization Fees	93.98	53.32	34.60
Groceries	172.96	185.64	236.27
Gas and Oil	224.50	84.12	251.19
Automobile Reparis	99.69	33.18	29.92
Entertainment	13.90	71.28	6.67
Hunting Equipment	402.96	-	-
Equipment Rental	4.78	89.37	23.57
Alcoholic Beverages	22.68	12.87	35.65
Other	114.97	41.89	32.32
Total Expenditures	$1,249.51	$680.98	$730.28

Canoeing. Last year canoeists spent an average of $630.98 while participating in the outdoor recreation activity, of which $586.81 (93 percent) was spent in Hattiesburg. They spent $185.64 for groceries and $89.37 for equipment rental. They also spent over twice as much as hunters ($18.97) for campground fees. Table 17 shows the complete list of expenditures.

Camping. Campers spent an average of $236.27 for groceries, $251.19 for gas and oil association with camping, and an average of $45.25 for campground fees last year (Table 17). Campers total average expenditures were $730.28, of which $489.29 was spent in Hattiesburg.

Comments from respondents

Respondents were given the opportunity to provide unstructured comments concerning outdoor recreation participation in the Camp Shelby area. At the time the questionnaire was administered, there was still a possibility of the land swap. Since the land swap is no longer an issue, comments addressing the swap are not presented. The remaining comments were grouped into three categories:

a) Concern for preserving a natural area in South Mississippi where people can continue to participate in outdoor recreation. Respondents indicated that they participate in many different outdoor recreation activities in the Camp Shelby area. They reported using the area for a total of 34,957 days of recreation use. They want the area to remain "just the way it is," with the natural resources left undamaged. Comments addressing these concerns made up the vast majority of those provided by respondents (262 of the total 336).

b) Military activities take away from the enjoyment of recreation activities. Respondents (52) noted that they are disturbed by several different activities associated with military training at Camp Shelby. Almost 50 percent of the people stated military vehicles driving on roads did not disturb their recreation activity. Another training activity that takes place is vehicles/troops moving through the area. However, 50 percent of the respondents indicated the activity had no effect on their recreation participation at all. Artillery firing and aircraft noise disturb recreationists in the area much more, with 67 percent and 73 percent respectively indicating they are disturbed to some degree by the activities.

c) Military activities do not take away from the enjoyment of recreation activities. These respondents (22) have stated they participate in outdoor recreation activities in the Camp Shelby area and are not disturbed by any of the military training.

Conclusions and Recommendations

The purpose of this study was to collect and analyze informational data on people participating in or having an interest in, outdoor recreation activities in the Camp Shelby area. Analysis of those data showed that the Camp Shelby area is used for a wide variety of outdoor recreation activities. These activities include hunting, fishing, canoeing, horseback riding, camping, hiking, birdwatching, driving for pleasure, and off road vehicle riding. The data indicated hunting is the most popular recreation activity, with 80 percent of the respondents stating they hunt in the area and 69 percent indicating hunting is their primary activity.

Hunting was followed by canoeing and camping in terms of popularity. The remaining activities made up a very distant third group and were not discussed further in this report. Respondents indicated a preference for different parts of the Camp Shelby area.

Alternatives. At the onset of this study, four alternatives were to be addressed in the EIS. Those have since been revised to the following seven:

1) issue Special Use Permit (SUP) with provision for new battalion task force training area, 2) issue SUP with provision for new company team maneuver area, 3a) issue SUP limiting company team tank maneuvers to the area north and west of Forest Service Road 303 (Beaumont Road), 3b) issue SUP limiting battalion task force maneuvers to the area north and west of Forest Service Road 303 (Beaumont Road), 4) issue SUP for the continuation of current activities and facilities, 5) issue SUP for range and firing activities only, with no off road tank maneuver, 6) issue no SUP (no action). Each of these alternatives will have different levels of impacts on outdoor recreation participation in the Camp Shelby and surrounding areas.

Issue SUP with provision for new battalion-size task force maneuver area. Assuming that artillery firing and aircraft maneuvers are still a part of these alternatives, the effect on recreation would not differ significantly from the current use alternative. However, battalion-size maneuvers would potentially affect a greater area, thus affecting more natural resources. Also, any significant thinning or clearing for corridors and maneuver areas will affect recreationists perception of impacts on wildlife and consequently on hunting.

SUP with provision for new company team maneuver area. This alternative will provide impact similar to those in Alternative 1 but in a much smaller area.

Issue SUP limiting either company team (Alternative 3) or battalion task force (Alternative 3b) tank maneuvers to the area north and west of Forest Service Road 303 (Beaumont Road). Under current use patterns, neither of these alternatives would have significant real impacts on recreation. (i.e., most of the training currently takes place west of Highway 29). All maneuvering in the Leaf River Game Management Area would be prevented/eliminated, which will have some benefit for a large number of respondents (this area is the most heavily used by over 50 percent of respondents participating in their most popular activity). However, all recreationists would continue to be disturbed by noise from artillery firing and aircraft, and any other thinning/clearing would cause some perception of impact on hunting enjoyment.

Issue SUP for continuation of current activities and facilities. This alternative would provide no change on potential impacts to recreation activities.

Issue SUP for range and firing activities only, with no off road tank maneuver. Training under this alternative would still include noise from artillery firing and aircraft, the two activities that disturb recreationists the most. This alternative would eliminate tank maneuvers, but over 50 percent of the respondents indicated the training activities associated with these maneuvers did not disturb them.

No action - Issue no SUP. If the SUP is not issued, military units will not have access to present ranges, firing points, and maneuver areas; training in these areas would cease. Consequently there would no longer be military training activity impacts on people using the area for outdoor recreation participation. Many secondary roads currently used for recreation access would no longer be maintained. While there would possibly be less damage to specific natural resources, the loss of this "clearing action" associated with training would affect the habitat of some species.

Recommendations. The most popular outdoor recreation activity in the Camp Shelby area is hunting. It will probably continue its popularity as long as Camp Shelby offers the habitat necessary to support the wildlife to allow for successful hunts. Under present circumstances training is limited as much as possible during the hunting season. It is therefore recommended that for each of these alternatives the current policy of limiting military training as much as possible during deer and turkey seasons be continued. It is also recommended that for each of these alternatives, the policy of allowing unrestricted access (except the impact area) to Camp Shelby during deer and turkey seasons be continued, commensurate with training requirements.

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Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix G

Integrated Training Area Management at Camp Shelby

1. ITAM Background and Principles

2. Application of ITAM to Camp Shelby, 1990-1995

I. INTRODUCTION

1. PROGRAM REQUIREMENT

The primary reason for military training land is to support the training mission. Land is a substantial installation asset that provides the realistic environment for field training, i.e. the ultimate "classroom". Installation lands also come under Federal legislation and requirements protecting natural resources. The Endangered Species Act, the Historic Preservation Act, the Clean Water Act, the National Environmental Policy Act, etc. all affect the way that military land can and should be utilized.

In the past, the impact of military activities on land and natural resources was overlooked or little understood. However, in the current eco-political environment, installations find themselves under close scrutiny from Federal and state environmental regulatory agencies and public environmental groups. Given public concern over environmental issues, the future will see an increase in this trend.

This creates a perplexing situation for military planners and land managers. Realistic training must be conducted in support of National Defense, yet training damages vegetation which can contribute to erosion and non-point source pollution. Training can also damage historical and archeological sites and habitat for endangered species. All of these can result in legal, non-compliance issues that can and have stopped training. Adding to this paradox is that vast amounts of military training land have been unaffected by commercial and economic development. As a result, military lands harbor many rare and threatened resources (i.e. endangered species and wetlands) that are legally protected. Unless training lands can be managed in an effective manner that coordinates training with natural resources management, the future looks bleak for both training and natural resources.

The Integrated Training Area Management (ITAM) program is an Army initiative developed to address these issues. The ITAM program integrates four major thrusts that provide Army planners, trainers, and land managers with a comprehensive approach to land management:

a. ***LCTA***: Land Condition-Trend Analysis. Training land monitoring to determine land capabilities and resource trends.

b. ***TRI***: Training Requirements Integration. Integration of training mission requirements with natural resource capability to optimize land use.

c. ***EA***: Environmental Awareness. Encourages stewardship and wise tactical use of natural resources.

d. ***LRAM***: Land Rehabilitation and Maintenance. Erosion control technologies to conserve resources and improve training realism.

The long-term value of implementing the ITAM program at installations is four-fold:

a. Realistic training experiences which enhance Army readiness, fighting capabilities, soldier safety and survivability.

b. Avoidance of extreme environmental damage and loss of land through coordinated land allocation and advanced rehabilitation technologies.

c. Reduction in costs of environmental compliance and long-term land management.

d. Credibility in training land requirements analysis, base realignment, and acquisition actions.

ITAM is being incorporated into Army policy in a variety of ways. The revision to Army Training Circular (TC) 25-1, "Training Land", will incorporate ITAM as the approach to examination of alternatives for shortfalls in training land. With the revision to Army Regulation (AR) 210-21, "Army Ranges and Training Land Program", bonus points are given to range and land development projects if ITAM has been utilized in planning. However, to be truly effective, the ITAM program must have top-down as well as bottom-up support.

Consistent with the team planning philosophy outlined in the implementing draft of AR 210-21, ITAM is not just an engineering or land management program. It incorporates a set of tools to benefit all involved in the Army Ranges and Training Land Program (RTLP) and land use management and planning on installations. It is a program to be used in a coordinated effort by trainers, installation master planners, environmental and natural/cultural resource managers, range officers, safety officers, force developers, facility engineers, and resource managers.

2. PURPOSE

While ITAM is an Army initiative and will be fielded throughout the Army, the National Guard Bureau (NGB) has established specific goals for implementation:

a. Establish ITAM as the foundation of the training program through its support and improvement of the training capability of Army land.

b. Conserve and enhance natural resources.

c. Reduce soil erosion and non-point source pollution.

d. Ensure compliance with the Endangered Species Act and Historic Preservation Act.

e. Ensure compliance with the National Environmental Policy Act through use of ITAM as a mitigation program for environmental documentation.

The purpose of this plan is to outline requirements for implementation of the full spectrum of current ITAM technologies at selected NGB installations. This planning document is intended for use at both the NGB and state/installation levels. It can be used as a basis for programming and justifying resource requirements to support the ITAM program. The plan also addresses issues relevant to implementation that should be addressed to insure accomplishment of the program's broad-based objectives.

It is stressed that this is a planning document and is intended as a guide for implementation. While every attempt has been made to secure the most up-to-date information to develop the plan, site-specific conditions and considerations can change dramatically. NGB and state/installation adjustments to this plan to meet new conditions and considerations will be required.

3. APPROACH

The first step in developing this plan was to gather selected input from sixteen NGB installations. The sixteen installations addressed in this plan were selected by NGB as priorities for ITAM implementation and include:

Atterbury	Grayling	Missouri Army NG	Robinson
Blanding	Gruber	Orchard Training Area	Santiago
Edwards	Leesburg	Ripley	Shelby
Florence	McCain	Roberts/San Luis Obispo	Williams

Of these installations, three were considered for implementation of the total ITAM program. The remaining thirteen installations were considered for implementation of all ITAM components except TRI.

The second step was to conduct site visits to selected installations. The purpose of these visits was to gather information from the field perspective, i.e. those feelings and concerns about natural resources management and ITAM implementation that cannot otherwise be learned. The duration of the site visits were from one to two days and generally involved an ITAM presentation to installation and state command and natural resource personnel, and a tour of the installation to view land management approaches and problem areas. Appendix D provides a compendium of interviews, discussions, and literature reviewed for the development of this plan. Installations visited were: Atterbury, Blanding, Edwards, Florence, Gruber, Leesburg, McCain, Missouri ANG, Roberts/San Luis Obispo, Robinson, Santiago, and Williams.

II. IMPLEMENTATION GUIDANCE

1. PROCESS CONCEPT

While the plan presented here provides general guidance for Integrated Training Area Management (ITAM) program implementation, it is important that each state/installation also develop their site-specific implementation plan. The information, schedule, and costs provided in this National Guard Bureau (NGB) plan can be used as a guide for this installation-specific plan. Additional guidance is also provided below.

Successful implementation of ITAM requires integration into normal operations at all levels of natural resource management. This will require manpower, equipment, and funding. The amount of these resources will vary among state/installations depending upon mission and program objectives. Site-specific analysis of these requirements and development of a program integration plan will be necessary. ITAM implementation will also require substantial command support. ITAM is not merely a Environmental/Directorate of Engineering and Housing (DEH) or Directorate of Plans, Training, and Mobilization (DPTM) program. The benefits derived affect the long-term suitability of present US training lands, the training mission, and National Defense.

The logical process for ITAM implementation begins with the identification of the condition of existing training land resources. Therefore, inventory and monitoring of an installation's natural resources, and evaluation of land capabilities using Land Condition Trend Analysis (LCTA) should be accomplished first. Environmental Awareness (EA) programs can also be established early in program implementation. The initial fielding of systems to support LCTA and provide geographic information system (GIS) capability can occur simultaneously or next in the process. Identification of vegetative and engineering technologies for rehabilitation and maintenance demonstration can occur next. Identification of training requirements, training support applications and land design for realism should occur simultaneously to all activities. This will allow the development of appropriate actions that support the training mission.

2. NATURAL RESOURCE MANAGER/TRAINING SITE ENVIRONMENTAL SPECIALIST

An initial step toward ITAM implementation at an installation should be appointment of a Natural Resource Manager/Training Site Environmental Specialist (NRM/TSES). Generally, this person will be someone at the state/installation DEH or Environmental Management Office.[5] This individual should be familiar with natural resource management. The Coordinator might be an existing staff member, or a new hire based on the recommendations provided in this plan. The NRM/TSES should (a) gather information, (b)

[5] Note that not all Directorates of Engineering and Housing (DEHs) are organized in the same manner. The term Environmental Office, or natural resource manager as used in this plan refers to that staff activity responsible for natural resources regardless of location in the organization.

educate potential users and coordinate plans for ITAM, (c) develop an implementation plan specific to the state/installation, (d) address impacts attributable to implementation, and, finally, (e) secure support for the plan.

This position is critical for the implementation of ITAM technology at a state/installation and for the successful coordination of natural resource management with other government agencies. The NRM/TSES should be a permanent state/installation employee with adequate status and authority to accomplish these tasks.

3. SITE-SPECIFIC IMPLEMENTATION PLAN

The NRM/TSES's major task is to develop an ITAM implementation plan specific to that site. The plan should integrate the major ITAM areas: 1) LCTA land inventory, monitoring, and analysis; 2) training requirements integration; 3) environmental awareness; and 4) rehabilitation and maintenance techniques. The NRM/TSES will also be responsible for coordinating the fielding of the Geographic Resource Analysis Support System (GRASS) within the context of the ITAM program. The successful integration of these actions will make the program successful in achieving the goals and objectives of the program.

Development of the installation-specific implementation plan involves the following procedures. These procedures were used as the basis for the development of the plan presented in this report. Refinement and expansion of this plan to address installation-specific needs should be accomplished at the installation. However, these same procedures apply.

a. Examine installation requirements. This examination should include a variety of factors including, but not limited to: (1) environmental setting; (2) type of training conducted; (3) training throughput; (4) the level of gross environmental degradation or problem areas; (5) existing environmental and natural resource management staffing; (6) on-going, installation initiatives for management (specifically those related to the major thrusts of the ITAM program); (7) ITAM implementation that has already been initiated: and (8) requirements as determined by other government (landowner) agencies.

b. Based on the examination above, identify and schedule installation requirements for implementation. This schedule should generally follow the logical fielding process for each major ITAM thrust as presented in this plan, but be installation specific. For example, the installation may have a significant rehabilitation program in effect, but LCTA has not been implemented or an educational awareness program may not be in development. Therefore, the focus for this installation should be in these later two areas. Similarly, the installation may already have GRASS and be in the process of conducting LCTA but have ineffectual coordination between natural resource staff and trainers. Therefore, the focus for this installation might be in training requirements integration.

c. Incorporate consideration of future technologies development into the schedule of the implementation plan. The US Army Construction Engineering Research Laboratory (USACERL) and other Corps of Engineer (COE) activities is continuously working on enhancements and improved applications for the elements of the ITAM program. At this point in time, Phase 1.0 of ITAM can be fully implemented at the installation level. This includes the standardized LCTA, with a system work station, a GRASS workstation with its ITAM related components and applications, and Environmental Awareness materials. Existing guidance for development of an Erosion Control Plan, rehabilitation and maintenance and coordination with the training community can also be applied. Consideration of future technology developments into program implementation at an installation is important. Enhancements of the ITAM program in terms of inventory data interpretation techniques, training systems interfaces, land allocation, rehabilitation species decision support, video imaging for rehabilitation plan development, and many more are anticipated elements of Phases 2.0 and 3.0 of ITAM and should also be incorporated. Information on upcoming technologies can be obtained from the ITAM Support Center at USACERL.[6]

d. Determine resource requirements to support implementation. Based on the efforts in paragraphs a and b, detailed resource requirements for ITAM implementation at the installation-level should be developed. This should address both manpower and funding requirements as identified in this plan. To the extent practicable, operation and maintenance requirements beyond implementation should also be projected and identified by fiscal year.

e. Document resourcing strategies. To the extent possible, and with concurrence from NGB, alternative resourcing strategies for implementation of the ITAM program should be documented. Basic funding strategies can be programmed through the RC1383. For manpower resourcing, historic documentation to support resource requirements will be necessary.

4. MANPOWER REQUIREMENTS

To describe and assist in determining ITAM manpower requirements, the following is provided. ITAM implementation involves several types of tasks that can be grouped into a few major requirements according to skill level. General requirements by skill level are identified as follows:

[6] Currently, the ITAM Support Center can be reached in writing at: USACERL, ATTN: CECER-EN/ITAM SUPPORT CENTER, P.O. BOX 9005, CHAMPAIGN, IL 61826-9005; by phone: 800-USA-CERL (Outside Illinois), 800-252-7122 (Within Illinois), or 217-398-5458; or PAXMAIL ID: ITAMCOE.

Supervisory Position (Natural Resources Manager and/or Training Site Environmental Specialist):

a. Conducts and/or monitors performance of land inventory and monitoring.
b. Coordinates contract requirements, as appropriate, with contracting officer's representative.
c. Coordinates with training community and installation command.
d. Prepares and presents education material to trainers and troops.
e. Defines land management and scheduling requirements.
f. Identifies land management systems refinements.
g. Coordinates program with other government agencies.
h. Defines rehabilitation and maintenance scopes and contract requirements, and NEPA requirements.
i. Provides interface for command decision support.

Land Condition Trend Analysis Program Manager:

a. Conducts land inventory and monitoring.
b. Analysis of land inventory and monitoring data.
c. Documents training impacts and proposes alternatives.
d. Prepares, maintains and updates educational material.
e. Provides inputs for land management systems (e.g. LCTA data entry, GPS data, etc.).
f. Assists in preparation of drawings and specifications for rehabilitation actions.
g. Monitors rehabilitation efforts.
h. Obtains appropriate scientific collecting permits.
i. Hires and trains temporary/seasonal field crew.
j. Monitors threatened and endangered species.
k. Coordinates activities with other government agencies.

Computer/Geographical Information System Specialist:

a. Performs analysis of land inventory and monitoring data.
b. Conducts land management system data design and entry.
c. Provides systems management and maintenance.
d. Develops and maintains GIS database relevant to natural resources management, and assists with incorporation of GIS to land use decision making process with Range Control and Trainers.

Research Technician:

a. Performs systems data entry and debugging.
b. Assists in the collection of LCTA data.
c. Maintains field equipment, GPS units, hand-held data processor, vehicles, etc.
d. Assists with special monitoring of threatened and endangered species, rehabilitation projects, etc.

The skills required to perform the necessary tasks in these areas may be provided by several persons on an installation. The number of individuals required to perform these tasks on any given installation will depend upon how well the areas of expertise held by existing installation personnel mesh with ITAM-related tasks, the ease with which new personnel can be acquired, and other factors. For initial planning purposes, annual program operation of the complete ITAM program will require approximately three to four man-years of effort. The actual number necessary for a specific installation will depend on existing staff, training activity and rehabilitation requirements. Recommendations for staffing upgrade at each installation are provided in this plan. However, actual upgrade requirements should be determined and documented to be installation-specific. National Guard Bureau will authorize personnel support for ITAM on a state-by-state basis. Normal staffing, where GIS systems are operational and on site, include three positions: a Natural Resources Manager/Training Site Environmental Specialist; an LCTA Program Manager; and a Computer/GIS Specialist. Installations without operational GIS systems are only authorized the former two positions. Direct coordination with NGB-ARE is required through the Environmental State Operating Budget procedures.

5. RESOURCE REQUIREMENTS

Once a plan has been developed, funding to cover at least initial, fixed implementation costs should be secured. After needed equipment and staff have been selected, needed office space allocation and improvements, office supplies, and other environmental requirements (e.g. electrical power and temperature control requirements for computers, if necessary) must be identified and sought through normal installation channels. It is anticipated that the concepts in this plan can assist in justifying these requirements. At this point, it is also useful to develop a timeline for performing the administrative tasks associated with implementation.

6. SECURE SUPPORT FOR THE PLAN

A final activity for state/installation-specific development of an ITAM implementation plan is to secure support for the plan. Support for the plan should be secured from the state/installation and NGB. Implementation support should include commitments of staff, funding, and needed support requirements.

III. IMPLEMENTATION ASSUMPTIONS

1. INTRODUCTION

The cost and manpower requirements identified in the previous and following sections of this plan were based on a variety of assumptions and considerations concerning fielding the elements of the Integrated Training Area Management (ITAM) program. The following pages highlight the considerations used for each major element.

2. LAND CONDITION TREND ANALYSIS (LCTA)

General

Effective management of Army lands requires the ability to match training loads and other land uses with land capability. Land capability is established by a long term, continuing record of the status of natural resources. This requires a standardized system for inventory and monitoring of natural resources (i.e. soils, vegetation, and wildlife). Without such a system, land managers cannot relate histories of land use and management to changes in natural resources, and Army policy makers cannot effectively secure funding, personnel, and equipment necessary to maintain lands in stable condition for training, testing, and other mission-related uses. The LCTA program was developed to address these natural resource data requirements.

LCTA Technology

LCTA is a natural resources data collection, analysis, and reporting program designed to address requirements at state/installation, NGB, and Department of the Army (DA) levels. The intent is to acquire the essential information needed for effective natural resource management at each of these levels. Although originally developed as a standardized system for inventory and monitoring of soil and vegetation resources, the program has expanded to include wildlife, endangered species, and wetlands. This has been driven by a variety of environmental compliance requirements (e.g. National Environmental Policy Act (NEPA), the Endangered Species Act, and the Clean Water Act).

The four major elements of the program include: Floristic Inventory, Condition-Trend Plot Inventory, Endangered Species Status Evaluation, and Wetlands Inventory and Characterization. Primary objectives of the program are to:

a. Evaluate the capability of land to meet multiple-use demands on a sustained basis.

b. Delineate the biophysical and regulatory constraints to use of the land.

c. Monitor and evaluate changes in natural resources relative to current land uses.

d. Provide information for amending land management plans to ensure long-term resource availability.

e. Implement standardized data collection, analysis, and reporting procedures that enable compilation and evaluation of natural resource data on an Army-wide basis.

Benefits of appropriate implementation and use of LCTA data include the ability to:

a. Better distribute training loads within and among installations.

b. Reduce the need for land rehabilitation programs.

c. Add natural resource objectivity to land management decisions.

d. Incorporate natural resource conditions into land use policy decisions.

e. Help insure the sustained availability and productivity of Army land.

f. Protect sensitive, rare, or endangerd resources.

Implementation Approach

LCTA is implemented at a state/installation over a 3 to 4 year period, at which time the state/installation should be prepared to take on operational responsibilities. During the first year an LCTA Program Manager should be assigned or hired. This position may be provided through contract funding with USACERL until a permanent position can be secured. The primary duty of this position is to coordinate LCTA implementation.

The major LCTA effort during year 1 is to initiate a plant reference collection and identify any candidate, proposed, threatened, and endangered species that may be present. Equipment necessary for this task and the next years' inventory work is also acquired during year 1. Satellite imagery is acquired and geographic information system (GIS) data layers are developed in conjunction with the fielding of the Geographic Resource Analysis Support System (GRASS). Land cover derived from imagery and soil mapping units are used in a GRASS plot allocation program to randomly locate LCTA plots to be inventoried. Generally, one plot is selected per 500 acres up to a maximum of approximately 200 plots. In most cases this number of plots is adequate to represent major land cover and soil types on an installation. Additional inventory work may be required to sample other rare but important biological communities.

During year 2, LCTA plots are established in the field and inventoried with respect to soils, vegetation, and wildlife. Data collected in this initial inventory includes detailed information on topographic features, soil characteristics, botanical composition, vegetative

ground and aerial cover, bird and small mammal species, surface disturbance, and land use. Plant collection and endangered species assessments are continued as deemed appropriate, additional equipment is purchased as necessary, and soil samples are sent off for analysis.

Initial data analyses are conducted during year 3 and a preliminary report is prepared summarizing data collected to that point. A determination is made as to the extent of monitoring required for each year, as the need will vary among states and installations. Detailed botanical data collection endangered species work will continue as necessary. By this time the state/installation should have adequate staffing to take on program responsibility for data acquisition and data summarization in a continuing, operational mode.

Throughout the implementation and operational process, the US Army Construction Engineering Research Laboratory (USACERL) can provide technical and research support to the extent necessary and continue to update the technology and perform technology transfer to state/installations, NGB, and DA as it becomes available. To the extent of funding, annual workshops will be conducted throughout the LCTA implementation and operational phases to provide training and discuss technology improvements.

3. TRAINING REQUIREMENTS INTEGRATION (TRI)

General

Effective training land use and management must be coordinated between Army training, land management, and engineering staffs. Major users of non-cantonment lands are military training units. Scheduling use of lands is generally accomplished by the staff of the installation Directorate of Plans, Training, and Mobilization (DPTM), while land managers in the Directorate of Engineering and Housing (DEH)/Environmental Management Office are responsible for maintaining the land. Coordination must be effected to properly schedule and allocate land according to the land's ability to support training with minimum environmental damage. Unfortunately, training land scheduling and management at most installations is generally "ad hoc" or "first come, first served", with unit scheduling accomplished by the Range Control office and plans for rehabilitation being developed by DEH/Environmental Management Offices, each with their own schedule and plan.

Training Requirements Integration Technologies

As part of ITAM program development, communication/coordination issues are being addressed in the training requirements integration thrust. The long-term development objectives of this thrust include efforts to: (1) develop criteria for training mission accomplishment based on land allocation by the functional requirements for training as well as terrain and environmental conditions; (2) develop computer-aided land design capability for landscape modification to improve natural resource conditions (i.e. cover and concealment for training); (3) develop a land use classification and allocation scheme based on land suitability for training and environmental management; and (4) identify decision support system interface requirements between training and land management systems.

The results of these efforts can improve communication between training and land management staff and the planning and management of military training lands. Siting decisions can be based on mission essential task list (METL) requirements and located in areas suitable to the task rather than on simple spatial requirements. Location considerations based on terrain and environmental conditions (e.g. concealment, obstacles, trails, fighting positions available, as well as the existing land condition and capability (as defined by LCTA)) will result in better training and reduced environmental impact. With developing TRI capabilities, trainers can communicate their concealment, obstacle and position requirements for training. These requirements can then be translated into long-term rehabilitation actions to improve realism. By interfacing training and land management systems, data can be shared, thereby eliminating costly data collection and variations in data interpretation.

The majority of the ITAM TRI technology is still under development and cannot easily be addressed in this implementation plan. However, the following provides a summary of those elements that will be fieldable within the time frame of this plan.

Training Integration Analysis

Successful management of training areas requires an understanding of the training mission to be accommodated. The ITAM approach consists of: 1) identifying existing and projected training resources; 2) examining current, short-term requirements; and 3) identifying and evaluating projected long-term training plans and activity.

Existing training resources, specifically land and facilities, need to be inventoried for an understanding of training capability. This inventory should identify the numbers and types of ranges and maneuver areas, the activities conducted in these areas, by whom these activities are conducted, and for what purposes. Sources of information include range and training utilization reports, reports from the Range Facility Management Support System (RFMSS), if available, real property records, Five-Year Range Development Plans (RDPs), unit Tables of Distribution and Allowances (TDAs), and Tables of Organization and Equipment (TOEs).

Identification of current, short-term training requirements provides a refined understanding of training activity. This examination should include daily use and throughput on ranges and maneuver areas and can be obtained from daily range bulletins and logs. Understanding training requirements is also enhanced by examining and reviewing Programs of Instruction (POIs), Army Training and Evaluation Program (ARTEP) documents, and METLs. Based on analysis of the functional descriptions of developing training planning and scheduling systems, most of this information will be available in the future in an automated format. Review of this information can provide the land manager with insight on the amount and scope of training activities to be supported.

Projecting long-term training activity, planning and resourcing is the third part of data collection for land management interface. Projected mission change information, if any, should be available from DPTM offices. Coordination with these offices is essential for a variety of ITAM actions, particularly land and rehabilitation scheduling. Coordination and interface will allow the Natural Resource Manager to more fully comprehend the timing and processes of training requirements and training plan development.

Video Simulation

Successful land management depends on good communication between land managers and land users. Land managers must understand training needs, and be aware of the ways land management actions affect the training mission. In turn, trainers should understand how training activities affect the environment, and how they can structure their activities to minimize environmental damage. Engineers who will build structures that support both training and environmental needs must be able to discuss technical issues with both the trainers and land managers.

In practice, communication between these groups is often poor. Each group has different goals, different backgrounds, and professional jargon that make effective communication difficult. This is particularly evident when discussing technical issues relating to plans for modification to lands. It is often only after a project has been completed that objections are raised to design, because individuals could not clearly visualize or discuss the design intent. Time, money and frustration can be avoided if people can visualize project design objectives in the same way.

Advances in computer technology provide tools for communication of this visual information. Photographic images of existing landscapes can easily and quickly be edited to realistically simulate the appearance of the landscape after a project has been completed. This technology is referred to as "video simulation" or "video imaging".

Video simulation is a technique to create realistic portrayals of proposed land management actions. Photographs of project areas are digitized into computer memory, then electronically edited or retouched to reflect post-project appearance. The resulting images are quite realistic, approaching photographic quality. These images can be output from the computer in a wide variety of formats, including 35mm color slides, color prints, overhead transparencies, hardcopy prints and videotape.

Land Allocation

Land is a vital resource since training relies on the availability of sufficient quantity and quality of land to meet training objectives. As capital resources, such as barracks and other facilities, are allocated and maintained, so too should land resources. Land allocation strategies being developed in the ITAM TRI area will provide support for the Army to meet multiple land use objectives with full consideration of training requirements.

In this ITAM developmental effort, a decision framework based on installation specific requirements and attributes is proposed. This decision process is based on multiattribute analysis and incorporates involvement by various contributors to the decision making process. Information requirements for analysis are generated from a land classification process and existing data resources such as LCTA, GRASS, and developing rehabilitation management systems within the ITAM concept.

A classification system to characterize non-cantonment areas with the same precision and meaning as standard Army facility category codes is under development. As conventional category codes imply maintenance schedules, the non-cantonment land classification scheme will include an implied maintenance schedule in the form of rest or rehabilitation requirements.

Under the emerging land allocation concept, a decision support system will provide an environment in which the implications of alternative land classifications and allocations can be understood. The system includes representations familiar to the decision maker, characterization of alternatives with respect to attributes important to resource allocation, and user control over the nature of alternatives. A simulation of this decision support system incorporating these features has been developed and a pilot for test and evaluation is scheduled for FY92.

Implementation Approach

As previously stated, the majority of TRI technology is still under development. Due to funding limitations and other priority issues, TRI is not being implemented al all sites at this time. However, training integration should be taking place within the state/installation during LCTA implementation to establish effective communication between the training staff and the land managers.

4. ENVIRONMENTAL AWARENESS (EA)

General

Within the NGB, esablishment of Environmental Awarness (EA) programs will require state-by-state coordination. Some states may develope EA programs that include NGB sites along with other state-owned and operated sites. The following discussion provides criterion

in use at installations in other DA MACOM's. In Section VI, EA budgets reflect the costs for developing an EA program following these guidelines, but do not necessarily reflect the actual implementation approach of individual states/installations.

Environmental awareness is an extremely important part of ITAM. It is a part of the program that will be most visible to troops on the ground. It can yield great benefit toward reducing damage to land and natural resources, thereby reducing land and equipment maintenance costs and improving safety.

One aspect of training that can be significantly affected by the EA program is damage that occurs during administrative movement, not during actual training exercises. Administrative movement prior to and after exercises, during staging and bivouac, is a major culprit in damaging land and natural resources. Subjective estimates are that from 50% to 70% of damage to natural resources occurs during administrative movement. If addressed by an appropriate EA program, only a small percentage reduction in this damage can be of great benefit.+++++

EA Strategy

An education strategy encompasses the integration of educational materials with command support. The educational materials will provide information about the problem, why it is everyone's problem and how following existing rules and regulations will help alleviate it. Command support is essential to convey the seriousness of the problem, to ensure that the educational materials are used in the spirit intended, and to demonstrate resolve in the enforcement of existing rules and regulations that are relevant to the problem.

Information about the problem should be provided in multi-media presentations. Materials should contain examples of appropriate and inappropriate training actions or vehicular movements along with their consequential effects. The major theme that environmental deterioration affects overall success of the training mission should be stressed. Success is affected since:

a. Safety hazards, such as gullying, etc., can lead to the loss of personnel (i.e. serious injury or loss of life), and/or to the loss of, or serious damage to, equipment.

b. Badly damaged acreage in training areas reduces the acreage available for quality training.

c. Costs resulting from damage to natural resources, cleaning up roadways, replacement of crops, construction, operation and maintenance of sediment basins, and repair of damage to equipment, all of which must be paid by the US Government, place added burdens on already strained budgets.

d. Damage to highly treasured natural resources can tarnish the image of the Army in the minds of local citizenry.

e. Violation of "landowner" or other government agency policies can result in restrictions to or termination of training activities.

Individual officers and troops are also affected by environmental damage since:

a. Safety hazards can lead to personal injury or loss of life.

b. Loss of quality training acreage may inhibit the ability to obtain the best training for the soldiers.

c. Non-compliance with rules and regulations that result in environmental degradation, may, in turn, result in loss of personnel or equipment, excessive costs to the US Government, and can have severe consequences for one's career.

It should be demonstrated that all levels of command are dedicated to the resolution of the problem. This can be accomplished with:

a. Statements from officers at all levels of command that they are serious about resolving this problem.

b. Ensuring the use of the educational materials provided.

c. Enforcing the rules and regulations at all levels.

Educational materials prepared to support this effort include, but are not limited to a Leader's Handbook, a Soldier's Handbook, a Soldier's Slide Show, Posters, and Videotapes.

The importance of implementing an education program cannot be overstated. In the education program, the gravity of the problem and its potential consequences is made clear. In addition, a climate is established that reflects a serious intent to resolve the problem.

Although the primary target audience for the educational program at the installation should be the unit commanders, at least three levels of presentations directed toward senior officers, unit commanders, and troops is appropriate. All three levels of presentations should emphasize the importance of preventing maneuver damage at the installation, although the reasons for such prevention will differ according to the needs and concerns of each target audience.

For senior officers, an education program emphasizing the importance of public relations, maintenance of quality training areas, safety, and costs to mission success in terms

of lost manhours, equipment, and natural resources should be presented. Generally, this information should be provided in conjunction with a safety and environmental briefing for all units either annually or prior to major training events.

A safety and environmental briefing is also a forum that educates unit commanders. The briefing should include materials stressing the importance of public relations, maintenance of quality training areas, safety, and costs to mission success. The presentation should include a reminder clearly indicating that a reduction in mission success could be an impediment to career advancement.

Finally, the troops should be given information regarding range regulations, appropriate maneuvering techniques, restricted areas, and unsuitable terrain for vehicular movement. A videotape, slide presentation, posters, and a soldier's handbook can be used to convey this information. These materials can be given to the unit commanders during the safety and environmental briefing so that they may brief their troops. Unit officers should determine the most effective time schedule for introducing these materials to their troops and the most effective placement of posters. These posters should be placed in areas of high visibility, such as billets, mess halls, recreation halls and other areas where troops may congregate on a regular basis. Posters should be rotated on a regular basis so that troops do not habituate to the intended messages.

Implementation Approach

Figure 3 provides a basic flow diagram of the implementation approach to be used for the EA program. Full implementation is generally a three year process. During the initial year an installation-specific education strategy is developed. Initial concepts and/or drafts of EA materials and site-specific implementation plans are also developed. Estimated cost for this effort is $70K per installation ($35K for those installations where efforts have already been initiated).

In the second year, EA material development is completed and implementation guidelines finalized. Materials are also fielded according to the developed strategy. Implementation costs during this year are estimated at $60K for material development and initial evaluation of the audience receipt of materials. Operational costs associated with reproduction and fielding during this year are estimated at $40K. Installations included in this plan are generally in their second year of EA implementation.

In the third year of implementation, the evaluation of the success of the materials is complete and program maintenance guidelines are developed. Estimated cost is $10K. Installation operational costs for the third year are estimated at $20K for material reproduction and modifications as required based on the elements of success identified in the evaluation.

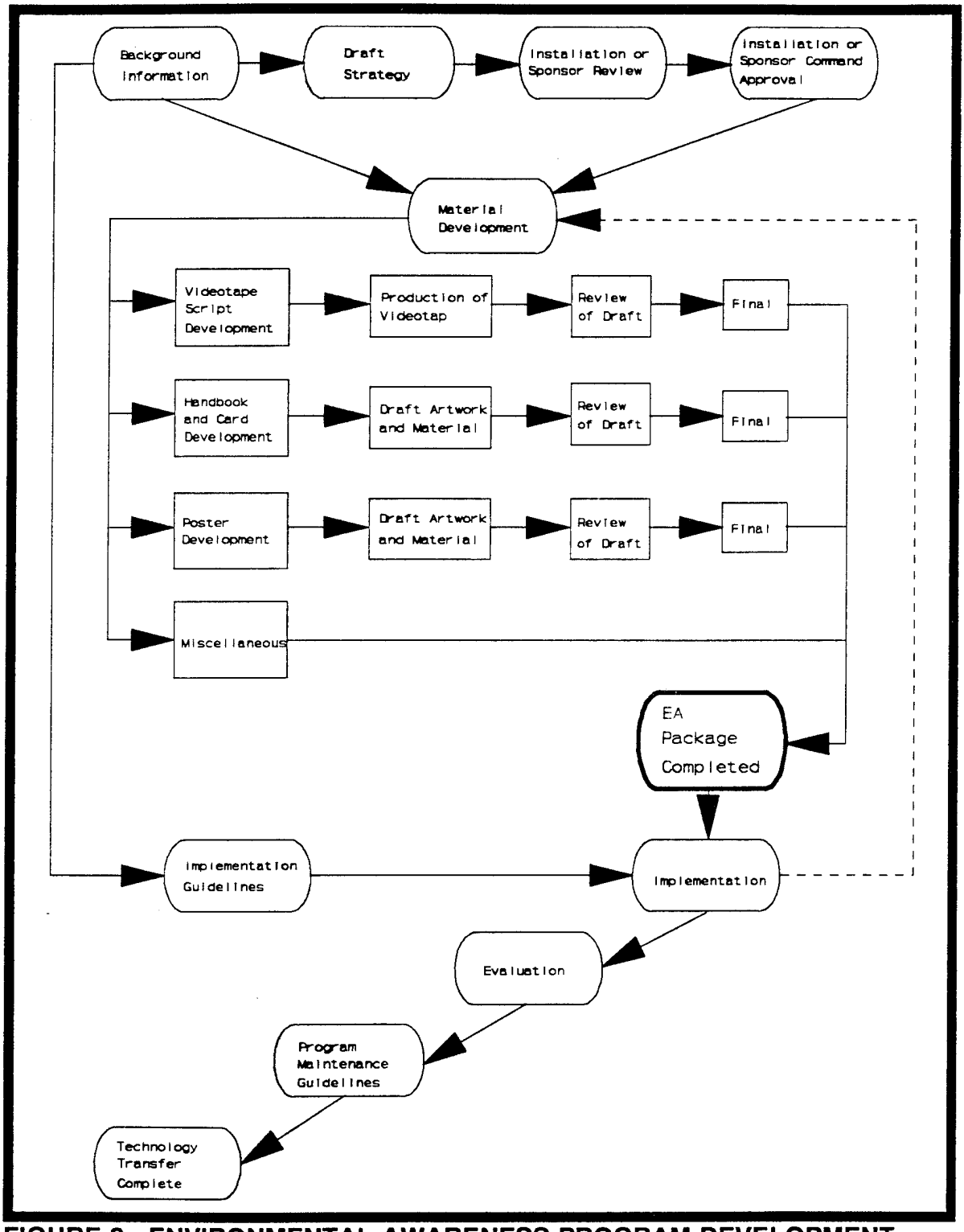


FIGURE 3. ENVIRONMENTAL AWARENESS PROGRAM DEVELOPMENT

After the third year, a threshold in the value of materials may be reached since artwork and information becomes outdated. Within the concept of this program, the third or fourth year of fielding will require funding to update materials.

5. LAND REHABILITATION AND MAINTENANCE (LRAM)

General

An Army environmental goal for training land management is to restore training lands to acceptable condition and maintain them over the long-term. The ITAM program has a Land Rehabilitation and Maintenance (LRAM) component to provide guidance and technology for the planning, design, and construction of land rehabilitation projects and the establishment of long-term land maintenance programs. Sufficient guidance and technology are available to initiate implementation of the LRAM component of ITAM. The information in this plan is designed to accomplish LRAM implementation and is based on the following assumptions and considerations.

LRAM Installation Capabilities

LRAM guidance and technology will support installation land rehabilitation and maintenance projects for:

a. Improvement of vegetation cover to enhance training cover and concealment.

b. Improvement of vegetation cover to reduce soil loss and protect long-term soil productivity.

c. Control of runoff to reduce soil loss and protect riparian resources.

d. Repair of gullys and other landscape damage for safety and continued availability of land for training use.

e. Control of sediment transport to protect riparian resources and comply with water quality standards.

Activities which must be accomplished to complete land rehabilitation and maintenance projects include:

a. Site assessment.
b. Determination of LRAM objectives.
c. Selection of appropriate technology.
d. Coordination with trainers and other agencies.
e. Establishment of priorities.
f. Development of project plans and cost estimates, and Environmental

Assesments, if necessary.

g. Placement of projects into the Annual Work Plan (AWP).
h. Selection of the method of accomplishment.
i. Initiation of construction projects.
j. Execution of maintenance programs.

Installations need personnel with Civil/Agricultural Engineering/Soil Conservation/Erosion Control skills for efficient execution and management of construction projects associated with LRAM plans. These personnel should have experience and skills in soil/water conservation and watershed management.

While a certain amount of in-house capability is required, alternate methods for accomplishing planning, design, construction and maintenance activities within the LRAM element of ITAM are shown in Table G-1. Activities, such as coordination with trainers and other agencies, and placement of projects into the AWP, must be done by in-house personnel but much of the LRAM work, specifically that requiring engineering skills, can be accomplished by others as shown.

Table G-1
Plan/Design/Construct/Maintain Options Using Various Performing Organizations

PERFORMER	PLAN	DESIGN	CONSTRUCT	MAINTAIN
In-House	X	X	X	X
Active Engineer		X	X	X
Reserve Engineer		X	X	
Soil Conservation Service	X*	X		
Corps of Engineers	X*	X		
Contractor	X*	X	X	X

* Planning must be coordinated by in-house personnel.

Additional considerations relative to the use of the alternative resources illustrated in Table G-1 include:

a. The participation of active and reserve Army engineer units is limited by project size and complexity.

b. Involvement of engineer units in LRAM activities requires extensive planning and coordination.

c. Soil Conservation Service (SCS) and Corps of Engineer (COE) Districts can assist with planning, develop project designs and then manage the construction that would be accomplished by contract.

d. A contractor could be involved in any or all phases.

Implementation Approach

Land rehabilitation and maintenance needs will be identified during LCTA implementation and through communication with the trainers. NGB has not approved blanket funding of LRAM, but may approve funding of individual projects. These projects will need to be identified through the RCS-1383 Report, and through further coordination with NGB.

6. DECISION SUPPORT SYSTEMS

General

Automated decision support systems and tools are essential for the long-term management of land resources. They provide state-of-the-art technology for data manipulation and analysis that support decisions on land capability, allocation, and rehabilitation. During times of budget constraints, it is necessary to make decisions with the most reliable data and with as much information as possible. Computer technology provides that capability.

Within each of the ITAM thrusts there are decision support systems and tools. In most instances these tools cannot be easily separated from the thrust. Therefore, for purposes of this implementation plan, systems fielding and funds for tools specifically related to a thrust are addressed in that respective thrust area. However, in many cases the types of data used in these tools can overlap. To the extent possible, integrated data sets and systems are used in ITAM implementation and operation. One of the most commonly used data sets for ITAM is spatial data that can be provided by a geographical information system (GIS). With ITAM implementation, the Geographic Resource Analysis Support System (GRASS) is the preferred system. Presently, this system transcends thrust area boundaries. For this reason, it is treated in the cost tables of this plan as a separate element of cost. The following provides fielding assumptions related to GRASS.

GRASS Technology

GRASS is a GIS software package used to develop, manipulate, analyze, and display geographical data sets. GRASS is composed of three subsystems; 1) GRID for analyzing, overlaying, and modeling grid cell type maps, as well as displaying both grid cell and line maps; 2) IMAGERY for displaying, geo-referencing, comparing, and classifying satellite and aerial photographic imagery; and 3) MAP-DEV for digitizing and integrating landscape data

generated from hard-copy maps, digital elevation files, or other sources into a form suitable for analysis. GRASS system hardware configurations can vary from table-top to rack-mounted machines.

GRASS can be very useful in a wide variety of projects and analyses, including single-project analyses, routine analyses and data development. Routine analyses may become part of the daily or weekly operation of the installation. These analyses can be very sophisticated since their results will be used continuously. For ITAM implementation, LCTA currently uses the spatial analysis and display capabilities of GRASS. Future developments in the TRI thrust will also use GRASS as the spatial analysis platform.

Implementation Approach

Implementation and fielding of GRASS has three basic elements; hardware acquisition, data development and training. Fielding of GRASS and other systems components at installations should be supported by manpower. Systems use and maintenance will require manpower resources with a specialized background. Systems maintenance, administration, and management of maintenance contracts will require computer experience. Since systems maintenance and administration are not trivial, the addition of a Computer Specialist is recommended for most installations.

For GRASS implementation on some of the states/installations included in the scope of this plan, hardware for a GRASS is already in place. The basic cost of initial workstation procurement is estimated at $62K. An additional $19K per year in operational cost is required for hardware and software maintenance and update after system installation.

Standard data layers for GRASS have already been developed for many NGB installations. For those installations where the information is not available, the first one to two years of effort will be on development of standard GRASS data layers. These are soils, roads, hydrography, installation boundary, land cover, wetlands, elevation, geology, and 1:24,000 quadrangle boundaries. This cost will vary between installations, based on size of the installation and the variety of natural resource features. Once the standard data layers are completed the state/installation will require approximately $15K per year for editing existing data layers, acquiring and processing satellite imagery, and creating new data layers.

GRASS training costs are initially $15K. This includes hardware installation, on-site training on GRASS hardware and software, and off-site training at a formal GRASS workshop. Annual training at $5K should also be provided for advanced training and workshops. Although developed at USACERL, GRASS software is developed for public domain and GRASS training and support is now available from approximately 15 private firms and universities. As a result, workshops on GRASS applications and training are numerous.

ITAM AT CAMP SHELBY

Environment

Camp Shelby, MS is the largest National Guard Training installation in the United States. The installation occupies approximately 134,000 acres of land in South Central Mississippi and covers portions of Forrest, George, and Perry Counties. The actual ownership of the land is held by the State of Mississippi (7,900 acres), the U.S. Army (7,289 acres), the U.S. Forest Service (116,199 acres) and 1,070 acres are privately owned and leased to the DA. Camp Shelby lies just north of the Coastal Plain in the Southern Mixed Forests. The topography is generally rolling to hilly with rounded ridges and broad, mature drainages. The elevation range between the ridges and valleys of the larger streams averages 50 feet. Elevations range from 280 to 150 feet mean sea level.

Much of Camp Shelby is drained by tributaries of Black Creek, which flows south of the installation, and the Leaf River which flows parallel to the north and northeast boundary of Camp Shelby. Ground water for Camp Shelby is supplied by large aquifers. The three important formations are the Catahoula Sandstone, the Hattiesburg, and the Pascagoula.

Most of the soils at Camp Shelby are formed from poorly consolidated sandstone and sediments deposited by wind and water. The majority of soils are classified as Ultisols, which are old, intensely weathered soils often found in warm humid climates. The high rainfall levels leach the clays and most of the nutrients from upper soil horizons into the subsoil. Iron oxides are also translocated giving the subsoil its characteristic red or yellow color. Climatic patterns at Camp Shelby are influenced primarily by weather systems in the Gulf of Mexico. Persistent humidity, moderate to heavy precipitation yearlong and mild temperatures are typical. The growing season generally begins in late February-early March and ends in late October-early November.

Most of Camp Shelby lies within the Longleaf-Slash Pine belt of the Southern Mixed Forest, although Mixed Pine and Hardwoods are found in the north-central portion of the base, and bottomland hardwood forests occur in areas that flood periodically. Most of the Camp Shelby permit area was denuded of the longleaf pine forests from the early 1900's through the early 1930's when the Forest Service began buying the land to form the DeSoto National Forest in 1933. No federally listed or threatened or endangered plant species are known to occur on Camp Shelby. However, seventeen species found in the Desoto National Forest are currently listed by the Mississippi Natural Heritage Agency as being sensitive, six are listed as being rare and two are of special concern.

Indigenous wildlife species on Camp Shelby seem to be representative and comparable to similar areas in the region. Large areas of open to dense forest interspersed with smaller stands of hardwood forest, wetlands, and cutover areas, coupled with differing types and

intensities of land use provide habitat on Camp Shelby for riparian, forest interior, open meadow, and edge associated wildlife species. Camp Shelby is within the historical and/or current ranges of the red-cockaded woodpecker, eastern indigo snake, gopher tortoise, Florida panther, red wolf, American peregrine falcon, and American alligator, all of which are federally listed threatened or endangered animal species

An archaeological study, surveying 10% of the installation's surveyable land identified 40 sites of significance; however, none were determined eligible for the National Register. Two buildings on the cantonment area have been proposed for listing on the National Register. As of June 1991, the Mississippi SHPO and the Corps were of the opinion that no further surveys were warranted at Camp Shelby.

Training

Camp Shelby is the Nation's largest National Guard and Reserve Training Site, serving as a training site for all branches of the military. Camp Shelby also serves as the Nation's largest State Owned Mobilization Station (SOMS), hosting 3 Brigades and an Armored Cavalry Squadron. As the Nation's largest SOMS, Camp Shelby is tasked to mobilize over 22,000 personnel. The Camp Shelby mission would be to mobilize, receive, train, and equip units in preparation for overseas deployment and operate under U.S. Army Forces Command.

Camp Shelby routinely hosts units and/or individual personnel from all across the Southeastern United States. Most of these units or personnel come from the 2nd Army (USATWO) Area. In addition to the units regularly scheduled for Annual Training, Weekend Training and Special Training Events, CSTS also hosts other units from other regions. During 1990, over 116,000 personnel trained at CSTS.

Natural Resources Staffing

Natural resource and training land management on Camp Shelby is accomplished by Camp Shelby DFE natural resources personnel in conjuction with NG MS-FM resources personnel and with the USFS. Wildlife management is accomplished by the NG in cooperation with Mississippi Department of Game and Fish, the U.S. Forest Service, and the U.S. Fish and Wildlife Service.

Current Status of ITAM Implementation

- ITAM, with the exception of TRI have been initiated at Camp Shelby. The Video Imaging aspect of the TRI thrust will be implemented during FY93. All thrusts will require reevaluation and update in FY94.

- GRASS workstation installed in FY92. GIS specialist position should be filled in early FY93.

Implementation Highlights/Concerns

- Additional short term staffing may be required until the current EIS is completed and all mitigation measures are in place and functional.

- This is to satisfy the requirement to execute the decision matrix:

  1) The Mississippi Army National Guard (ARNG) has coordinated with the U.S. Forest Service (USFS) Black Creek Ranger District (BCRD) for all training planned for the applicable training year (TY) (annual basis).

  2) Units have coordinated with Camp Shelby DPTM for use of training areas to de-conflict the training schedule. (Type training, training areas, specific dates). This is accomplished annually at a scheduling conference. This schedule is coordinated with the USFS (BCRD) to de-conflict forest management issues.

  3) The training managers, and ITAM technicians at Camp Shelby, along with the USFS will monitor the conditions that would require a decision matrix path to alter training; i.e., rain and moisture conditions, arid conditions, etc.).

  4) The Camp Shelby Training and ITAM staff will alert the unit when it is apparent that weather conditions may impact on training. Alternate training plans will be developed by the unit, and an on-site meeting scheduled to make a decision.

  5) The decision to alter training will be made by Camp Shelby staff, USFS staff, and the unit through the appropriate chain of command.

  6) When units are involved in training and weather conditions change such that training must be altered, the same process will be used to make the decision.

Resource Requirements

The following tables provide projected Camp Shelby implementation and operation requirements for ITAM.

Table G-2
Camp Shelby ITAM Implementation Costs ($000)

ITAM Activity	FY92	FY93	FY94	FY95	FY96	FY97
LCTA						
Tech. Develop./Support	55.0	25.0	25.0	25.0	25.0	25.0
LCTA Prg. Mgr.	-	-	-	-	-	-
LCTA Prog. Mgr. Vehicle	-	-	-	-	-	-
Floral Inventory	-	-	-	-	-	-
LCTA Field Equipment	1.0	1.0	1.0	1.0	1.0	1.0
Computer/GPS Equipment	19.0	1.5	1.5	1.5	1.5	1.5
LCTA Inventory	-	-	-	-	-	-
LCTA Monitoring	158.0	115.0	-	-	-	-
Special Studies	-	-	-	-	-	-
Subtotal	**233.0**	**142.5**	**27.5**	**27.5**	**27.5**	**27.5**
TRI						
Training Analysis	-	40.0	-	-	-	-
Video Simulation	70.0	40.0	-	-	-	-
Land Allocation	-	-	-	90.0	-	-
Subtotal	**70.0**	**80.0**	**0.0**	**90.0**	**0.0**	**0.0**
EA						
Strategy Development	15.0	-	1.0	-	-	-
Materials Design	18.0	-	2.0	5.0	-	15.0
Materials Production	18.0	12.0	4.0	10.0	-	15.0
Survey Analysis	9.0	28.0	3.0	5.0	20.0	-
Subtotal	**60.0**	**40.0**	**10.0**	**20.0**	**20.0**	**30.0**
LRAM						
Scoping/Design	-	-	35.0	-	-	-
Rehab. Implementation	-	-	-	670.0	470.0	-
Monitoring	-	-	-	-	200.0	80.0
Subtotal	**0.0**	**0.0**	**35.0**	**670.0**	**670.0**	**80.0**
GRASS						
Hardware/Software	-	19.0	-	-	-	-
Training	-	5.0	-	-	-	-
Data Development	-	15.0	-	-	-	-
Subtotal	**0.0**	**39.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTALS	**363.0**	**301.5**	**72.5**	**807.5**	**717.5**	**137.5**

Table G-3

Camp Shelby ITAM Operationsl Costs ($000)

ITAM Activity	FY92	FY93	FY94	FY95	FY96	FY97
LCTA						
LCTA Prog. Mgr. Vehicle	-	-	12.0	12.0	12.0	12.0
Inventory	-	-	-	-	-	-
Monitoring	-	-	98.0	98.0	98.0	98.0
Subtotal	**0.0**	**0.0**	**110.0**	**110.0**	**110.0**	**110.0**
TRI						
Video Simulation	-	-	7.0	7.0	7.0	7.0
Land Allocation	-	-	-	-	15.0	15.0
Subtotal	**0.0**	**0.0**	**7.0**	**7.0**	**22.0**	**22.0**
EA						
Materials Distribution	-	-	6.0	9.0	-	15.0
Materials Update	-	30.0	24.0	9.0	6.0	15.0
Tech. Transfer	-	-	-	12.0	24.0	10.0
Subtotal	**0.0**	**30.0**	**30.0**	**30.0**	**30.0**	**40.0**
LRAM						
Rehab. Implementation	-	-	-	-	-	470.0
Maintenance	-	-	-	-	-	200.0
Subtotal	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**670.0**
GRASS						
Hardware/Software	-	-	19.0	19.0	19.0	19.0
Training	-	-	5.0	5.0	5.0	5.0
Data Development	-	-	15.0	15.0	15.0	15.0
Subtotal	**0.0**	**0.0**	**39.0**	**39.0**	**39.0**	**39.0**
Subtotal	**0.0**	**30.0**	**186.0**	**186.0**	**201.0**	**881.0**
PERSONNEL						
Training Site Env. Spec.	45.7	48.0	50.4	53.0	55.6	58.4
LCTA Prog. Mgr.	-	-	38.6	40.5	42.5	44.7
Computer/GIS Specialist	-	31.4	33.0	34.7	36.4	38.2
Subtotal	-	**79.4**	**122.0**	**128.2**	**134.5**	**141.3**
TOTALS	**45.7**	**109.4**	**308.0**	**314.2**	**335.5**	**1022.3**

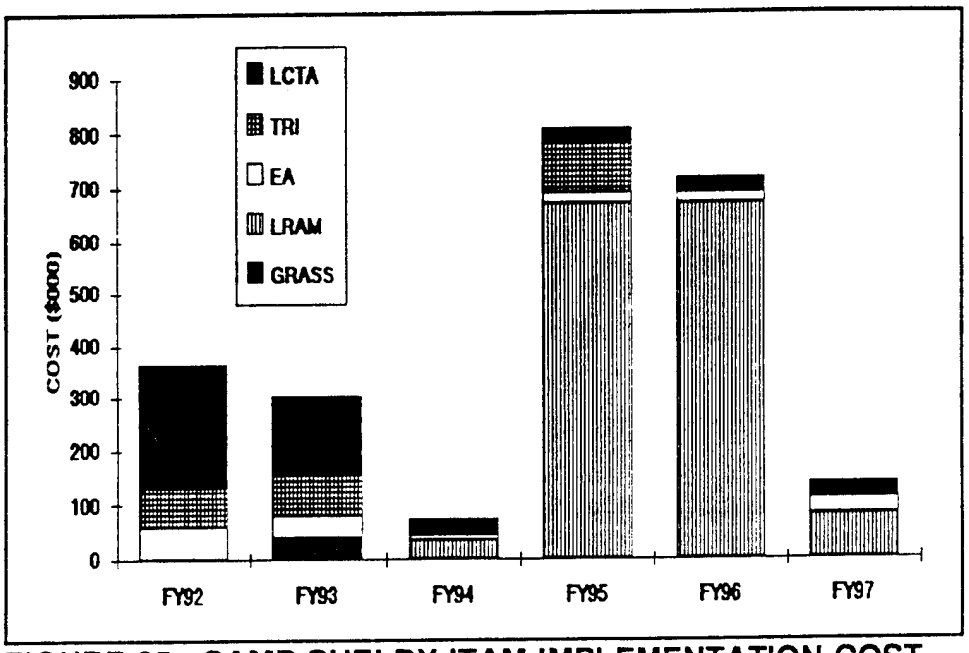


FIGURE 35. CAMP SHELBY ITAM IMPLEMENTATION COST

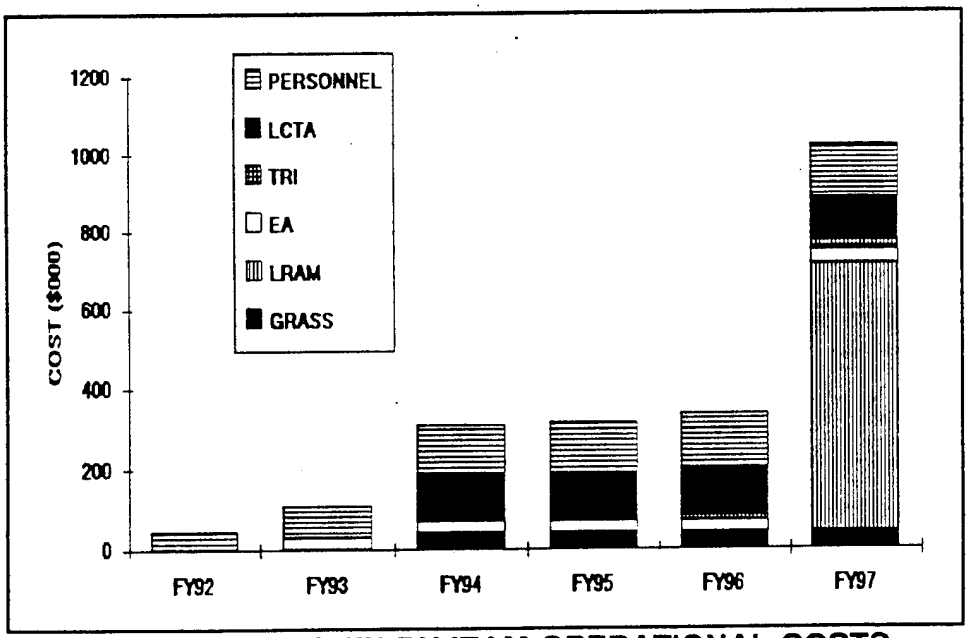


FIGURE 36. CAMP SHELBY ITAM OPERATIONAL COSTS

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Appendix H

Groundwater Drawdown Analyses for Camp Shelby, MS

GROUNDWATER DRAWDOWN ANALYSES FOR CAMP SHELBY

John B. Palmerton - 5 January 1991

BACKGROUND: A detailed geologic and groundwater resource study[1] of the Camp Shelby area was undertaken on behalf of the U.S. Army Corps of Engineers, Mobile District, by the Mississippi Geological Survey in 1944. At the time of that study, Camp Shelby was being heavily utilized in support of World War II. Much of the information for this analysis is taken from the 1944 study.

GROUNDWATER SOURCES: In the Camp Shelby area, the water bearing strata consist, from bottom to top, of the Catahoula Sandstone, the Hattiesburg Formation and the Pascagoula Formation. These strata compose the Miocene aquifer system which underlies the southern one-third of the state of Mississippi and is a very prolific source for groundwater. The water supply for Camp Shelby is taken from the Hattiesburg Formation. The major source of groundwater for the city of Hattiesburg is taken from the Catahoula Sandstone. Hydrologic connectivity between the Catahoula Sandstone and the Hattiesburg Formation is quite weak. All of these formations dip toward the south. The Hattiesburg-Catahoula contact outcrops some 15-20 miles north of the city of Hattiesburg. A geologic cross section, prepared[2] in 1987, is shown in Figure 1. This north-south cross section passes through Camp Shelby approximately 22 km east of the western-most edge of the existing camp and 16 km west of the eastern edge. Camp Shelby lies between wells 7 and 11 as indicated on the Figure. Both the Hattiesburg Formation and the Catahoula Sandstone are excellent sources of groundwater. In the vicinity of Camp Shelby, the depth to the Catahoula Sandstone is 600-700 feet.

AQUIFER HYDRAULICS: In 1944, the screens for 16 wells at Camp Shelby were all set in the lower sands of the Hattiesburg Formation at depths ranging from 300-440 feet. Pumping tests were conducted to investigate the effect of increasing groundwater usage. These tests yielded coefficients of storage ranging from 0.00018 to 0.00046 (average = 0.00031) and coefficients of transmissibility ranging from 32,300 to 133,000 gpd/ft (average = 67,000 gpd/ft). The coefficient of storage (dimensionless) is defined as the amount of water released from or taken into storage per unit surface area of the aquifer per unit change in hydraulic head normal to the surface. The coefficient of transmissibility (or transmissivity) is defined as the rate of flow through a vertical section of an aquifer whose height is the thickness of the aquifer per unit width per unit change in hydraulic head. The dimensions of transmissibility are length^2/unit time.

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[1] Brown, G. F., 1944, *Geology and Ground-Water Resources of the Camp Shelby Area*, Mississippi Geological Survey Bulletin 58, University, MS.

[2] The Earth Technology Corporation, 1987, *Regional Groundwater Flow Near Richton and Cypress Creek Domes, Mississippi: Annual Status Report for Fiscal Year 1984*, BMI/ONWI -640, prepared for Office of Nuclear Waste Isolation, Battelle Memorial Institute, Columbus, OH.

CAMP SHELBY WATER USAGE: During the years 1941-1944, daily pumpage at Camp Shelby ranged from 650,000 to 7,350,000 gpd (average = 4,000,000 gpd). This rate is far in excess of the 564,000 gpd currently being pumped. The following table shows the daily pumpages for Camp Shelby for the first eleven months of 1990. The data indicate that water pumpage has decreased considerably during the latter months of 1990; a time in which activity at Camp Shelby has rapidly increased in support of Desert Shield operations in the Persian Gulf. The reason for this apparent decrease in water consumption is not known.

Table H-1
Camp Shelby Daily Water Usage, Jan-Nov 1990 (Gallons per Day)

Avg Daily Usage	Well Number						
	1	2	3	4	5	Total	% of Total
January	350,723	147,203	109,342	156,546	17,796	781,611	12.6
February	32	175,296	171,578	24,506	269,901	641,315	10.3
March	267,335	124,967	0	43,256	114,177	549,739	8.9
April	246,644	47,730	94,539	657	94,736	484,309	7.8
May	274,243	134,407	75,921	58,421	48,223	591,217	9.5
June	263,684	217,368	118,092	90,756	27,335	717,236	11.6
July	226,776	106,940	227,434	49,671	61,776	672,598	10.8
August	254,375	36,809	217,664	70,197	121,381	700,427	11.3
September	164,638	27,467	69,243	92,532	62,598	416,480	6.7
October	136,348	15,690	73,947	84,835	30,756	341,578	5.5
November	125,756	9,276	105,230	38,421	25,888	304,572	4.9
11 Mo. Avg	210,050	94,832	114,817	64,527	79,506	563,735	100.0
% of Total	37.3%	16.8%	20.4%	11.4%	14.1%	100.0%	
Total Daily Usage (11 Month Average) = 563,735 Gallons per Day							

WELL DRAWDOWN HYDRAULICS: Theis' modified equation[3] may be used to compute the drawdown, d, at any distance, r, from the center of a well which fully penetrates a confined aquifer. The Theis equation, when employed for large values of time, may over- or underestimate the drawdown since the formulation assumes a constant piezometric surface at large radial distances from the

[3] Theis, C. V., 1935, *The Relation Between the Lowering of the Piezometric Surface and the Rate and Duration of Discharge of a Well Using Ground Water Storage*, Transactions of the American Geophysical Union, pp. 519-524.

pumping and observation wells; therefore, the Theis equation does not include the effects of regional fluctuations in the groundwater levels. The equation is given as:

$$d = [0.08\ Q/T] \log_e 0.3Tt/r^2\ S$$

where

d is the drawdown (in feet) at a distance,
r (in feet) from the well,
T is the transmissibility (in gpd) of the aquifer,
S is the coefficient of storage,
Q is the pump rate in gallons per day (gpd),
and t is the time (in days) from start of pumping.

Substituting the previously determined values for the transmissibility (67,000 gpd) and the coefficient of storage (0.00031) into the above and rearranging gives

$$d = 1.18X10^{-6}\ Q\ [18 + \log_e t/r^2]$$

as an expression for computing the drawdown. The following table, for a 12-inch diameter well, was constructed from the above equation. Since the drawdown is proportional to Q, the drawdown for pumpage rates not listed may be determined by adding the drawdowns for combinations of given pump rates. That is, the 5 year drawdown for a Q of 50,000 gpd is obtained by adding the drawdown for 40,000 gpd (1.28 ft) to the drawdown for 10,000 gpd (0.32 ft) to give 1.60 ft.

Table H-2
Drawdown, d, (ft) - 12-inch diameter well

Q (gpd)	.5 Yrs	1 Yr	5 Yrs	10 Yrs	50 Yrs
10,000	0.29	0.30	0.32	0.33	0.35
20,000	0.58	0.60	0.64	0.66	0.69
40,000	1.17	1.20	1.28	1.31	1.39
70,000	2.04	2.10	2.24	2.29	2.43
100,000	2.92	3.00	3.19	3.28	3.47
200,000	5.84	6.00	6.39	6.55	6.93
400,000	11.67	12.01	12.77	13.10	13.87
700,000	20.43	21.01	22.35	22.93	24.27

The above table may also be used to estimate the additional drawdown which would result from an increase in water usage provided the well of interest has more or less achieved equilibrium at some previous pumpage rate. For example, if pumpage is increased by 50,000 gpd for Well #1 (from Table 1), it is estimated that the drawdown would increase by 1.60 ft after 5 years and 1.74 ft after 50 years.

CAMP SHELBY GROUNDWATER LEVELS: Information on 21 wells located within Camp Shelby has been provided by the United States Geological Survey (USGS). The depths of the wells varied between 319 and 550 feet (average = 422 ft). The depths to water within these wells varied between 118 and 175 feet (average = 149 ft). All of the wells were screened within the Hattiesburg Formation. The water level in one of these wells (Well G116, located in the NE quarter of the SW quarter of Section 27, Township 3N, Range 12W, latitude 31° 11.6', longitude 89° 10.8') has been monitored since 1943. This well is located within the housing and administration areas (the NW corner) of the camp. The graph of time vs. water level is shown in Figure 2. The water level in Well G116 rose approximately 13 feet (1.18 ft/yr) during the interval between 1943 and 1954. Since that time the water level has decreased approximately 23 feet or 0.64 ft/yr. These observations indicate that the water level (at Well G116) has fallen approximately 10 feet since the time of the high usage (4,000,000 gpd average) during 1941-1943. The trend of water level decline appears to be lessening during the last 5 years. The USGS has, in a 1982 study[4], reported that water levels throughout the southern region of Mississippi (in the Hattiesburg and Pascagoula Formations) have been regionally declining by 1 to 2 ft/yr. A well measurement (reported by the USGS) near McLaurin, MS, (some 4 km southwest of Well G116) has indicated a water level decline of 53 ft between 1967 and 1981. The water level within a well at Paul B. Johnson State Park (some 10 km southwest of Well G116) declined 100.65 ft between 1960 and 1981. The trend at Camp Shelby (0.64 ft/yr) is less than the regional trend.

CONCLUSIONS: This study effort has been focused on the available historical information. The data located to date are sparse and incomplete in many respects.

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[4] Gandl, L. A., 1982, *Characterization of Aquifers Designated as Potential Drinking Water Sources in Mississippi*, U.S. Geological Survey, Jackson, MS.

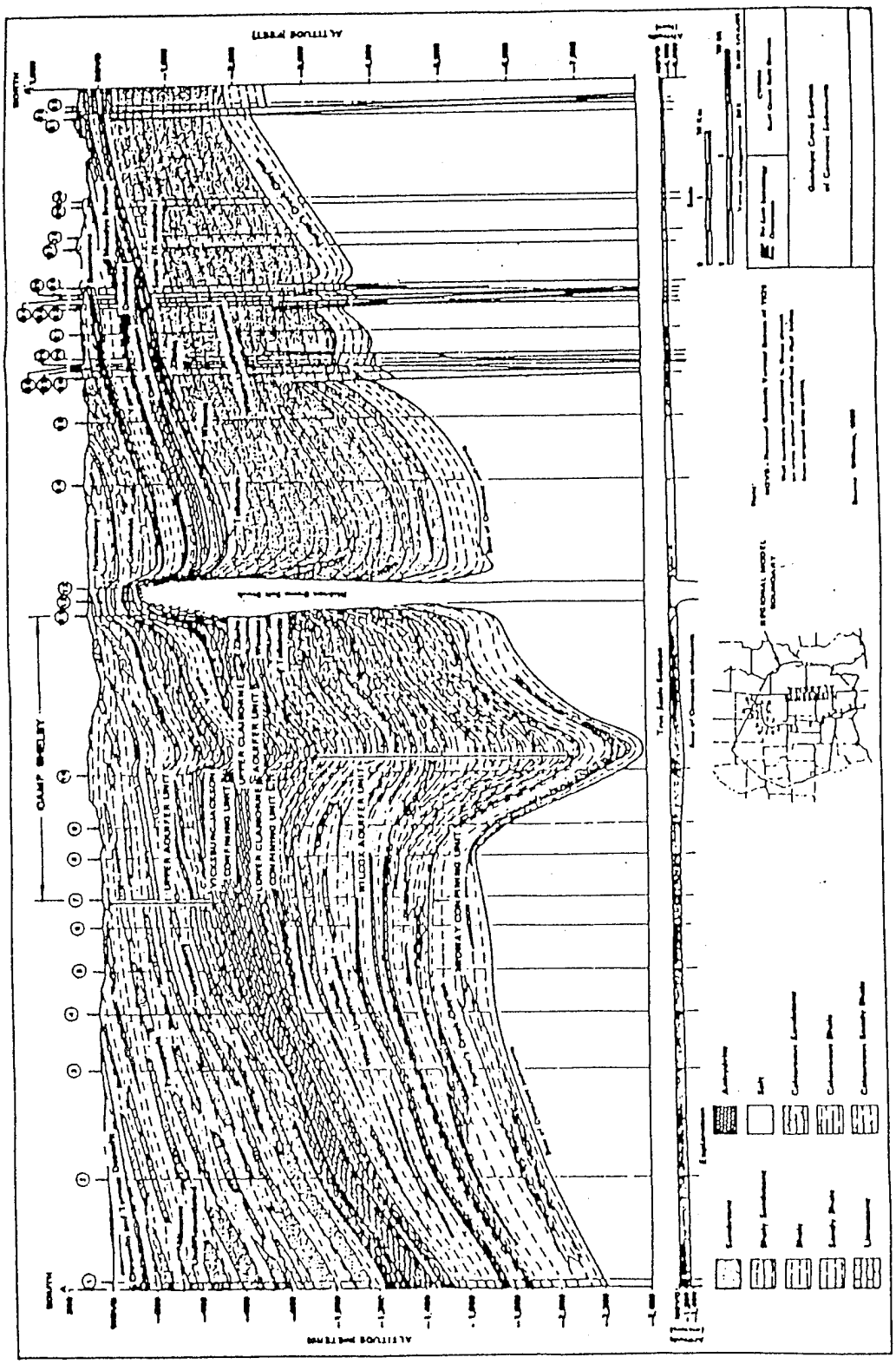


Figure 1. Geologic Cross Section of the Camp Shelby Area

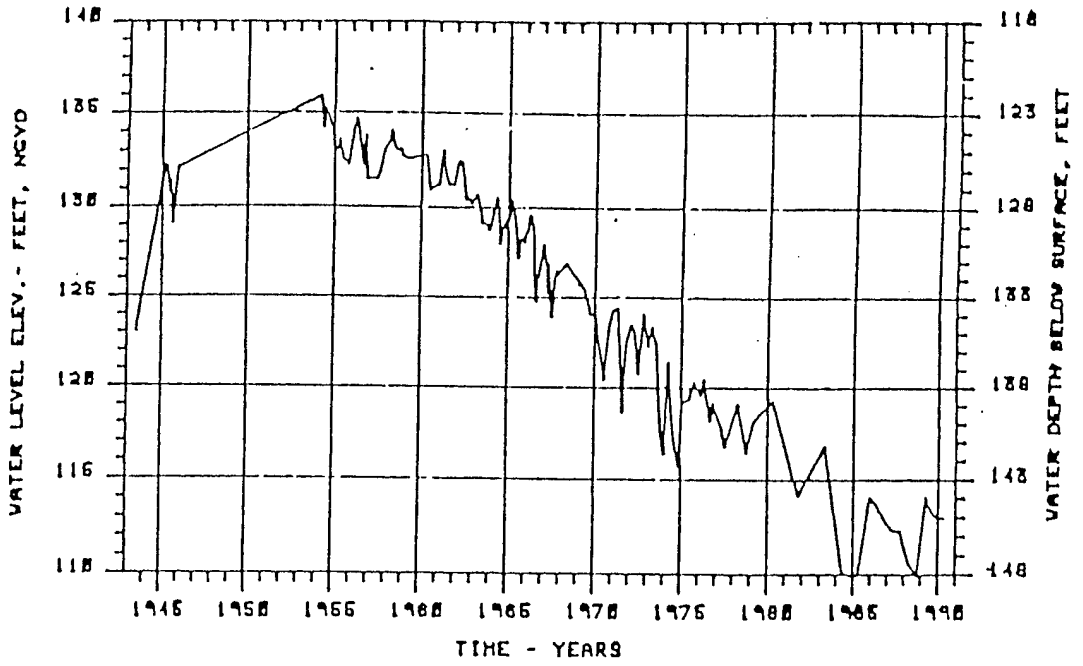


Figure 2. Water Level in Well G116, Camp Shelby.

Although information exists on many water production and observation wells, data specifics pertaining to precise geographic location (including vertical elevation control) and pumping quantities are lacking. Additional field reconnaissance would be necessary to complete the data base. In addition, very little recent information in regard to groundwater usage by other users withdrawing water from the Hattiesburg Formation has been located. At present, it is not possible to make accurate rational predictions of groundwater levels at Camp Shelby.

The cause of the lowering of the water levels in Well G116 at Camp Shelby by some 23 feet since 1954 is not understood at this time; however, the Hattiesburg Formation aquifer is of sufficient depth and extent to provide sufficient water to the facility and the neighboring community for the foreseeable future. In the unlikely event that aquifer levels continue to fall to such a degree that the groundwater supply within the region is seriously disrupted, additional large quantities of groundwater are available within the underlying Catahoula Sandstone or could be made available from surface sources (the present groundwater consumption of 564,000 gpd at Camp Shelby is equivalent to 630 acre-feet per year).

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Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix I

Noise Assessment for Camp Shelby

ENVIRONMENTAL NOISE ASSESSMENT FOR CAMP SHELBY

NOTE: Three additional sections have been added to Appendix I since the DEIS was issued. These sections are included in this version for your information but have not been fully incorporated into the body of the text at this time.

1. REFERENCES: A list of the references used in this report can be found in Attachment A.

2. PURPOSE: To document Army noise at Camp Shelby with data, to develop noise contours for interpretation of existing conditions and to assist in the prediction of future site noise.

3. GENERAL:

Regulatory Background

a. A characteristic of environmental noise is that it is not steady, but varies in amplitude from one moment to the next. To account for these variations and to assess environmental noise in a uniform manner, the U.S. Environmental Protection Agency (EPA) (reference 1) endorsed the day-night level (DNL) as the acceptable noise evaluator. This evaluator is used by many Federal and State agencies, including the Department of Defense, Department of Housing and Urban Development, and the Federal Aviation Administration (FAA), as the standard for describing environmental noise impact.

b. The Noise Control Act of 1972 (reference 2) states,

> ...that it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health and welfare and that Federal agencies (1) having jurisdiction over any property or facility, or (2) engaged in any activity resulting, or which may result, in the emission of noise, shall comply with Federal, State, interstate and local requirements... [Section 4(b)].

In Section 6 of the Act, the Administrator of the EPA is directed to establish noise emission standards for products and to prescribe regulations for such products. However, in Section 3, Congress excluded from the definition of product any military weapons or equipment which are designed for combat use.

c. The Office of the Judge Advocate General (reference 3) states,

> In light of this, we think the correct Army policy with respect to the Noise Control Act is that all Army activities should endeavor to comply with all Federal, State and local requirements respecting the control of noise as stated in

Section 4(b) of the Act, unless to do so would conflict with the Army's mission. The obligation to comply with State and local noise laws arises out of the Army's policy' of cooperation on environmental matters generally.

In accordance with Army Regulation (AR) 200-1 (reference 4), questions regarding the applicability of State and local laws and regulations should be referred to the command legal officer and, through channels, to the Office of the Judge Advocate General.

d. Chapter 7 of-AR 200-1 (reference 4) implements all Federal laws concerning environmental noise from Army activities through the ICUZ Program. The ICUZ Program defines three noise zones:

(1) Zone I - compatible.

(2) Zone II - normally incompatible.

(3) Zone III - incompatible.

e. These compatibility zones are used for land use planning to prevent conflicts with noise-sensitive land uses, such as residential housing and hospitals. Land uses such as commercial, industrial and agricultural (except livestock), are compatible with most noise environments. A listing of land use compatibilities is contained in reference 5.

f. Military noise environments are generally characterized by three types of noise.

(1) Transportation noise resulting from aircraft and vehicle, activities is best described in terms of the A-weighted DNL (ADNL). The A-weighting scale closely resembles the frequency response of human hearing and, therefore, provides a good indication of the impact of noise produced by transportation activities. The compatibility levels for ADNL were developed through social surveys conducted by many government and private organizations.

(2) High amplitude impulsive noise resulting from armor, artillery and demolition activities is described in terms of the C-weighted DNL (CDNL). The C-weighting scale measures more of the low frequency components of this noise than the A-weighting scale does. These low frequency components can cause buildings and windows to rattle and shake. This is an important ingredient in a person's perception of the annoyance from impulsive noise activities. The compatibility levels of CDNL were developed through research studies performed by the FAA and CERL.

(3) Currently, we do not use DNL to evaluate the noise from small arms ranges. The linear peak sound level (dBP) is used to define these noise zones. The dBP weights all frequencies of the noise equally and was found to give the best correlations between the noise from small arms ranges and the percent of the population highly annoyed.

g. Table 1 represents the current consensus on the three noise zones. A detailed description of noise levels, weighting schemes, standards and guidelines can be found in reference 6 and Attachment B.

Table I-1
Land Use Planning Guidelines

Noise Zone	% of Population Highly Annoyed	Noise Limits		
		Transportation ADNL	Implulsive CDNL	Small Arms dBP
I	<15	<65 dBA+	<62 dBC#	<87 dBP*
II	15-39	65-75 dBA	62-70 dBC	87-104 dBP
III	>39	>75 dBA	>70 dBC	>104 dBP

+ dBA = A-weighted decibels
# dBC = C-weighted decibels
* dBP = Peak noise decibels

4. NOISE CONTOURS:

a. The primary means of assessing environmental noise is through computer simulations, since direct measurements of noise levels would be impractical, expensive and often inconclusive. Computer simulations can be summarized on installation land use maps to be incorporated into the installation master plan and National Environmental Policy Act (NEPA) documentation.

b. Impulsive Noise.

(1) The noise simulation program used to assess impulsive (heavy weapon) noise is MicroBNOISE. The MicroBNOISE program requires operational data concerning type of weapons fired from each range or firing point, including demolitions; the number and type of rounds fired from each weapon; the location of targets for each range or firing point; and the amount of propellant used to reach the target. Existing records on range utilization, along with reasonable assumptions, are used as MicroBNOISE inputs.

(2) The inputs used to generate the noise contours for the existing operations. The noise was averaged over 250 days. All data was collected by the Department of the Army, Environmental Hygiene Agency, Aberdeen Proving Ground, Maryland.

(3) The noise zones for the small arms ranges were generated using a model published in Technical Guide No. 135 (reference 8). This procedure uses the equal annoyance principle to locate the noise zone boundaries. That is, the outer noise bone II

boundary is located at a distance from the range where 15 percent of the population is highly annoyed. The inputs to this procedure are the range location, weapons, fired on the range, and the direction of fire.

5. FINDINGS AND DISCUSSION:

a. Noise Contours

Unlike a topographic contour, noise contours are not intended to be precise representations of the noise zones. Geographic features, meteorology, the receiver's perception of the source, etc., can influence the impact of noise. Noise contours do not clearly divide noise zones, with one side on the line compatible and the other side incompatible. A practical way to view noise contours is that Zone I is an area where the majority of people adapt to noise, Zone II is where most people can adapt to the noise, and Zone III is where most people would find it difficult to adapt to the noise, regardless of the circumstances. Nonetheless, the use of noise contour maps have proven to be a reliable planning tool in noise-affected areas throughout the United States.

Figures 1, 2 and 3 show noise contours for Camp Shelby for the years 1987, 1988 and 1989 respectively. It is clear that neither zones II or III leave the installation since the outer most contour is 62 dBA. It should also be pointed out that the area of contours are increasing through this period. However the peak year 1989, shows both zones II and III within the installation boundry.

b. Annoyance from Noise.

(1) Even though the noise contours show a minimal impact, people living near RAAP may be annoyed and could complain about the noise environment. The amount of annoyance also depends on the time of day the noise takes place, the background noise environment, and the location (indoors or outdoors) of the person at the time. The annoyance and complaint potential from single events, such as an aircraft flyover, is highly subjective, and limited data exists in this area. The results of studies from the Naval Surface Weapons Center (NSWC), Dahlgren, Virginia, for impulsive noise are described below.

(2) The usual complaint pattern is that economic activity, unrelated to the installation, leads to increased population and development in the vicinity. Segments of the new population who are not economically dependent on the installation tend, to be annoyed by the noise or other aspects of the government presence. The noise from the ranges provides a specific and undeniable object of complaint. As time goes on, the complainers become more articulate and eventually address their complaints to higher levels of command and government. When the situation becomes political, the ability to perform the mission can be impaired.

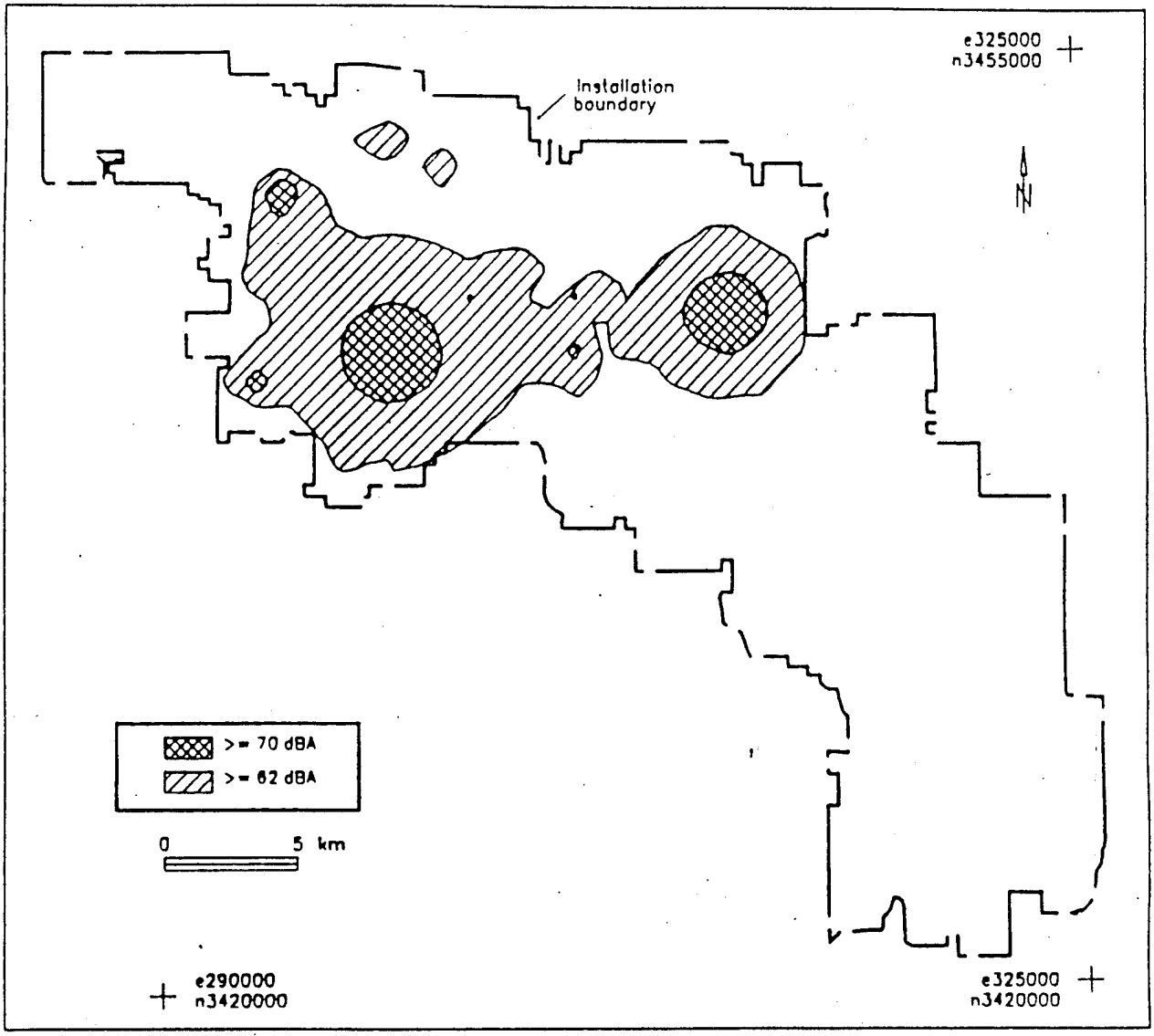


FIGURE 1. 1987 Noise Contours at Camp Shelby

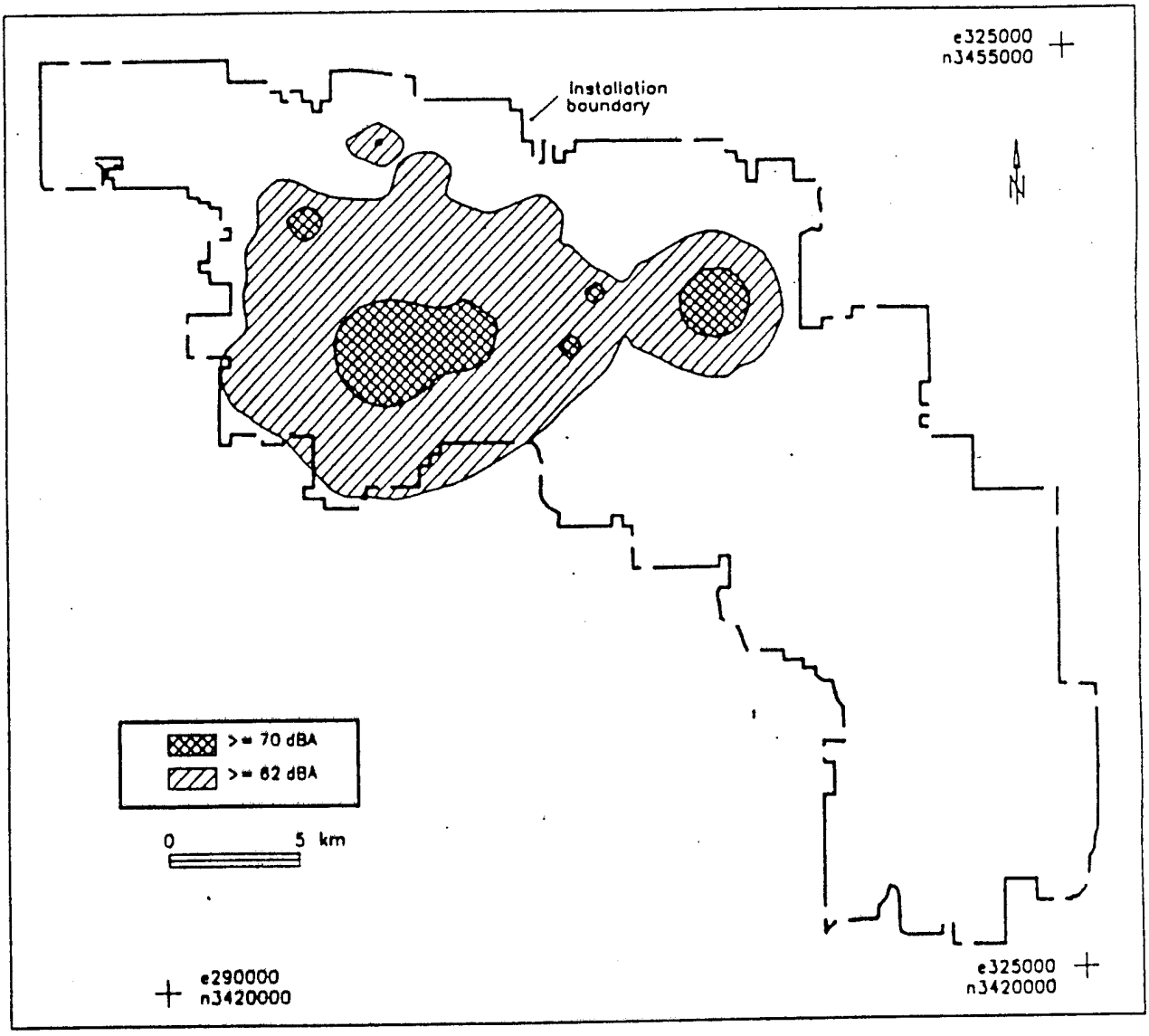


Figure 3. 1989 Noise Contours at Camp Shelby

(3) When contemplating noise limit criteria for impulse noise, one finds very little objective guidance available. Factors to be considered include the possibilities of structural damage to buildings and physiological damage to humans and the likelihood of receiving noise complaints. It appears fairly certain that the first structural damage to occur, as impulse sound intensity increases, is window breakage. The threshold is approximately 150 dBP to crack a poorly mounted window pane. The threshold for physiological damage is approximately 140 dBP. The threshold for annoyance is certainly lower than 140 dBP and varies greatly among individuals. Individual response of community members to noise depends on many factors. Some of these factors are the characteristics of the noise, including the intensity and spectral characteristics; duration; repetitions; abruptness of onset or cessation; and the noise climate or background noise against which a particular noise event occurs. Special surveys have shown that other factors include the degree of interference of the noise activity, the previous experience of the community with the particular noise, the time of day during which the intruding noise occurs, fear of personal danger associated with the activities of the noise sources, socio-economic, status and educational level of the community, and the extent to which the people believe the noise output could be controlled.

(4) To evaluate the complaint potential from impulsive noise, we used a set of guidelines (reference 9) developed by the NSWC. These guidelines for delaying tests at Dahlgren are based on more than 10 years of experience using meteorological forecasts. The guidelines are shown in Table 2. These levels resulted from the best compromise of cost, efficiency of range operations, and good community relations. It is estimated that the range of C-weighted peak levels at the nearest boundary to the Ballistics Range is 110 to 120 dBC.

Table I-2
Impulse Noise Guidelines

Measured C-weighted Peak Sound Level (dBC)	Risk of Complaints	Action
<110	Low risk of noise complaints.	Fire all programs.
110-125	Moderate risk of complaints.	Fire important noise tests. Postpone noncritical testing, if feasible.
125-135	High risk of noise complaints, possibility of damage.	Only extremely important tests should be fired.
>135	Threshold for permanent physiological damage to unprotected human ears. High risk of physiological and structural damage claims.	Postpone all explosive operations

Note: For rapid fire test programs and/or programs that involve a large number of repetitions of impulse noise, increase allowed sound levels by 15 dBC.

(5) The average levels are used for a specific set of meteorological variables. The small variance in the CSEL from one round to the next indicates that the meteorological conditions are steady during testing. Studies have found that variation of temperature and wind velocity with altitude can cause a noise event to be inaudible at one time and highly annoying at another time. This phenomenon is referred to as atmospheric refraction. Atmospheric refraction is the bending of a sound ray caused by the variation with altitude of the speed of sound, which is a function of temperature and wind velocity. This bending of the sound rays can concentrate acoustic energy, causing, sound levels to be significantly greater. Conversely, the sound rays can also be bent upward so that the acoustic energy of the event is dissipated by the atmosphere, resulting in a lower sound level on the ground.

(6) A simplified technique has been developed by the University of Utah Explosives Research Group (ERG) (reference 10) to predict atmospheric refraction conditions. The ERG technique summarizes the results of this research into a series of "good" and "bad" firing times. These results are listed in Table 3. This technique provides a good first approximation of the effects of the existing weather conditions on noise propagation. The RAAP could use this technique to reduce the possibility of complaints.

Table I-3
"Good" and "Bad" Firing Conditions

"Good" Conditions	"Bad" Conditions
Clear skies with billowy cloud formation, especially during warm periods of the year. A rising barometer immediatley following a storm.	Days of steady wind so 5-10 mph with gusts of greater velocities (above 20 mph) in direction of residences close by. Clear days on which "layering" of smoke or fog are observed. Cold, hazy or foggy mornings. Days following a day when large extremes of temperature (about 20°C) between day and night are noted. Generally high barometer readings with low temperature.

c. Installation Compatible Use Zone

(1) The ICUZ is a concept of achieving compatible land use in nongovernment areas around military installations. The purpose of ICUZ is to prevent incompatible development in high noise exposure areas and to protect the operational capability of the installation.

(2) The best way to prevent incompatible development in the existing high noise exposure areas is to continue to coordinate with local planning and zoning agencies. This continued coordination will assure that these agencies consider the noise environment when making their decisions and, through the use of the zoning process, plan for only compatible new devlopments near high noise areas, such as airfields and ranges.

(3) In addition to achieving land use compatibility through public involvement, other elements of the ICUZ Program, as established by AR 200-1 (reference 4), include:

(a) Quantification of Existing and Future Noise Environments. This consultation provides the noise contours for the existing and future environments. If the noise environment is projected to change significantly in the future, contours for these noisy operations will need to be generated.

(b) Review of Installation Master Plan. The installation master plan needs to be reviewed to ensure that existing and future facility citing is consistent with the noise envlronment. Also, the citing of noise-producing facilities, such as ranges, should be compatible with the neighboring land uses.

(c) Identification of Facilities/Operations that Create a Noise Impact. Once a noise impact has been identified, it is necessary to determine the cause of this impact and investigate possible mitigation. Mitigation can include moving the noise source, limiting its hours of operation, or constructing a barrier around the source.

(d) Establishment of an ICUZ Committee. Since the ICUZ program requires knowledge in many varied fields of expertise, a committee with the membership listed in AR 200-1, paragraph 7-5b(1), is needed to-administer the program. The committee will review noise complaints; investigate and recommend mitigative actions; coordinate with the public; assess installation activities for possible noise impacts; monitor land development plans, programs and projects; and review development of onpost facilities.

(e) Establishment of a Complaint Procedure. A noise complaint procedure is required to log and investigate all complaints. The minimum requirements of the complaint procedure are, listed in AR 200-1, paragraph 7-3. A successful complaint procedure will assist in avoiding community action against RAAP activities.

6. CONCLUSIONS:

a. The noise contours have increased over the years from 1987 to the current contours.

b. Zone III, under current conditions, is contained well within the installation and does not impact upon any noise-sensitive land uses.

c. Zone II, under current conditions, is also contained within the installation and does not impact upon any noise-sensitive land uses.

d. There is a potential for complaints during certain meterological conditions.

7. RECOMMENDATIONS:

a. Prepare an ICUZ report, as directed by AR 200-1, paragraph 7-5, and as discussed in paragraph 5d of this report.

b. Use the University of Utah's table of good and bad conditions (Table 3 of this report) to mitigate blast complaints.

c. Establish a noise complaint procedure, as required by AR 200-1, paragraph 7-3, and as discussed in paragraph 5d(3)(e) of this report.

NOISE ASSESSMENT OF AIR TO GROUND OPERATIONS CAMP SHELBY, MS

1. References.

a. Armstrong Aerospace Medical Research Laboratory Report No. AARML-TR-88-060, September 1988, ROUTEMAP Model for Predicting Noise Exposure from Aircraft Operations on MilitaryTraining Routes.

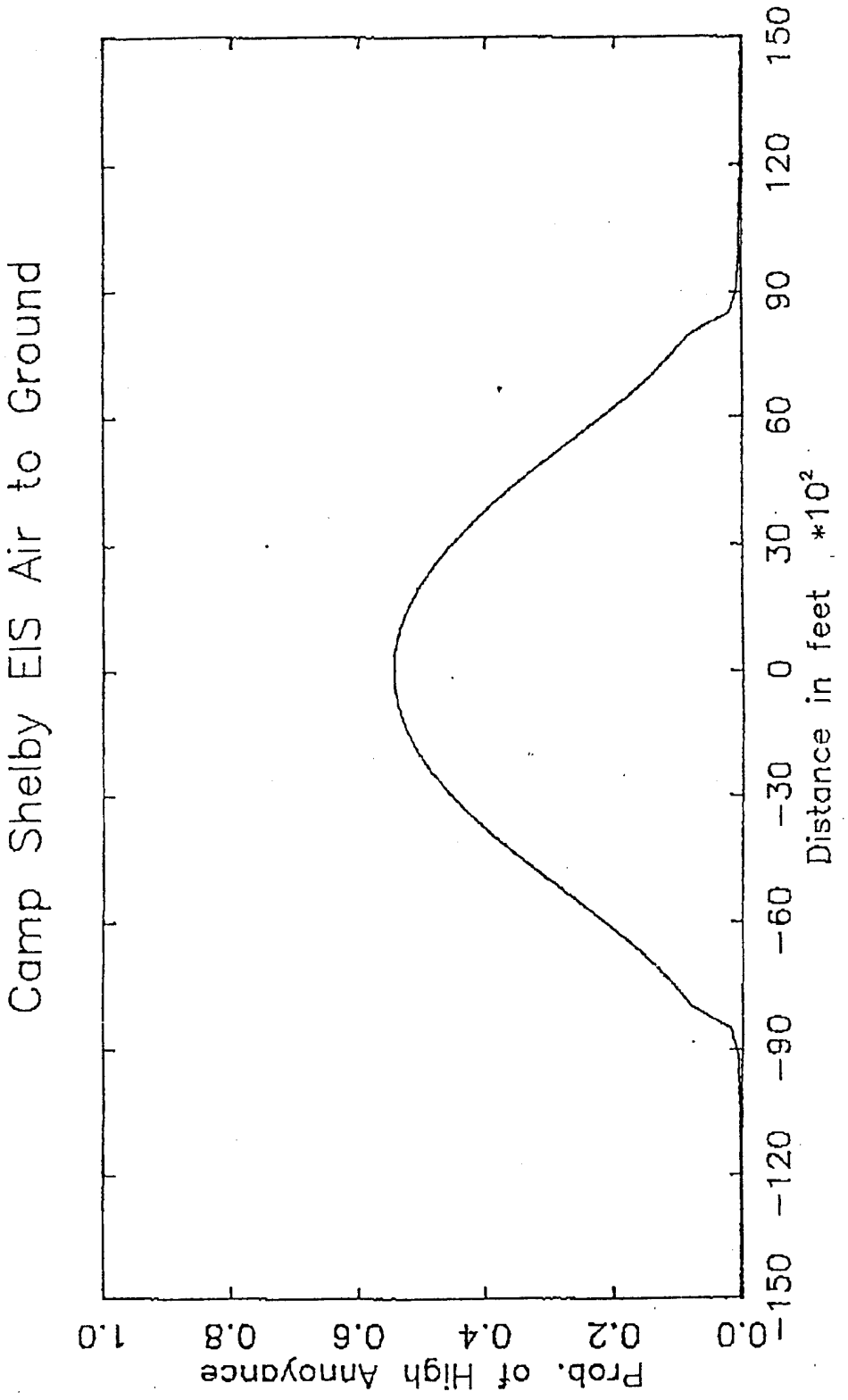
b. Draft Environmental Assessment, 28 February 1991, Establishment of the Air Combat Maneuvering Instrumentation (ACMI) System And Modification to Airspace For the Mississippi Air National Guard Gulfport Combat Readiness Training Center, Air National Guard Base, Gulfport, Mississippi.

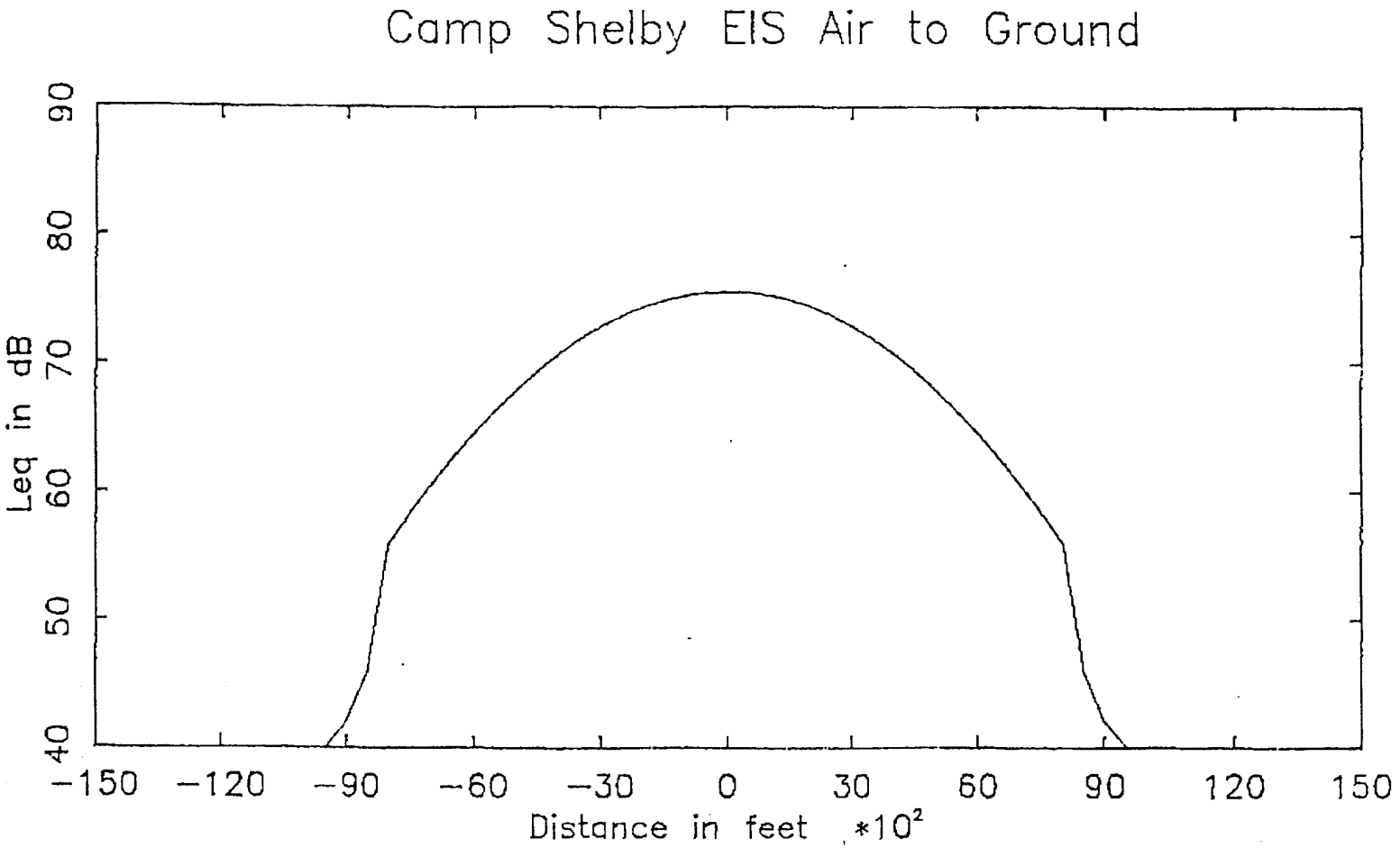
2. The noise contours for the corridors used for entering and exiting the Camp Shelby Air to Ground range were generated using ROUTEMAP (reference 1a). ROUTEMAP is a model developed for the U.S. Air Force by Wyle Laboratories used for predicting noise exposure from aircraft operations on military training routes. The inputs to the model are the altitude, power setting, speed and number of operations by aircraft type for a one month period. The required operational data were obtained from reference lb. An altitude of 100 feet was used since this is the lowest altitude used for operations at the range. These data are listed in Table 1.

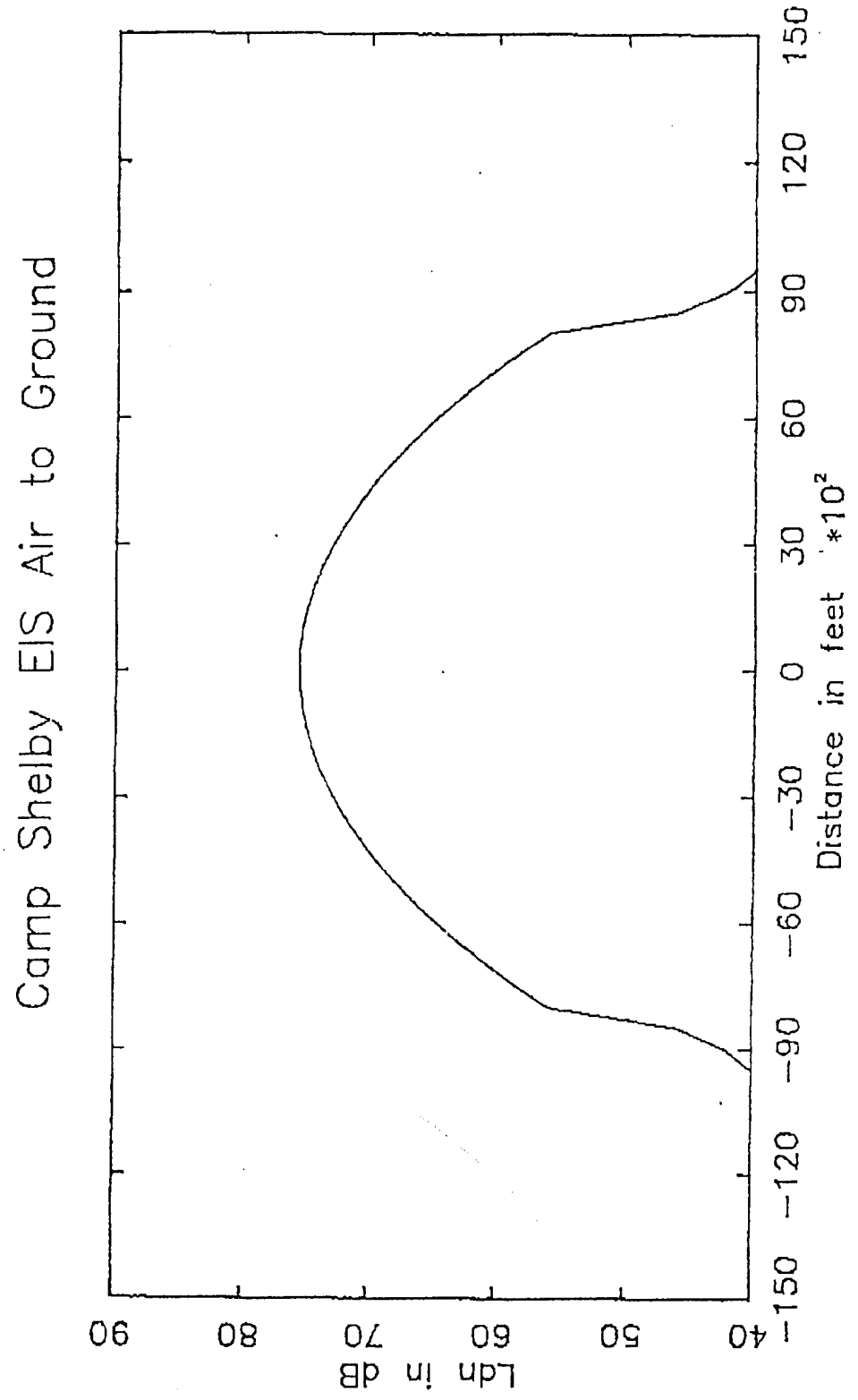
Table I-4
Operational Data Used in ROUTEMAP

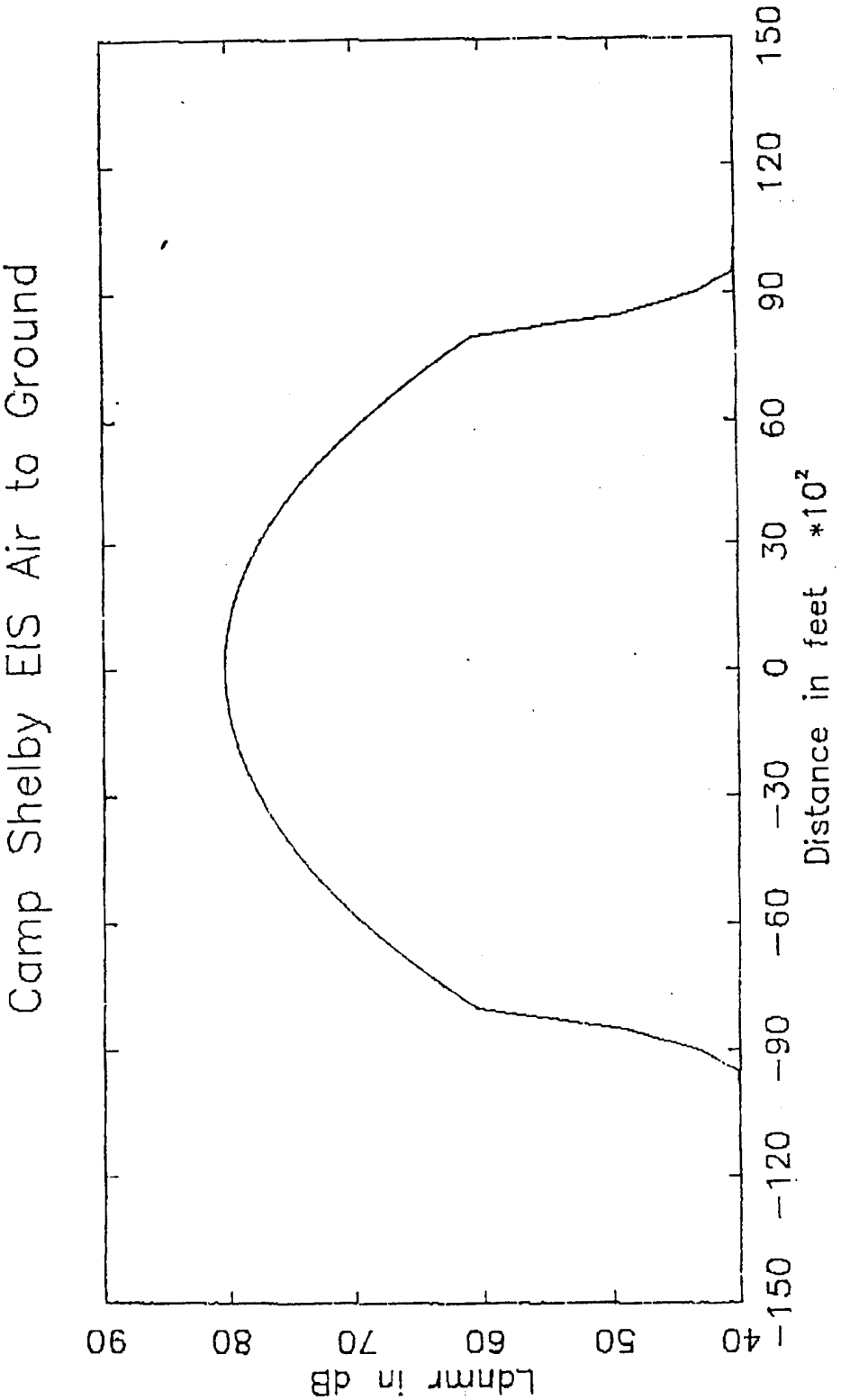
Aircraft	Airspeed (knots)	Power Setting	Daily Sorties
A-7	300	89%	2
A-10	300	6200NF	10
F-4	480	92%	2
F-15	480	87%	4
F-16	480	87%	8
F-18	480	87%	6

3. The outputs of the ROUTEMAP program are shown in Figures 4, 5, 6, and 7. These data are summarized in Table 2. The metrics are explained in the following paragraphs.


Camp Shelby EIS Air to Ground
Prob. of High Annoyance
0.0
0.2
0.4
0.6
0.8
1.0
-150
-120
-90
-60
-30
0
30
60
90
120
150
Distance in feet *10²


Camp Shelby EIS Air to Ground
Leq in dB
90
80
70
60
50
40
-150
-120
-90
-60
-30
0
30
60
90
120
150
Distance in feet *10²


Camp Shelby EIS Air to Ground
Ldn in dB
90
80
70
60
50
40
Distance in feet *10²
150
120
90
60
30
0
-30
-60
-90
-120
-150


Camp Shelby EIS Air to Ground
Ldnmr in dB
90
80
70
60
50
40
Distance in feet *10²
150
120
90
60
30
0
−30
−60
−90
−120
−150

a. The equivalent sound level (LEQ) is the equivalent steady state sound level which, in a stated period of time, would contain the same acoustic energy as the time-varying sound during the same period. The LEQ is an energy average. The energy average puts more emphasis on the higher sound pressure levels than the arithmetic average. The LEQ is usually computed for a 1-minute, 10-minute, 30-minute, 1-hour, 8-hour or 24-hour segment of environmental noise.

b. To assess the added annoyance of the environmental noise during the nighttime hours (2200 - 0700 hours), the day-night level (DNL) is used. The DNL is the 24-hour LEQ, with a 10 dB penalty added to the nighttime levels.

c. By using the LEQ and DNL, the three important determinants of noise annoyance can be described by using a single number. The three determinants are the intensity of the noise event, the duration of the noise event, and the number of times the noise event takes place. Numerous laboratory and field studies have confirmed that the tradeoff between intensity, duration and number is adequately described by averaging the total acoustical energy.

d. The noise from jet aircraft operations on a military training route is unique in several respects. The combination of low altitudes and high air speeds results in noise signatures with high levels and short durations. This results in a very rapid onset that may produce a startle response. Also, the noise events are highly sporadic. To account for the rapid onset and sporadic events, the onset rate-adjusted monthly day-night level (DNRML) is used. The DNRML is a monthly DNL which is adjusted for the added annoyance caused by the rapid onset of the noise.

Table I-5
Width of Noise Zones (meters)

Metric	Zone II	Zone III
LEQ	3,575	775
DNL	3,600	925
DNRML	4,350	2,550

4. Figure 5 shows the probability of high annoyance. This figure shows that at a distance of 1,150 meters to the side of the range, there is a 40 percent probability of high annoyance. At 1,900 meters, the probability is 20 percent.

NOISE ASSESSMENT FOR TANK TRAILS
CAMP SHELBY, MS

1. References.

a. Federal Highway Administration Report No. FHWA-RD-78-139, User's Manual: FHWA Highway Traffic Noise Prediction Model, SNAP 1.0, January 1979.

b. U.S. Army Construction Engineering Research Laboratory Technical Report N-60, Acoustic Directivity Patterns for Army Weapons: Supplement 3 - The Bradley Fighting Vehicle, April 1985.

c. Letter, HSHB-OB, U.S. Army Environmental Hygiene Agency, 7 June 1984, Subject: Environmental Noise Assessment No. 52-340456-84, Lima Army Tank Center, Lima, Ohio, 12-13 March 1984 and 3 May 1984.

d. Armor / Mechanized Infantry Training Descriptions, Camp Shelby EIS, prepared 30-31 March 1993.

2. The noise contours for the tank trails at Camp Shelby were generated using SNAP 1.1. SNAP 1.1 is the PC version of SNAP 1.0 (reference la). The levels used in the program for the Bradley Fighting Vehicle and the Abrams Main Tank were obtained from references lb and lc. The operational data were obtained from reference ld.

3. For the roads used between the Cantonment Area and the Training Area, the noise zone III (incompatible with noise sensitive land uses) extends 10 meters on each side of the road. Noise zone II (normally incompatible) extends 45 meters on each side of the road. These distances are based on the worst case of two battalions going to or returning from the field during the same day. It does not appear that these noise zones extend beyond the existing Camp boundary or the boundary of the proposed alternatives.

4. For the maneuver corridors between the training areas, the noise zone III extends 2 meters on each side of the corridor. Noise zone II extends 11 meters on each side of the corridor. These distances are based on one battalion moving from one training area to another using two corridors. It does not appear that these noise zones extend beyond the existing Camp boundary or the boundary of the proposed alternatives.

5. The noise levels from a M-1 Tank passby are shown in the following Table. Residents located within 200 meters of a tank trail or corridor could be annoyed by the'noise.

Table I-6 Noise Levels From M-1 Tank	
Distance (meters)	Noise Level (dBA)
50	77
100	71
200	65
500	57

NOISE ASSESSMENT OF HELICOPTER OPERATIONS
TACTICAL TRAINING AREAS
CAMP SHELBY, MS

1. References.

a. Armstrong Aerospace Medical Research Laboratory Report No. AARML-TR-88-060, September 1988, ROUTEMAP Model for Predicting Noise Exposure from Aircraft Operations on Military Training Routes.

b. Aviation Training - Mission Essential Tasklist, Prepared 30-31 March 1993.

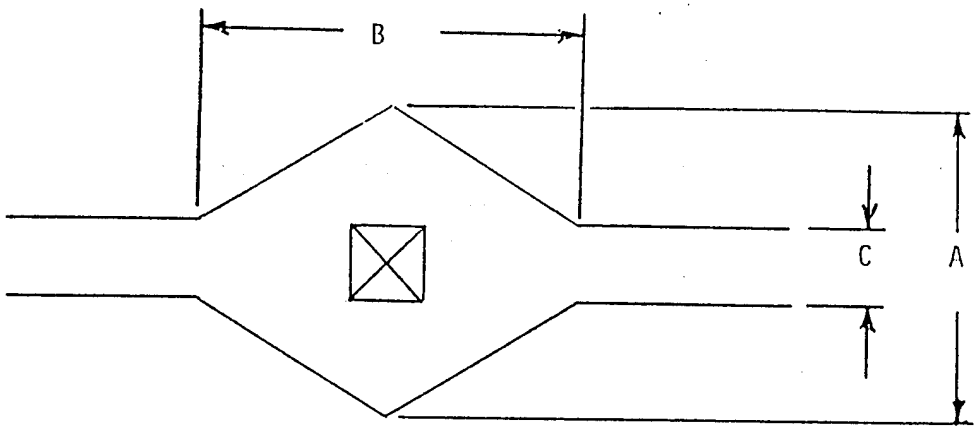
c. R. Rylander, et.al., 1974, "Re-Analysis of Aircraft Noise Annoyance Data Against the dBA Peak Concept," Journal of Sound and Vibration, Volume 36, pages 399 - 406.

d. R. Rylander and M. Bjorkman, 1988, "Maximum Noise Levels as Indicators of Biological Effects," Journal of Sound and Vibration, Volume 127, pages 555 - 563.

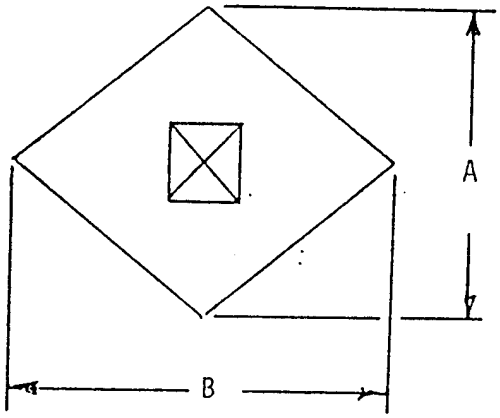
2. The distances to the noise zone boundaries for the nap of the earth (NOE) routes and the training routes between the Hagler Army Airfield and the Tactical Training Areas were generated using NOISESLICE. The NOISESLICE program is a simplified version of the U.S. Air Force ROUTEMAP (reference la) computer program. It was developed by the U.S. Army Environmental Hygiene Agency to predict the noise from operations at remote landing areas and from nap of the earth routes. The required inputs to this model include the number and type of aircraft using each area and the altitude of the aircraft at the point of interest. The revised helicopter data base has been incorporated into the model.

3. The noise zone footprints for different training scenarios at the Tactical Training Areas are shown in the Figure 8. This footprint can be overlayed on the map with the axis in the normal direction of flight, most likely, the normal wind direction.

A



Footprint Number 1



Footprint Number 2

Figure 8. Noise Zone Footprint for Tactical Training Areas.

Table I-7
Distances on Footprints

	Footprint Zone III				Footprint Zone II			
Scenario	Number	A	B	C	Number	A	B	C
IDT, UH-LH	2	120	600	-	1	430	600	410
OH-58	2	60	300	-	1	230	600	100
CH-47	1	160	600	55	1	580	600	280
AT, UH-1H/OH-58	1	160	600	55	1	580	600	280
CH-47	1	140	600	30	1	500	600	245

4. The noise zone III (incompatible) for the NOE routes extends 10 meters to each side of the route. The noise zone II (normally incompatible) extends 65 meters to each side of the route.

5. The distance that the noise zones extend to each side of the routes in and out of the Tactical Training Areas are listed in Table 1 for each scenario. The operational data for these noise zones were obtained from reference lb.

Table I-8
Distance to Noise Zone Boundaries for Routes Into and Out of Tactival Training Areas (meters)

Scenario	Zone III	Zone II
IDT, CH-47 Company	55	280
OH-58 Company	0	100
UH-1H Company	0	205
AT, UH-1H/OH-58	55	280
CH-47	30	245

6. The Scandinavian Studies (references lc and ld) have found that a good predictor of annoyance at airfields with 50 to 200 operations per day, the maximum level of the three noisiest events. The maximum noise levels for the helicopters using the Tactical Training Areas are listed in Table 2. These maximum levels are compared with the levels listed in Table 3 to find the percent of the population that would consider itself highly annoyed.

Table I-9
Maximum Noise Levels of Helicopters

	Maximum Level, dBA		
Slant Distance, meters	CH-47	OH-58	UH-LH
60	105	97	102
150	95	85	90
300	88	78	82
600	81	72	75
1,500	72	65	67

Table I-10 Percentage of Population Highly annoyed From Aircraft Noise	
Maximum Level, dBA	% Highly Annoyed
70	5
75	13
80	20
85	28
90	35

ATTACHMENT A

REFERENCES

1. EPA Report No. 550/9-74-004, March 1984, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety.

2. Public Law 92-574, 27 October 1972, The Noise Control Act of 1972 as amended.

3. Memorandum, Office of the Judge Advocate General, DAJA-EL, 3 March 1989, subject: Applicability of State and Local Noise Regulations to Army Activities.

4. AR 200-1, 23 April 1990, Environmental Protection and Enhancement.

5. Federal Interagency Committee on Urban Noise, June 1980, Guidelines for Considering Noise in Land Use Planning and Control.

6. Technical Manual 5-803-2, 15 June 1978, Environmental Protection: Planning in the Noise Environment.

7. CERL Technical Report No. N86/12, June 1986, MicroBNOISE: A User's Manual.

8. USAEHA Technical Guide No. 135, June 1983, Data Base for Assessing the Annoyance of the Noise of Small Arms.

9. L. Pater, "Noise Abatement Program for Explosive Operations at NSWC/DL," scientific paper presented at the 17th Explosive Safety Seminar of the DOD Explosive Safety Board (September 1976).

10. University of Utah Explosives Research Group Report No. 12, February 1958, Measurement of Air and Ground Shock Disturbances Arising From Demolition Activities at Letterkenny Ordnance Depot.

ATTACHMENT B

ENVIRONMENTAL NOISE EVALUATORS

1. BACKGROUND:

a. Noise is the variation of the air pressure about a mean (atmospheric) pressure. These changes in the atmospheric pressure [100,000 Pascals (14.7 pounds per square inch) (psi)] vary, from approximately 0.0006 Pascal for a whisper at 5 feet to 1,000 Pascals for the firing of an M16 rifle at the firer's ear. Because of this large range of sound pressure and the fact that the human ear responds more closely to a logarithmic scale rather than a linear scale, sound pressure level (SPL) is defined as 20 times the common logarithm of the ratio of the sound pressure to the reference pressure (0.00002 Pascal). The SPL is measured in decibels (dB). For example, if the sound pressure doubles, the SPL increases by 6 dB.

b. In environmental noise, the SPL is usually measured using one of the frequency networks of the sound level meter. Since the human ear is more sensitive to sounds of 1,000 Hertz and above than sounds of 125 Hertz and below, it is appropriate to apply a weighting function to the noise spectrum which will approximate the response of the human ear. A-weighting frequency network of the sound level meter de-emphasizes the lower frequency portion of the noise spectrum, as shown in Figure 9, to approximate the human ear's response to the noise. Thus, the A-weighting of the frequency content of the noise signal has been found to have an excellent correlation with the human subjective judgment of annoyance to the noise. The SPL's measured using the A-weighting network are expressed as dBA.

c. To assess the additional annoyance caused by low frequency vibration of structures, the C-weighting network is used to evaluate the impulsive noise from all weapons larger than small arms. The relative frequency response of the C-weighting network is also shown in Figure 9. The SPL's measured using the C-weighting network are expressed as dBC.

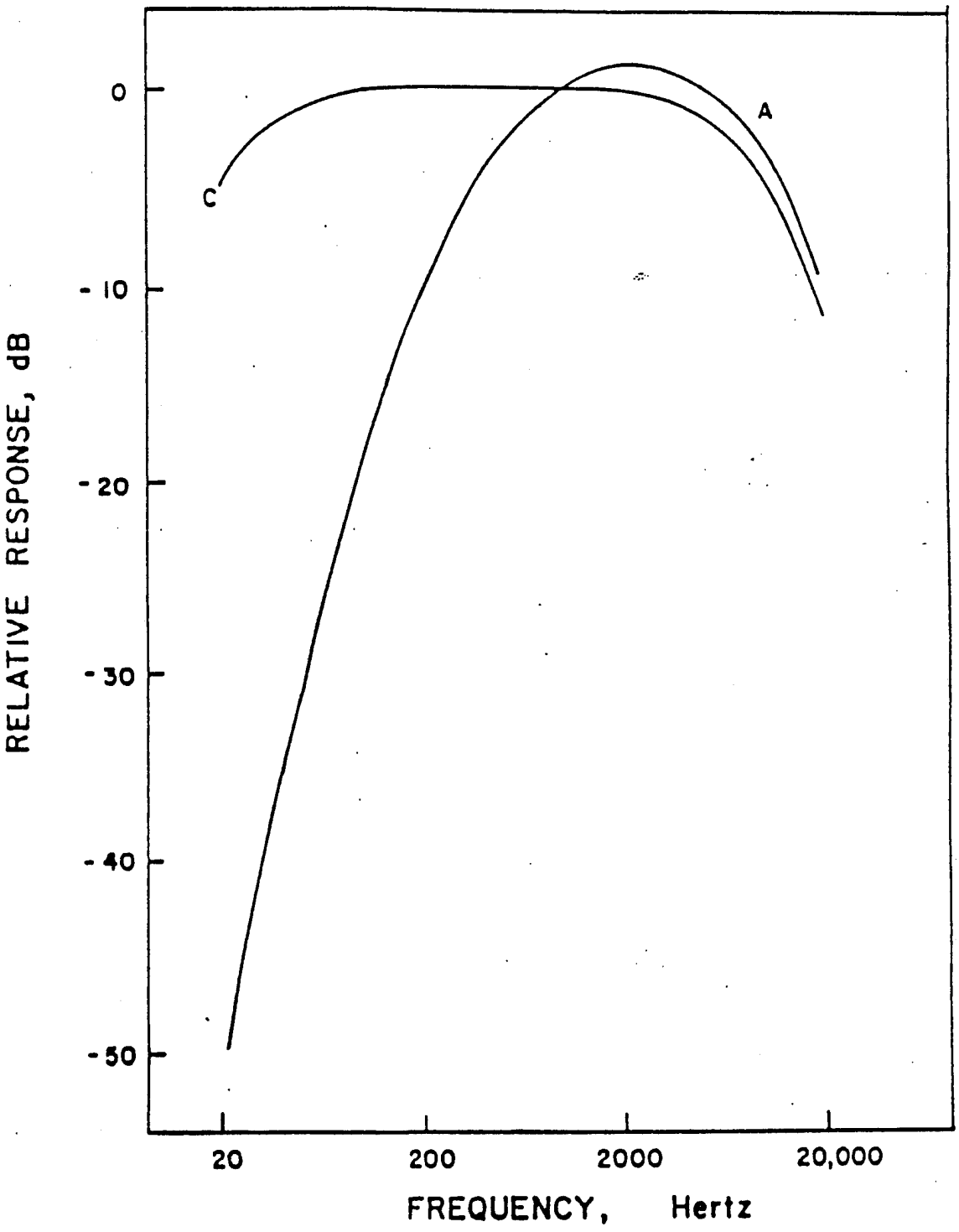


FIGURE 4. Relative Frequency Response of the A-weighting and C-weighting

2. EVALUATORS:

a. A characteristic of environmental noise is that it is not steady, but varies in amplitude from one moment to the next. To account for these variations in the SPL with time, and to assess environmental noise in a consistent and practical manner, a statistical approach has been used to reduce the time-varying SPL to single numbers. The accepted single-number evaluators of environmental noise are the equivalent sound level (Leq), the A-weighting day-night sound level (ADNL) and the C-weighting day-night sound level (CDNL).

b. An Leq is defined as the equivalent steady state sound level which, in a stated period of time, would contain the same acoustic energy as the time-varying sound during the same period. The Leq is a logarithmic average. The logarithmic average puts more emphasis on the higher SPL's than an arithmetic average. For example, if 10 sampled SPL's consist of 9 values at 60 dBA and 1 value at 80 dBA, the Leq is equal to 70 dBA. The arithmetic average of these SPL's is 62 dBA. The Leq is usually computed for a 1-minute, 10-minute, 30-minute, 1-hour, 8-hour or 24-hour segment of environment noise.

c. The acoustical energy of an event, such as an aircraft flyover, is equal to the Leq of the event plus a correction factor for the duration of the event. The correction factor is equal to 10 times the common logarithm of the ratio of the duration of the event in seconds to the reference duration of 1 second.

d. To assess the added annoyance of the environmental noise during the nighttime hours (2200-0700), the ADNL or CDNL is used. The ADNL or CDNL is the 24-hour Leq, with a 10 dB penalty added to the nighttime levels.

3. NOISE CONTOURS:

a. Noise contours are generated using the ADNL or CDNL evaluator. The contours are computed by averaging over the period of interest, the acoustical energy from the operations of the set of noise sources of interest. The averaging period is usually a busy day or a year. The contours, representing the boundaries between the noise zones, are constructed by connecting points of equal acoustical energy.

b. For example, the contours for an airfield are computed by averaging at many points the acoustical energy arriving at these points from the aircraft operations. A 10 dBA penalty is added to all nighttime operations. The contours for the airfield are constructed by connecting all points having total acoustical energy equal to 65 dBA and connecting all points equal to the 75 dBA.

Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix J

Environmental Awareness Materials

1. Field Cards Developed for Use at Camp Shelby
2. Awareness Posters Used at Camp Shelby

TRAINING AND THE ENVIRONMENT

Leaders' Guide

CAMP SHELBY

Camp Shelby has been a significant asset to ARNG training since it was designated as a permanent National Guard field training site by the Continental Army Command in 1956. The U.S. Department of Agriculture Forest Service manages the De Soto National Forest where Camp Shelby is located. Camp Shelby is adjacent to the Black Creek Scenic River Area. There is a local concern for maintaining this area for recreational use.

VEHICLE MOVEMENT

- ★ Stay on the established roads when moving to and from training areas. Observe the posted speed limits.
- ★ If off-road maneuvers are necessary, do not drive single file. Stay on established trails whenever possible.
- ★ Stay out of off limits areas, such as, red-cockaded woodpecker and gopher tortoise habitats, pine plantations and low/wet areas.
- ★ Training area 44 is Restricted to existing roads and firing points ONLY.
- ★ Avoid making J-turns, neutral steer turns and missile avoidance tactics unless necessary.

LITTER

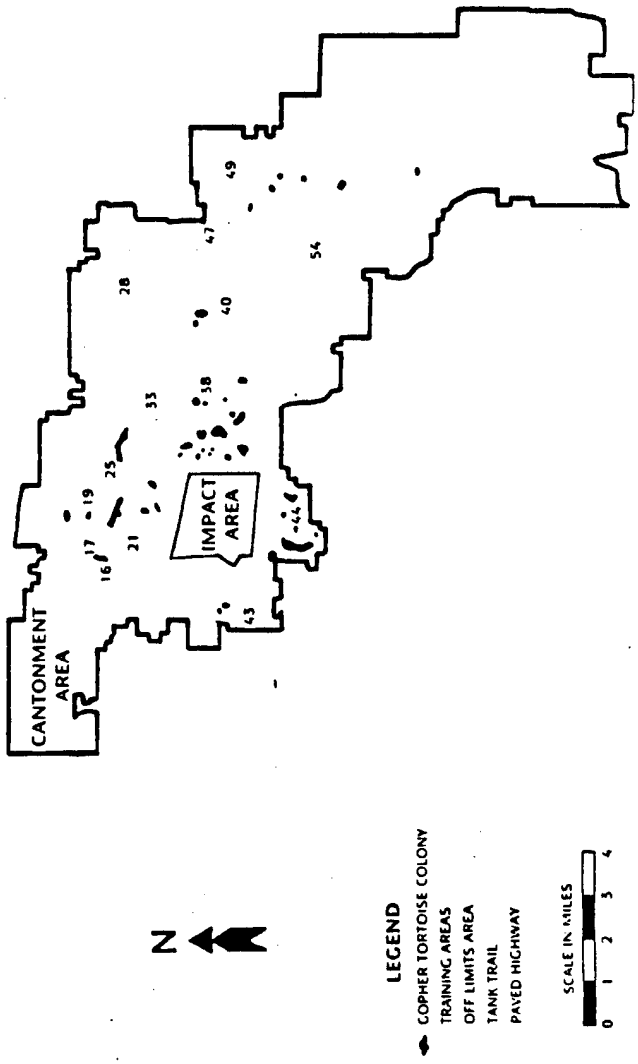
- ★ Police all areas for litter during and after training activities.
- ★ All litter from training areas is to be bagged and transported to the Camp Shelby landfill.
- ★ Garbage cannot be burned or buried in the field or training areas.
- ★ Police all barbed, commo, concertina, and trip wires after training activities.

DIGGING

- ★ No digging is allowed in unauthorized areas, low areas or hillsides.
- ★ Clearance for any digging larger than two man positions must be obtained from Camp Shelby Facilities Engineer Division.

PETROLEUM, OIL AND LUBRICANTS

- ★ POL products are to be handled properly.
- ★ If a POL spill does occur, contain it and report the size of spill, its location, and the type of POL to Facitities Engineer Division immediately.
- ★ Used oil must be placed in drums and properly disposed of through USP & FO.



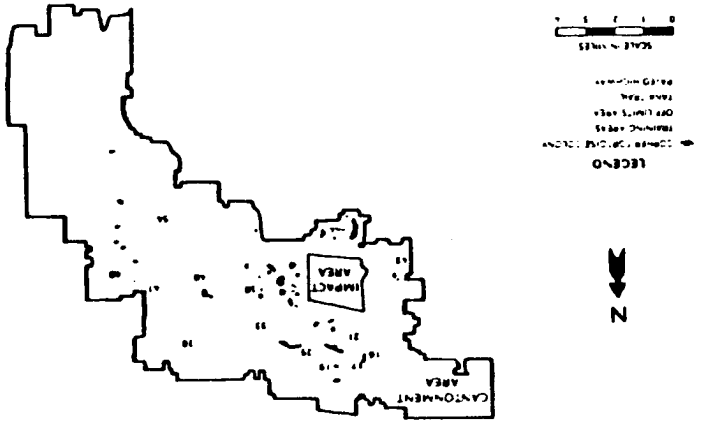
Head

TRAINING AND THE ENVIRONMENT
Soldiers' Pocket Guide

VEHICLE MOVEMENT
- ★ Avoid making neutral steer turns or Missile Avoidance Tactics
- ★ Stay on established roads and trails unless otherwise instructed
- ★ Obey speed limits
- ★ Do not drive on off limits areas, such as endangered species areas T-44 and pine plantations

PETROLEUM, OIL, AND LUBRICANTS
- ★ Contain and report any POL spill to the Facilities Engineer Division (584-2689)

TRAINING AREAS
- ★ Police training area for litter during and after use
- ★ If you bring trash into the area take it out and dispose of properly
- ★ Rehab excavations for inspection before leaving the training area
- ★ Do not cut trees or destroy ground cover
- ★ Remove all commo concertina and trip wires

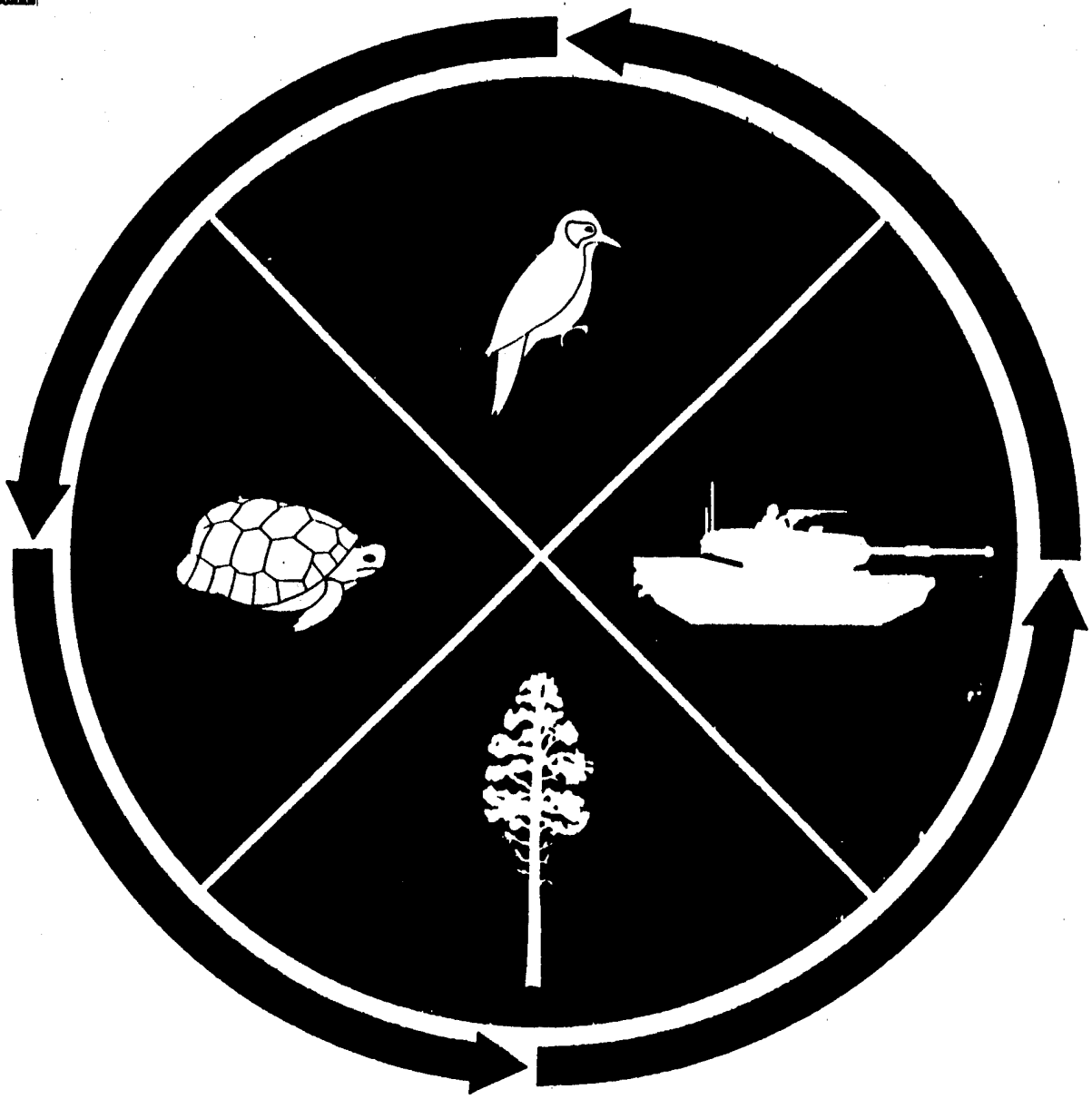


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A Good Soldier is Hard to Find.



CONSERVE VEGETATION DURING FIELD ACTIVITIES



Protect the Balance Between
ENVIRONMENT AND TRAINING

Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix K

1. Land Use Requirements Study for Training Area Needs
2. Report on Unavailability of Other Training Facilities

LAND USE REQUIREMENTS STUDY
CAMP SHELBY, MISSISSIPPI

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PART 1

EXECUTIVE SUMMARY

LURS SUMMARY

Preface

Camp Shelby is a National Guard Annual Training Site which provides training support to National Guard units from states across the country. In addition, it is utilized by Active Army, Army Reserve, Air Force Reserve, Air National Guard, Navy Seabees, ROTC and other type units. The installation supports training for over 100,000 troops annually. Installations today must be able to provide the land necessary to meet the increased training requirements being placed on National Guard and Reserve components. Modern weapon systems have changed the tempo, lethality, and spread of battle, thereby increasing the requirements placed upon training lands. The mandate on the National Guard and Reserve components to shoulder more of the defense burden and to achieve levels of mobilization readiness, is generating additional requirements for training space. The primary purpose of this study is to determine if Camp Shelby has the necessary training land available to meet the requirements of its using units, and to identify and correct any shortfalls.

Study Summary

This Land Use Requirements Study (LURS) was initiated for Camp Shelby to access the training land requirements for units utilizing Camp Shelby. The Army Training Land Analysis Model (ATLAM) was used to determine if the current lands available at Camp Shelby for track vehicle maneuver is sufficient to meet using units requirements IAW TC 25-1 and unit ARTEP tasks. This study is limited to the ARTEP tasks and specifically the METL tasks of the three (3) Armored Brigades that annually train at Camp Shelby, because these units require the largest amount of maneuver area to train to standard. These units are the 155th Armored Brigade, MSARNG, the 30th Separate Armored Brigade, TNARNG, and the 31st Armored Brigade, ALARNG. The Active Defense ARTEP task is the mission that requires the largest track maneuver area requirement for each of the three brigades. According to TC 25-1 (4 August 1978), the Active Defense mission requires 64,246 acres of contiguous maneuver area. Camp Shelby presently has 22,600 acres of non-contiguous track maneuver area, and when the Consolidated Tank Maneuver Area approved in 1983 is implemented, the available area will be reduced to 15,100 acres of contiguous track maneuver area. These figures are further reduced when simultaneous tank gunnery is occurring. Since the inception of the corridor, tank gunnery requirements have increased significantly, thereby decreasing the amount of days that all maneuver areas are available. This study has identified a shortfall of 49,146 acres of track maneuver area. Under the current maneuver area constraints, the three Armored Brigades are forced to train at

Company and Platoon level rather than Battalion level as necessary. Camp Shelby recommends the acquisition of 32,000 acres of land within the Military Reservation boundaries, contiguous to the Consolidated Tank Maneuver Area. This would give Camp Shelby 47,100 acres of contiguous track maneuver area with no tank gunnery, and 40,400 acres when tank gunnery is being conducted. This acquisition will not alleviate the acreage shortfall, but based on consultation with the three Armored Brigades, will allow them to train to standard at Battalion level on their required tasks. The Armored Brigades advised that the terrain and vegetation in this area will allow the units the dispersion necessary to accomplish their Active Defense mission requirement.

Land requirements for all other ARTEP tasks identified on these units' METL's can easily be accomplished within TC 25-1 acreage requirements. Presently, all range requirements of these units can be adequately met with available ranges. Upon completion of proposed range projects, Camp Shelby's capability to support these unit's requirements will improve. With the National Guard and Reserve components being given a larger portion of the total defense mission, no decreases in training activity at Camp Shelby are projected, therefore, it is vital that Camp Shelby continues to meet the growing needs of these units to be able to "train as they will fight".

PART 2

THE STUDY

Section I - Introduction

1.01 General - The modernization of weapons technology, the increased demand for National Guard and Reserve Components to shoulder more of the defense burden, and the requirement to achieve levels of mobilization readiness, is generating additional requirements for training space. Camp Shelby, being the largest National Guard and Reserve training site in CONUS, must be ready to grow in order to meet these training requirements. This study is the first step to determine the needs of Camp Shelby to meet these needs.

1.02 Purpose - To determine if the current lands utilized by Camp Shelby for military operations is sufficient to meet the training requirements of using units IAW with TC 25-1 and unit ARTEP tasks.

1.03 Scope - Section II of study deals with the current Threat to include the evolution of weaponry and mobility, U. S. tactical doctrine to counter threat, and training implications. Section III concerns unit level training requirements in terms of maneuver and range acreage requirements, and days required to complete this training. Section IV concerns the Army Training Land Analysis Model (ATLAM). ATLAM is the method used to determine how much land Camp Shelby needs for training based on unit ARTEP requirements. Section V addresses internal management actions taken to meet any shortfalls identified by ATLAM. Section VI analyzes other internal management actions considered, whether within the capability of the Installation Commander to implement or not. Section VII contains conclusions and recommendations based on the results of this study.

1.04 Assumptions - Tracked maneuver area shortfall presently exists based on training feedback from using units. Land requirements in study is based on the tracked maneuver area requirements of the three armored brigades that annually train at Camp Shelby. These units are the 155th Armored Brigade, MSARNG, the 30th Separate Armored Brigade, TNARNG, and the 31st Separate Armored Brigade, ALARNG. Units regularly conduct track maneuver and tank gunnery programs simultaneously while at Camp Shelby. Units not part of brigades listed above meet training requirements using existing training areas. Range requirements of units that utilize Camp Shelby can be met with existing ranges, and capability will improve once proposed range construction is completed. With the National Guard and Reserve components being given a larger portion of the total defense mission, no decreases in training activity at Camp Shelby will occur.

1.05 Methodology - Land requirement computations based on TC 25-1 (4 August 1978), and training requirements of Armored brigades conducting training at Battalion Task Force level.

1.06 Issues and Questions - Battalion-level training is the most critical requirement for sustaining combat arms readiness. Declines in readiness may result when adequate land is not available for company team and battalion task force level maneuvers.

1.07 Definitions:

ARTEP - Army Training and Evaluation Program
CONTIGUOUS - Touching along a boundary or at a point.
METL - Mission Essential Task List
TASK FORCE - Temporary combination of Tanks, Mechanized Infantry, TOW sections, and support units led by a commander of either a tank or mechanized infantry HQ,to meet the brigade commander's concept of operation.

Section II - Threat

2.01 Evolution of Weaponry and Mobility - Modern weapons systems technology has increased the tempo, lethality, and spread of battle, thereby increasing the requirements placed upon training lands, sea operating areas, and militarily usable airspace. For example, the equipment modernization of the Army's combat arms forces, with their large number of fire and maneuver weapons, has been extensive. These new weapons systems move faster, shoot farther and higher, and require greater training space and larger impact areas.

2.02 U. S. Tactical Doctrine to Counter the Threat - Air Land Battle Doctrine

2.03 Training Implications - To attain and maintain combat readiness, the operators of the modern technology weapons must participate in training evolutions more frequently than required for older, less sophisticated weapons. In addition, the mandate on the National Guard and Reserve components to shoulder more of the defense burden and to achieve levels of mobilization readiness is generating additional requirements for training space.

2.04 Summary - The increased demand on National Guard and Reserve components to shoulder more of the defense burden has required training installations to examine their current land capacity for training these units to standard. If current capacity is not sufficient, installations must identify alternatives for meeting these land requirements.

Section III - Unit Training Requirements

3.01 Background - Each unit has a total of 39 days in which it can train each year. This consists of 15 days Annual Training, and 24 days IDT (2 days per month). Training for the three (3) Armored Brigades that utilize Camp Shelby alternates annually between maneuver years and gunnery years. Both gunnery and maneuver training are required each year, the type year designates where the priority of training is placed.

3.02 Baseline Requirements

a. Unit Level Training Acreage

(1) Maneuver Areas

(a) Requirements - Based on ARTEP missions and METL's of the three (3) Armored Brigades that train at Camp Shelby, the Active Defense mission requires the largest track maneuver land requirement. According to TC 25-1 (8 April 1978), the Active Defense Mission for an Infantry/Armor Battalion requires 64,246 acres (260km x 247.1 acres/km). Based on TC 25-1, the Delay mission requires the most acreage, however, none of the Armored Brigades that train at Camp Shelby have this mission on their METL.

(b) Actual Experience - Currently, the Armored Brigades are unable to conduct any training at Battalion Task Force level due to the lack of available track maneuver area. The 155th Armored Brigade advised their Task Force that recently completed an NTC rotation, had difficulty operating at Task Force level due to not being able to train a that level while at home station. Presently, there are only 22,600 acres of track maneuver area at Camp Shelby (See Map No. 1). The areas which make up this total are non-contiguous, therefore the areas suitable to conduct a single mission is reduced. This total was further reduced when one area of 2,255 acres was designated the Gopher Tortoise Refuge, and is off limits to tracked vehicle, as well as, wheeled and foot maneuver. When simultaneous tank gunnery and tracked maneuver is being conducted, the areas restricted from use as a result of the tank gunnery reduces the amount of available track maneuver area to 10,179 acres (See Map No. 1). With the approved but not yet implemented consolidated track maneuver area (See Map No. 2), the total area available for track maneuver is reduced to 15,100 acres, which is further reduced to 8,400 acres when tank gunnery is being conducted (See Map No. 2).

(c) Reconciliation of Differences - Training is presently being conducted at Company and Platoon level since sufficient area to train at Battalion level is not available. In addition, Staff Exercises are conducted to simulate staff functions at Battalion TF level.

(1) Live Fire Ranges

(a) Requirements - The Armored Brigades are required to fire Tank/Bradley Gunnery through Table VIII. In order to accomplish this on Camp Shelby ranges, approximately 30,000 acres of land is closed to accommodate Surface Danger Zones of weapons being fired.

(b) Actual Experience - There are presently two (2) ranges that can accommodate the firing of the M60A3, M1, & M2/3 on a Table VIII. Units feel that four (4) ranges capable for firing Table VIII would be ideal, as to allow the four (4) companies in a

Battalion to fire simultaneously on separate ranges.

(c) Reconciliation of Differences - With only two ranges available, units are having to schedule additional days of firing to accommodate firing all units in the Battalion. Existing Range 45 (M48A5/M60 Table VIII) is presently being modified to accommodate a Table VIII, and is scheduled for upgrade to an Automated Table VIII in TY-1992. This will give Camp Shelby three (3) ranges for this requirement. The upgrade/automation of this range will require no additional training acreage to accommodate its Surface Danger Zones.

b. Unit Level Training Days

(1) Maneuver Areas

(a) Requirements - Presently, Armor Brigade units require twenty-one (21) days a year for track maneuver during maneuver years to accomplish ARTEP/METL tasks. This includes both their Annual Training cycle and Weekend Training Days. Maneuver days required during gunnery years varies, once gunnery requirements are met.

(b) Actual Experience - Presently, Armored units are unable to train the full twenty-one (21) days per year due to lack of sufficient training land for Battalion level operations. Since existing track maneuver areas are suited at best for Company size training, units are forced to train on that level. Training on Company size level requires that more of the training days available to the Brigade are utilized, thereby reducing the number of days each unit can train at Camp Shelby. Presently, units conduct actual tracked maneuver training approximately fifteen (15) days per year in a maneuver year, and even less during a gunnery year.

(c) Reconciliation of Differences - Being unable to train at Battalion Task Force level, training is conducted at Company level only. All Battalion and Brigade level training is being simulated through Staff Exercises.

(2) Live Fire Ranges

(a) Requirements - Presently, the Armor Brigade requires twenty-one (21) days a year for tank gunnery during gunnery years to accomplish their requirements. This includes both their Annual Training cycle and Weekend Training Days. During gunnery years all crews must qualify through Table VIII. Gunnery days required during maneuver years are reduced, in that units are only required to fire through Table VII, and are not required to qualify.

(b) Actual Experience - Presently, there are two (2) Tank/Bradley ranges at Camp Shelby capable of firing Table VIII. In a gunnery year, in order for a unit to qualify all their crews, all required days are used. Less days are utilized during a maneuver year.

Units feel that additional ranges capable of firing Table VIII, or days are necessary to allow for more thorough gunnery training, to include proofing exercises, and refiring.

(c) Reconciliation of Differences - Units attempt to schedule smaller quantity of crews to fire on a single range per day to allow for more thorough training. Existing Range 45 (M48A5/M60 Table VIII) is presently being modified to accommodate a Table VIII, and is scheduled for upgrade to an Automated Table VIII in TY-1992. This will give Camp Shelby three (3) ranges for unit's use.

3.03 Projected Future Requirements

a. Unit Changes - The 155th Armored Brigade, MSARNG, is currently equipped with M1 Tanks and M2/3 Bradley Fighting Vehicles. The only projected change would be this Brigade receiving the M1A1 Tank. The 30th Separate Armored Brigade, TNARNG, and the 31st Separate Armored Brigade, ALARNG, are currently equipped with M60A3 Tanks and M113 APC's. It is projected that these units will be fielded with M1's and M2/3's.

b. Impacts on Unit Level Baseline Requirements - The 155th Armor Brigade's training with the M1A1 tank would require no additional tracked maneuver area and with the training ammunition available for the M1A1's 120mm Main Gun, the training areas restricted due to tank gunnery would be reduced. The 30th and 31st Separate Armored Brigade's receiving M1's and M2/3's would require as a minimum, additional range days to allow qualification of M2/M3 crews.

3.04 Other Considerations - Changes in environmental restrictions. Other National Guard and Reserve units needing to utilize Camp Shelby ranges and maneuver areas to conduct training because of lack of available ranges/training areas at Active Army installations. Funding restrictions that would not allow units to attend regular rotations at Active Army posts or at the National Training Center.

3.05 Summary - All unit training requirements in this study are based on the training requirements and organization of the three (3) Armored Brigades that annually train at Camp Shelby. The amount of contiguous track maneuver acreage required at Camp Shelby is 64,246 acres, which is based on data provided in TC 25-1 to train on an Active Defense mission at Battalion Task Force level. The METL's of these three brigades identify the Active Defense as the mission that requires the largest amount of tracked maneuver acreage to train on. Presently, Camp Shelby does not meet this requirement, therefore, these units cannot train at a Battalion level, all training is conducted at Company or Platoon level. Training on Company size level requires that more of the training days available to the Brigade are utilized, thereby reducing the number of days each unit can train at Camp Shelby. Available ranges, while not ideal, are adequate to fulfill unit requirements for Tank and/or Bradley gunnery.

Section IV - Army Training Land Analysis Model (ATLAM)

4.01 Methodology - The ATLAM methodology uses an acre/day approach for calculating maneuver area requirements. The acre/day approach is based on the training land requirements listed in the unit's ARTEP requirements. The training event with the largest maneuver requirements at Camp Shelby was identified as the Active Defense mission of the Mechanized Infantry/Armor Battalion. The area requirements are then multiplied by the unit density, (density figure at Camp Shelby consists of 3 Armored Brigades), the number of iterations of training to maintain proficiency, and the number of days per iteration to yield the gross km2 days required to accomplish the ARTEP task by all assigned units that are required to perform the task. Km2 days are converted to acre/days and total acreage requirements are computed as illustrated in Appendix A.

4.02 Limitations of Approach - This land requirement study is limited to the largest land requirement of the three (3) Armored Brigades that annually train at Camp Shelby. These units are the 155th Armored Brigade, MSARNG, the 30th Separate Armored Brigade, TNARNG, and the 31st Separate Armored Brigade, ALARNG. Study also based on the Active Defense ARTEP mission which is the largest land requirements on these unit's METL.

4.03 Requirements - According to TC 25-1 (8 April 1978), the Active Defense Mission for an Infantry/Battalion requires 64,246 acres (260km2 x 247.1 acres/km. This is the largest amount of tracked maneuver required to accomplish the mission of the three (3) armored brigades.

4.04 Current Capacity - Camp Shelby currently has 22,600 acres of tracked maneuver area available when no tank gunnery is being conducted (Map No. 1). If tank gunnery and tracked maneuver is being conducted, the availability of tracked maneuver area is reduced to 10,179 acres (Map No. 1). With the approved but not yet implemented consolidated tracked maneuver area, the total area available for track maneuver is reduced to 15,100 acres (Map No. 2), which is further reduced to 8,400 acres when tank gunnery is being conducted (Map No. 2).

4.05 Shortfall - Camp Shelby needs an additional 49,146 acres of contiguous track maneuver area to facilitate the largest maneuver training requirement of the three (3) Armored Brigades

4.06 Summary - An analysis to determine the training land requirements for Camp Shelby was initiated utilizing the ATLAM method. The study was limited to the training land requirements of the three (3) Armored Brigades that annually train at Camp Shelby, because they require the largest maneuver acreage of any units training at Camp Shelby. The analysis demonstrates that Camp Shelby has a deficiency of 49,146 track maneuver acres required to train these armored units to standard.

Section V - Internal Management Actions Taken to Meet Shortfall

5.01 In 1983, The Consolidated Tank Maneuver Corridor was proposed and approved (Map No. 2). This corridor consisting of approximately 15,100 acres was designed to give the Armor Brigades a contiguous track maneuver area large enough to accomplish Company level missions. As part of the agreement with the United States Forest Service, Camp Shelby agreed to designate all training areas outside of the corridor as off limits to track maneuver. This resulted in a loss of 7,500 track maneuver acres. At the inception of the corridor proposal, National Guard and Reserve training doctrine stressed Company and Platoon level training, rather than the current requirement for Battalion level training.

5.02 Existing ranges have been modified to allow Armor units to conduct tank gunnery qualification in fewer days than previously required. By doing this, the track maneuver areas restricted by tank gunnery are available more days each year.

5.03 In an October 1990 meeting with USFS representatives, Camp Shelby proposed that in addition to the Consolidated Tank Maneuver Corridor as discussed in 5.01 above, that Camp Shelby be allowed to continue to use Training Area 43 as a track maneuver area, and that Training Area 35 also be approved for track maneuver (See Map No. 3). This proposal if, or when, approved by USFS, would provide an additional 2,000 acres of tracked maneuver area to offset the acreage given up when the corridor is implemented.

Section VI - Analysis of Other Internal Management Actions

6.02 - Considered Within the Capability of the Installation Commander to Implement, But Rejected

None

6.03 - Considered But Not Within the Capability of the Installation Commander to Implement

a. The exchange of all non-contiguous Department of Defense lands within the Camp Shelby reservation, for contiguous United States Forest Service land of equal acreage.

b. The acquisition of private or USFS land outside present Camp Shelby Reservation boundaries.

c. The acquisition of approximately 32,000 acres of USFS land presently within the Camp Shelby Reservation boundary, but not authorized for tracked vehicle maneuver (See Map No. 4).

Section VII - Conclusions and Recommendations

7.01 Conclusions - This study identifies that there is a deficiency in the amount of tracked maneuver acreage at Camp Shelby. The combat readiness of the three (3) Armored Brigades that train at Camp Shelby are certainly affected by this deficiency. Battalion-level training is the most critical requirement for sustaining combat arms readiness. The present constraints placed on these units due to the lack of track maneuver area, forces them to train at Platoon and Company level, rather than at Battalion Task Force level. The 155th Armored Brigade, MSARNG, acknowledged that one of their subordinate Battalions experienced difficulties at a recent NTC rotation in training at Battalion level. They cited lack of Battalion level training at home station as a factor. By not training at Battalion level, units are not able to "train as they will fight", which is the basic fundamental of training.

7.02 Recommendations - Recommend that appropriate actions be initiated to acquire the approximate 32,000 acres shown on Map 4 for tracked vehicle maneuver. This land in combination with the 15,100 acres in the Consolidated Tank Maneuver Corridor would provide Armor units at Camp Shelby a 40,400 acre track of contiguous maneuver area when tanks are being fired, and 47,100 acres when tanks are not being fired. This total acreage does not correct the entire shortfall identified in this study, but would be a major step in providing Armor units the ability to train at Battalion Task Force level. With the number of available weekends to train at Camp Shelby, coupled with firing requirements of using units, simultaneous maneuver and tank gunnery should be planned for. The Armor Brigades that annually train at Camp Shelby advised they could adequately train all their METL missions at Battalion Task Force level on 40,400 acres of land. Even though the Active Defense mission requires 64,246 acres as per TC 25-1, these units advise that due to the terrain and vegetation in the proposed area, the necessary dispersion between units could be achieved to adequately train for this mission. Land requirements for all other ARTEP tasks identified on these units' METL's can easily be accomplished within TC 25-1 acreage requirements.

DEPARTMENTS OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
WASHINGTON, D. C. 20310-2500

Environmental Resources Management
Office

19 FEB 199

Chief, United States Forest Service
Attention: Mr. F. Dale Robertson
Auditors Building
201 14th Street, Southwest
Washington DC 20250

Dear Mr. Robertson:

The Mississippi National Guard and the U.S. Forest Service are jointly completing an Environmental Impact Statement (EIS). This EIS will result in a Record of Decision concerning the renewal of a Special Use Permit for use of Forest Service Land for military training.

There has been doubt concerning the "mission and need" of Camp Shelby and the future requirements for armor and track vehicle training at the training site. It is imperative that the armor force training mission remains as part of Camp Shelby's training spectrum. This would ensure that both equipment and structure remain available for the Regional, Mobilization, and the Annual training missions.

I refer you to the Draft EIS for specific information and justification of training at Camp Shelby. The EIS is available for review by all agencies and the public.

The issue of "mission and need" of Camp Shelby, as expressed by the U.S. Forest Service, seems to focus on alternatives available to the Army National Guard to accomplish armor and tracked vehicle training somewhere other than Camp Shelby. The following facts are provided as to the mission and need for Camp Shelby:

a. Camp Shelby Training Site (CSTS) is a regional training site and mobilization station for Reserve Component (RC) units. It is more efficient for readiness purposes to store and maintain the RC units' heavy equipment (tanks, artillery, combat vehicles, etc.) at the mobilization location. It is also critical that RC unit soldiers train with and maintain their own equipment. Camp Shelby has served as a mobilization station and training site for units that were involved in World War I, World War II, and Operation Desert Storm. The National Guard Bureau strongly supports the continued mission of mobilization and training at Camp Shelby, Mississippi.

b. The National Guard force structure of the future will include Armor Brigades, Combat and Field Artillery units equipped with the Main Battle Tanks (M-1, M1A1, and M60A3), Bradley Fighting Vehicles (M2/M3), Armored Personnel Carriers (M113 Series), Howitzers (M109 Series), and other combat/tracked vehicles. The National Guard units of several states (Mississippi, Alabama, Tennessee) have and will continue to train and prepare for mobilization at Camp Shelby as a part of our Nation's Army. The regional location is vital to the National Guard to minimize travel time for citizen soldiers from their home to the training site. Camp Shelby fulfills this need for units designated by FORSCOM and the National Guard Bureau to mobilize and train there. There are no other training sites available that can meet this regional need.

c. The training mission of Camp Shelby provides the flexibility for weekend inactive duty training (IDT) and the 15 day annual training (AT) periods associated with RC training. Resourcing the National Guard training cannot be accomplished by any other training facility due to the weekend IDT and heavy summer AT schedules. The Camp Shelby Facility EIS completed 14 Feb 91 includes the results of the analysis required by the Master Agreement between DoD and the USDA. The results of that analysis have not changed and are still valid. Camp Shelby is one of the nation's largest training sites dedicated to RC training. It is vital to the National Guard mission to continue to support the Camp Shelby mission for mobilization and training.

The National Guard environmental policy is to not only achieve 100% compliance with environmental regulations but also to work in a positive and effective manner to enhance the environment. Therefore, I am requesting your support and assistance in working toward a favorable Record of Decision for the Camp Shelby Special Use Permit.

Sincerely

John B. Conaway
Lieutenant General, U.S. Air Force
Chief, National Guard Bureau

Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix L

Biological Opinions on the Gopher Tortoise

1. Opinion Issued to Mississippi National Guard
2. Opinion Issued to National Guard Bureau - ARE
3. Opinion Issued to U.S. Forest Service

Appendix L

BIOLOGICAL OPINIONS ON THE GOPHER TORTOISE

L1 - Opinion Issued to the Mississippi National Guard

L2 - Opinion Issued to National Guard Bureau - ARE

L3 - Opinion Issued to U.S. Forest Service

Guidelines for Relocation of Gopher Tortoise on Camp Shelby

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APPENDIX L

1. Opinion Issued to the Mississippi National Guard

January 26, 1989

Fred W. Aron, Chief
Army Installations Division
Departments of the Army and the Air Force
National Guard Bureau
Washington, D.C. 20310-2500

RE: Log No. 88-185

Dear Mr. Aron:

Introduction

This letter presents the Biological Opinion of the U.S. Fish and Wildlife Service (FWS) regarding the effects of Camp Shelby military operations, training activities, proposed construction, and forest management on the federally threatened gopher tortoise (Gopherus polyphemus). Certain activities addressed herein are carried out on U.S. Forest Service (USFS) lands and are controlled through a special use permit of the U.S. Forest Service. This Opinion is joint in nature and applies equally to that administrative procedure. Although this Opinion does not apply to USFS timber management, in general, because that is being addressed in a separate consultation, it does apply to USFS timber management on the Camp Shelby training area known as "T-44". This letter only addresses the consultation requirements of Section 7 of the Endangered Species Act of 1973, as amended. Accordingly, it neither addresses nor satisfies requirements of any other environmental statute.

Project Description

Camp Shelby is a National Guard annual training site which provides training support to a number of National Guard units from States across the country. In addition, it is utilized by Active Army, Army Reserve, Air Force Reserve, Air National Guard, Navy Seabees, ROTC, and other units. Camp Shelby's mission is operations, administration, management, and performance of training and logistical support as assigned. The installation supports training for over 100,000 troops annually. Camp Shelby uses about 116,000 acres of U.S. Forest Service land (the DeSoto National Forest) in south Mississippi, plus another 20,000 acres owned by the State of Mississippi (Military Department) and Department of Defense. Some obvious military activities which affect the gopher tortoise on Camp Shelby are tracked and wheeled vehicles, use of firing points, range construction, proposed maneuver areas, facility construction, and management of woodlands not a part of the DeSoto National Forest.

Consultation History

By letter of March 8, 1983, the FWS issued a Biological Opinion to the USFS on Camp Shelby's proposed consolidation of its tank maneuver area and its effects on the red-cockaded woodpecker (Picoides borealis). This Opinion placed several conditions on timber management and was a non-jeopardy opinion. On August 24, 1987, a meeting was held involving representative of the FWS (Wendell A. Neal, John Pulliam), Mississippi Army National Guard (MSARNG) (Major Robert A. Lee), USFS, (Ellen Goetz) and Weatherford/McDade (David Thompson), the consulting firm under contract to prepare the environmental impact statement for Camp Shelby. The intention of this meeting was a general discussion on the listing of the gopher tortoise, how it might affect training activities, consultation responsibilities, etc. The meeting was followed by a September 3, 1987 letter to the Fish and Wildlife Service from the MSARNG, requesting clarification on Section 7 responsibility with regard to the gopher tortoise. This request was responded to on September 15, 1987, by an FWS letter explaining that both the National Guard Bureau (NGB) and the USFS were responsible for compliance with Section 7 on Camp Shelby; MSARNG, by virtue of Federal funding of activities affecting the gopher tortoise; and the USFS, by virtue of its action and responsibility in issuing a special use permit allowing military activities which may affect the gopher tortoise. The FWS guidance at this point also recommended development of a biological assessment on the effects of these military actions for incorporation in the environmental impact statement under preparation at that time. The MSARNG responded on November 5, 1987, about accepting a dual role with the USFS in the gopher tortoise consultation, and later agreed to accept the lead role in processing the consultation. The USFS wrote the MSARNG on November 12, 1987, recommending the MSARNG proceed to lead the dual consultation. This was followed by a meeting on November 19, 1987, between the MSARNG (Major Robert A. Lee), the NGB (Jamie Rappaport), and the FWS (Wendell Neal). Discussions were held on the contents and purpose of the biological assessment within the context of Section 7 compliance. It was agreed at this meeting that the MSARNG, after designation by the NGB, would act as the NGB's non-Federal representative for the consultation activities relative to the gopher tortoise. By letter of December 16, 1987, Fred W. Aron, Chief, Army Installations Division NGB, formally designated Major Robert A. Lee to handle that role.

To comply with the biological assessment requirements of Section 7 of the Endangered Species Act, the NGB through the MSARNG contracted with Dr. Robert H. Mount, Professor Emeritus of Zoology and Wildlife Sciences, Auburn University, Alabama, to prepare the biological assessment for Camp Shelby. The assessment began on May 3, 1988. Dr. Mount arranged with two co-investigators, Edward E. Wester of Auburn, and C. Kelly Swing of Louisiana State University, to assist him in completing the contract for the biological assessment. On July 26, 1988, NGB (Jamie Rappaport), MSARNG (Major Robert A. Lee, Sergeant Terry Lee), FWS (Wendell Neal), Dr. Mount, Ed Wester and Kelly Swing met to review and discuss the first draft of the biological

assessment, particularly those recommendations made to MSARNG for minimizing adverse effect of military activities on gopher tortoise colonies. On July 27, 1988, Wendell Neal and Major Robert Lee met with the Camp Shelby Training Officer, Lt. Colonel Corley W. Morse, Jr. and received his recommendations on how the gopher tortoise situation should be handled. On August 9, 1988, Wendell Neal met with Joe Duckworth, District Ranger, USFS, Ellen Goetz and Mike Hurst, both biologists with the USFS, and discussed remaining needs in the consultation.

On August 4, 1988, Wendell Neal, John Pulliam, Major Robert A. Lee, Sergeant Terry Lee, and Major Stewart met and discussed in detail all recommendations made in the contractor's report. At this meeting, Wendell Neal presented the areas the FWS felt were essential to conserve the gopher tortoise on Camp Shelby. These essential criteria were later presented to the Camp Shelby Military Training Department for their review and comment.

On September 2, Wendell Neal, Major Lee, Major Stewart, and Sergeant Lee met and discussed alternatives to better accommodate some essential track vehicle training areas. At this meeting, the final draft of the contractor's report was presented to the Service. Also at this meeting, the results of an intensive site inspection on firing points, observation points and ramps were presented in order to more precisely define what kinds of use-conditions were essential. On October 31, 1988, the FWS received a letter from the NGB requesting formal consultation and a biological opinion.

Biological Information

The western population of G. polyphemus was listed as threatened in the Federal Register on July 7, 1987 (50 CFR 25376). This population is found west of the Tombigbee and Mobile Rivers of Alabama across south Mississippi to extreme southeastern Louisiana. The species was described in 1802 by F.M. Daudin. This population is found wholly within the natural range of the longleaf pine along the lower Gulf Coastal plain. The limits of the known past distribution of the gopher tortoise is similar to its present distribution. Within the longleaf pine type, the best gopher tortoise habitat is found on excessively drained soils with adequate sand depth for burrowing (usually 1m+). The species is commonly associated with a pine overstory and an open understory with a grass and forb groundcover. Present ownership of gopher tortoise habitat (listed population) is approximately as follows: 20 percent National Forest, 10 percent other public ownership, 30 percent forest industry, and 40 percent in other private ownership.

An understanding of the reasons behind the threatened status of G. polyphemus is essential to placing this consultation in context. The species, historically and currently, is a component of xeric plant communities originally identified by the presence of longleaf pine. Changes altering the longleaf pine ecosystem also altered gopher

tortoise ecology. The longleaf pine occupied some 60-70 million acres of coastal uplands before European man arrived and now there may be no more than 4 million acres remaining. Second growth longleaf stands came from the ruins of timber mining operations which took place throughout the longleaf's range in the early part of this century. Because of planting problems with longleaf, original longleaf sites have been often planted in slash and loblolly pines. This practice, along with excessive burning intervals and oftentimes heavy site preparation, has continued on soils which naturally grew longleaf pine.

The original longleaf community was naturally burned and self-reseeded. It contained trees of many ages and a diverse ground cover with much edge, which would be of particular importance to the gopher tortoise. While it is apparent that gopher tortoises can be maintained at some level, under a modified (heavily thinned, frequently burned) plantation system of management, it has been shown that gopher tortoise densities are significantly greater in more naturally managed stands of longleaf pine.

Probably the natural longleaf community and its associated diversity represent optimal forestland habitat for the gopher tortoise. Those management practices which alter this system are clear-cutting, heavy soil churning site preparation, and prolonged burning intervals. Those timber practices most nearly mirroring the natural system very likely improve survivorship opportunities for the gopher tortoise. Longleaf pine trees, fire-dependent animals and perennials existed in a summertime burning cycle, a cycle which has long since been interrupted. The change in fire frequency and time has produced profound changes in these original xeric communities.

While the FWS believes that forestry practices are and have been the single largest threat to gopher tortoise populations, the following were lifted from your biological assessment and they also act independently and cumulatively to the detriment of G. polyphemus: (a) habitat loss resulting from extensive clearing for agriculture, real estate developments or other purposes; (b) human depredation; (c) vehicular traffic mortality, which tends to increase with habitat degradation; (d) fragmentation of range, resulting in populations with little or no opportunity for immigration or emigration, and, consequently for gene exchange; and (e) possible increase in rate of predation, particularly by raccoons, imported fire ants, coyotes, armadillos, and domestic and feral dogs.

Evaluation of Effects

The biological assessment provided by MSARNG locates most gopher tortoises on Camp Shelby, thereby providing the basis for evaluating effects of various ongoing and planned military procedures. The assessment indicates there are 39 colonies containing 413 active burrows and 101 isolated active burrows. The identification and location of the colony is first based upon a colony definition offered

by the contractor; that being "three or more active adult burrows or any combination of active adult, subadult, or hatchling burrows within 100 yards of each other". Colony size ranged between 3 and 49 active burrows with a mean of 10.6 active burrows. For management purposes, an area comprising the individual colony sites was defined and mapped. This area was derived based upon soils. These colony sites ranged from 0.94 ha (2.3 ac) to 51.8 ha (128 ac) with a mean of 9.4 ha (23.2 ac) per colony.

The contractor's opinion on status of the gopher tortoises on Camp Shelby is that: (A) Gopher tortoises inhabiting the area surveyed are declining in number; (B) The decline will continue until the tortoise becomes functionally extinct in the area, perhaps within 50 years or less, if present trends and practices continue; (C) If mitigative measures recommended are instituted, the result will be a vast improvement in the tortoises' chances of survival in the study area, as well as on much of the land immediately adjacent to the area; (D) Barring natural catastrophe, improvement in the status of the tortoise should be demonstrable within 10 years or less.

Following the location and assessment of gopher tortoise number, the contractor goes through a detailed set of recommendations to MSARNG for management/conservation. Primary among these recommendations involves restriction on certain uses within 300 meters (984 ft) of gopher tortoise colonies. A relocation effort involving specific tortoises at specific locations is recommended along with specific criteria governing relocation activity. Closing of certain firing points, restriction of mowing, change in burning regimes, management of forests, placement of signs, relocation of roads, follow-up investigations, protection of active burrows near observation/firing points, are all recommended to the MSARNG. The task before the responsible Federal agencies (the NGB and the USFS) and based on technical advice from the FWS has been to achieve full compliance with requirements of the Endangered Species Act while providing for a maximum accommodation of any activities addressed by this consultation. The contractor's report was intended to constitute the essential groundwork for this consultation by identifying, inventorying, assessing the status of Camp Shelby gopher tortoises and finally through pointing up ways to maximize protection for G. polyphemus. The contractor's report meets its intention in a thorough and professional manner. Actions affecting the gopher tortoise on Camp Shelby are many and diverse. This has resulted in an operating agreement negotiated among the parties to this consultation. Within that context, the USFS and NGB/MSARNG, in close consultation with the FWS, agreed to the following guidelines for conservation/management of G. polyphemus on Camp Shelby.

A. In terms of military training, there are several activities which may degrade tortoise habitat: tracked vehicles, wheeled vehicles, bivouacking and associated activities. These activities are associated with maneuver areas, firing points, observation points, etc. In order to protect the essential

character of the colony, for management purposes, the colony itself must be identified. Since both entities (the USFS and NGB/MSARNG) will be protecting/managing for gopher tortoises, there needs to be a common working definition of a colony. The USFS defines a colony as "three or more active adult burrows within 300 yards** of each other (adult burrows being considered as those with a width of >9 inches) or any combination of active adult and active hatchling/sub-adult burrows within 100 yards of each other". This definition is the agreed upon definition for all future management purposes.

** note: "300 yards" is a typographical error in the Biological Opinion. This should have read "100 yards."

B. Protection of the gopher tortoise colony from activities which degrade the habitat used by the colony requires that protection/management activities be focused so as to address two basic considerations: (1) the area immediately within and surrounding the gopher tortoise colony should be a first priority and; (2) the timber stand making up the site supporting the gopher tortoise colony is a secondary consideration that, in the long term, may be equally important. The area immediately within and surrounding the colony is to be known as the colony site and is specifically defined as "all active burrows plus a 200 foot buffer." The colony site in the wooded areas is to be protected by fencing and marking in the same manner as is presently being done for the red-cockaded woodpecker sites on Camp Shelby. By fencing and marking in this manner, there will be no distinction drawn between colony sites and thus may help avoid drawing unnecessary attention to gopher tortoise colonies. The colony site treatment as just prescribed applies only to wooded colony sites. Other provisions are made for other active colonies.

C. The timber stand containing the colony site must also be treated so as to provide for the colonies' long term stability or enhancement. There are two types of ownership on Camp Shelby (NGB/MSARNG and USFS), the USFS being the principal landowner. Timber stands on both ownerships need to be managed in like manner. The FWS is presently in consultation with the USFS on timber management and will be soon issuing a biological opinion on these activities. Forest management activity of the NGB/MSARNG must meet the minimum conditions established in the final USFS habitat management plan for the gopher tortoise. Accordingly, it is agreed that the USFS gopher tortoise management plan is incorporated and is to be made an essential part of this operating agreement.

The timber stand which contains a gopher tortoise colony needs to be defined for management purposes. Generally, stands are classified on the basis of a similarity of species of timber, size/age, and topography, but since some stands may be up to 400

acres in size (and that's well beyond that necessary for most gopher tortoise colonies), an upper stand limit will be negotiated with the FWS as a maximum area to be devoted to gopher tortoise conservation. However, 10 acres will prevail as a minimum stand size for such designation. The mean based on the remainder of the DeSoto National Forest is about 25 acres. The mean colony size based mostly on soil type by the contractor is 23.2 acres. Accordingly, we can expect at least an average size of 25 acres per colony being devoted to gopher tortoise management. All timber stands containing a gopher tortoise colony will be managed in accordance with the USFS habitat management chapter for the gopher tortoise.

As a further item on this operating agreement relative to timber management, the present timber harvesting being done in preparation for the proposed maneuver areas (clear-cut all merchantable stems) is to be immediately modified by placing any timber stand containing a gopher tortoise colony under a "thinning only" regime (down to NLT 50 ft^2 BA).

D. Other colony sites (non-wooded areas) also require protection. The contractor's recommendations for protecting active burrows located near firing/observation points, or at any non-wooded location where such burrows are threatened by vehicles due to use of these areas, is important. The method is by staking with metal stakes, as described in the biological assessment. Precisely which burrows should be "staked out" is a matter of judgement. A very conservative approach should be taken to insure that vehicles of any kind are prevented from damaging burrows.

E. The contractor's relocation recommendation and guidelines governing its implementation are incorporated in this agreement. Accordingly, a plan implementing it in its entirety will be drawn up and implemented within the current fiscal period. A reasonable plan of follow-up monitoring of the relocation effort is considered an integral part of the relocation effort.

F. The contractor's recommendations on road closure and relocation have been discussed and considered at length. The FWS believes that fencing and marking along the sides of roadways which pass through colony sites will prevent any further significant site degradation caused by tracked or wheeled vehicle activity and bivouacking.

G. **Exceptions to Operating Guidelines

1. The FWS has opted for less than a full commitment with regard to protection of Colony Sites 6 and 11 in order to accommodate critically important military training objectives in this area. In doing so, the FWS has concurred with the staking plan for burrows making up

these two colonies (in other words, the two colonies will be treated as threatened active burrows in a non-wooded setting, although in fact they are in a wooded setting).

2. Because MSARNG has agreed to change military use of the T-44 area so that the site can be set up as a gopher refuge, forest management applying to this area will be treated separately from those presently under consultation between the USFS and FWS. Forest management in this area (the gopher refuge) will be directed toward providing optimal gopher tortoise habitat conditions. The area will be summer burned on a 3/4 year cycle. Regeneration will be by the Shelterwood System only and thinning plans will be implemented to insure the compliance with canopy closure recommendations of the contractor (<60%). Timber harvesting is restricted to the period between November 1 and March 31, except for emergency plowing of firebreaks. Military use of the area will be restricted to firing points/observation points. In other words, there will cease to be any off-road vehicle use or bivouacking in the T-44 tracked vehicle maneuver area.

H. The fencing and marking of colony sites and staking of active burrows as required by these guidelines will be accomplished before the 1989 summer training exercises.

I. Monitoring

An intensive follow-up survey, using procedures employed in the contractor's investigation, should be scheduled for the activity period 1993 to compare results with present data. A general monitoring plan should also be undertaken in 1990 and a report provided to the FWS by December of each year outlining compliance with the operating guidelines contained in this opinion, along with an assessment of population trends. Annually, the MSARNG and USFS will host a joint inspection by the FWS and Mississippi Department of Wildlife Conservation to demonstrate that compliance. At any time new impacts or other data become available with a bearing on this opinion, on advisement of that fact, NGB/MSARNG will reinitiate consultation.

Biological Opinion

The prospects for gopher tortoise survival and recovery rest to a large extent with the NGB/MSARNG and USFS because they have statutory obligations under Section 7 of the Endangered Species Act. Accordingly, through the consultation process, it has been a Service aim to effect a long term reversal in gopher tortoise declines through productive changes in land management activities where remaining gopher tortoise colonies exist. The Federal role in this endangered species issue is elevated in importance because most gopher tortoises

occur on lands owned by forest industry and private individuals where prevailing timber management practices have been and may remain incompatible with habitat requirements of the gopher tortoise, resulting in a continued decline of gopher tortoise populations. The Service agrees with the contractor's assessment that activities, as assessed, are likely to contribute to the long term decline and ultimate extirpation of gopher tortoise populations on Camp Shelby. We also concur with the contractor's view that this process can be reversed. The view that military training activity promotes good gopher tortoise habitat is on the whole without any basis in biological fact. It is the Biological Opinion of the FWS that the land altering activities as modified by the operating plan contained herein are not likely to jeopardize the continued existence of G. polyphemus.

Incidental Take

In meeting the provisions for incidental take in Section 7(b)(4) of the Act, we have reviewed the biological opinion and all available information relevant to the subject of this consultation. Based on that review, incidental take is not anticipated. Accordingly, no such take is authorized. If an incident involving take of G. polyphemus occurs, the Jackson Field Station, FWS (601/965-4900) must be notified immediately.

Conservation Recommendations

(A) It is recommended that protection/management requirements for the gopher tortoise be incorporated in introduction briefings for incoming users of Camp Shelby's training area. This has been done successfully at other military installations and should be helpful.

(B) For the environmental staff person located at Camp Shelby, we feel it important that this individual establish liaison with both Federal and State wildlife law enforcement personnel, and devise some workable strategy to combat illegal take.

(C) The contractor's recommendations for use of signs to alert users of Camp Shelby should be carried out, at least for all major entrances to the military reservation.

(D) The establishment of the T-44 training area as a gopher tortoise refuge provides a unique opportunity for research on questions about the gopher tortoise that are tied into the accumulated effects of past timber management and military training activities. Research that compares the effects of management/protection on the refuge with less intensively managed areas on Camp Shelby would be valuable in guiding continued management activity by NGB/MSARNG and USFS.

This consultation has been complex. Oftentimes there have been conflicting objectives. It has been an FWS intention to accommodate military requirements in every way possible while helping to insure that NGB/MSARNG fully satisfies their Section 7 obligations. For the most part, we feel that goal has been accomplished. This would not have been possible except for the untiring effort and commitment by Major Robert A. Lee. James Rappaport of NGB was responsible for arranging funding of the biological assessment, the document which has provided the framework for conducting this consultation. Without the assessment, the consultation would have been exceptionally difficult and complex. The biological assessment is a major contribution to the knowledge of the listed population and as such will surely contribute significantly to recovery goals for the gopher tortoise.

Should the basic actions/agreements which have been the subject of this consultation be altered or significantly modified, consultation must be reinitiated. If activities which would affect gopher tortoises occur in areas which have not been surveyed, it will be necessary to insure that gopher tortoises are not present (survey). If additional gopher tortoises are found and they are subject to affect from your actions, either these same guidelines/agreement must apply or consultation must be reinitiated.

If you have any questions, please contact Wendell A. Neal (601/965-4900).

Sincerely,

Robert G. Bowker
Complex Supervisor
Jackson Field Office

cc:
Regional Director, FWS, Atlanta, Georgia (AWE)
Samuel K. McLellan, Lt. Col. MS Army National Guard, Jackson, MS
Libby Hartfield, MS Dept. Wildlife Conservation, Jackson, MS
M. G. Farmer, Adjutant General's Office, MS Military Dept., Jackson, MS

APPENDIX L

2. Opinion Issued to National Guard Bureau - ARE

United States Department of the Interior
FISH AND WILDLIFE SERVICE

900 Clay Street, Room 235
Vicksburg, Mississippi 39180
September 29, 1992

Colonel Robert McGuire
Chief National Guard Bureau-ARE
111 South George Mason Drive
Arlington Hall Station
Arlington, Virginia 22203-1382

Dear Colonel McGuire:

This is the Biological Opinion of the U.S. Fish and Wildlife Service (Service) regarding current military activities, the proposed reconfiguration of tank maneuver training, and new/improved facilities at Camp Shelby, Mississippi, and its effects on the threatened gopher tortoise (*Gopherus polyphemus*). A U.S. Forest Service (FS) Special Use Permit (SUP) allows military activities on FS lands provided those uses are consistent with FS administered objectives and are conducted under conditions that protect the public interest. This opinion addresses the consultation requirements of Section 7 of the Endangered Species Act and does not satisfy the requirements of any other environmental statutes. The Army's preferred alternative is to construct certain new facilities and expand tank maneuvering (for the battalion task force level) into 39,772 acres of FS lands. The military currently conducts training activities on 134,000 acres in south central Mississippi, of which approximately 117,000 acres are in DeSoto National Forest (NF).

PROJECT DESCRIPTION

The action alternatives are conceptual at this time and the acreage figures are estimates. Subsequent environmental documents will address site specific acreages. The Army's preferred alternative (No. 1) is to continue military training with provisions for a new battalion task force track maneuver area. Three training areas would be needed and they would be connected by permanent travel corridors. Thus, alternative 1 expands tank maneuvering southward in DeSoto NF and would require the clearing of 10,229 forested acres in the training areas (TA's); 3,876 acres of clearing in the corridors that would connect the three TA's, and 7,112 acres of thinning in the TA's. Thus, if Alternative 1 is implemented, 21,217 acres of the proposed 39,772 acre maneuver area would be cleared or thinned, of which approximately 5,600 acres is 60 year old longleaf pine forest (Figure 1). Alternative 1 would also involve turning back an estimated 10,000 acres presently used by Camp Shelby but no longer needed for track maneuver, to the FS for management (Army 1991).

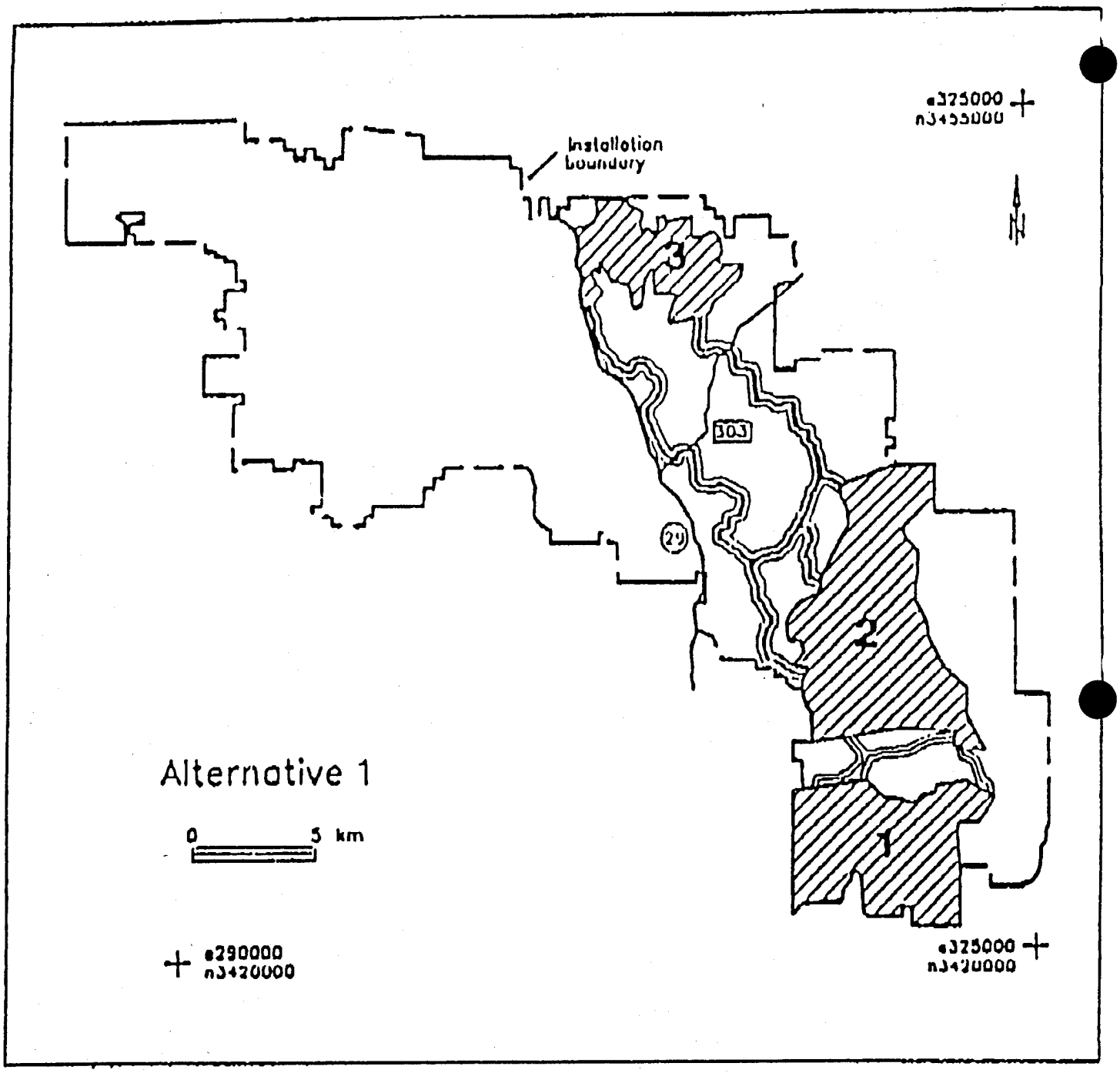


Figure 1. Location of proposed maneuver areas under Alternative 1.

Alternative 2 is to continue training with provisions for a new company team track maneuver area. This is a scaled back version of the preferred plan and still requires three TA's. Proposed clearing for TA's would be 8,251 acres, 3,229 acres of clearing in the corridors, and 6,180 acres of thinning in the TA's. Therefore, 17,660 acres of the 33,835 acre maneuver area would be cleared or thinned. With Alternative 2, approximately 12,000 acres in TA's now used by Camp Shelby would be turned back (Army 1991).

Alternative 3 is to continue military training with tracked vehicle maneuvering limited to the northeast section. This alternative, suggested during scoping meetings, would restrict off-road tracked vehicle maneuvering to the area north and west of FS Route 303 (Eight Mile Road). Tracked vehicle maneuver activity in other areas would be terminated and these areas returned to the FS. Two sub-options of this alternative have been identified: 3A) company team maneuver area and 3B) battalion task force maneuver area. Both of these options would require the construction of an interior gravel road in proposed TA 5. Alternative 3A would use three small TA's with the proposed clearing of 3,885 acres and clearing of 679 acres for corridors. Thinning of 2,090 acres in the TA's would be necessary (Army 1991).

Alternative 3B proposes four TA's also northwest of Route 303. Clearing of 4,491 acres and thinning of 4,943 would be required in the TA's and 1,056 acres of clearing in the corridors. In the case of both of these sub-options, 9,894 acres of existing TA's would be turned back to forest management (Army 1991).

All four of the above alternatives would also involve several new facilities and/or improvements as follows:

a) automated tank table VIII (tank training area) which would cover about 750 acres.
b) multi-purpose range complex-heavy for advanced combat gunnery training. The preferred site is the approximate 2,135 acre existing Range 40 complex.
c) automated tank wash would be a 69 acre facility on state or Department of Defense (DOD) lands.
d) explosive ordinance disposal facility two alternative sites have been identified on state or DOD lands.
e) Combined-arms live-fire exercise assembly areas option 1 (without concurrent training) would involve clearing 75 to 80 acres. Option 2, providing for concurrent training, would also necessitate clearing 75 to 80 acres and thinning of about 100 acres.
f) Tactical aviation training areas three sites of between 22 acres and 62 acres and one site between 158 and 247 acres are deemed necessary. The sites would be cleared, graded, and intensively revegetated.

Alternative 4 is to continue military training with current activities on existing areas and the construction of the above facilities, whereas alternative 5 would continue range and firing activities but discontinue off road tank maneuvering. No action, which would be to

discontinue military training, is the sixth alternative. All FS lands would return to the FS for management.

CONSULTATION HISTORY

As just discussed, ongoing military activities at Camp Shelby which affect the gopher tortoise are addressed in the Service's January 26, 1989, Biological Opinion which was issued jointly to the National Guard Bureau (NGB) and FS. Those activities include tracked and wheeled vehicle use, range construction, facility construction, use of firing points, and management of state and DOD lands.

A little over one year ago the initial meeting was held with the NGB and the FS to discuss the proposed reconfiguration of tank maneuvering at Camp Shelby and any effects it may have on the gopher tortoise. At that meeting it was determined, with the advice of the Service, that the proposal to reconfigure tank maneuvering may adversely affect the gopher tortoise. It was also decided that the scope of the proposed tank maneuvering expansion was not covered under the existing Biological Opinion which, as just described, addressed ongoing activities but not a proposal to reconfigure training into areas of DeSoto NF within the existing SUP area but not currently used for this purpose.

In June 1991, the Service, FS, and military met with the contractor, Mr. Edward Wester, who was to survey remaining areas of Camp Shelby for the gopher tortoise and prepare the biological assessment. The Service presented areas of concern that we believed should be discussed in the biological assessment.

In October 1991, the National Guard and FS hand delivered the October 11, 1991, draft biological assessment of the effects of continued/proposed military training activities on the federally threatened gopher tortoise to our office. Discussions of the content and direction of the draft assessment were held at that time.

On May 11, 1992, the National Guard hand delivered the final biological assessment and accompanying letter prepared by the NGB with FS comments and concurrence for the effects of continued and proposed expansion of military training on the gopher tortoise at Camp Shelby. The letter requested that formal consultation be initiated and also requested a Biological Opinion on the effects of the proposed NGB actions on the threatened gopher tortoise. The Service responded on May 15, and concurred in our letter that the expansion of military activities on DeSoto FS may adversely affect the gopher tortoise.

The Service hosted a June 2, 1992, meeting with the FS and the National Guard to discuss the biological assessment including questions the Service had with the assessment. The areas of concern to be included in the Biological Opinion were also covered during the meeting. A second meeting to discuss questions and progress of the opinion was held at Camp Shelby on June 25, and the third meeting was also held at Camp Shelby on August 4, 1992. Extension of B.O. time limit.

BIOLOGICAL BACKGROUND

The gopher tortoise is a large terrestrial turtle. Its western population was listed as threatened in the Federal Register on July 7, 1987 (50 CFR 25376). This population is found west of the Tombigbee and Mobile Rivers of Alabama and across south Mississippi to extreme southeastern Louisiana. This population is found wholly within the natural range of the longleaf pine along the lower Gulf coastal plain. The limits of the known past distribution of the gopher tortoise is similar to its present distribution. Within the longleaf pine forest, the best gopher tortoise habitat is found on excessively drained soils with adequate sand depth for burrowing (usually 1+ meter). The species is commonly associated with a pine overstory and an open understory with a grass and forb groundcover. Approximate present ownership of gopher tortoise habitat (listed population) is as follows: 20 percent National Forest, 10 percent other public lands, 30 percent forest industry, and 40 percent in other private ownership (Service 1989).

As stated in our Recovery Plan (Service 1990), there are estimated to be 10,923 tortoises in 252,246 acres of Mississippi habitat, 12,900 tortoises in 99,753 acres of Alabama habitat, and a near extinction situation in 11,898 acres of Louisiana habitat. Approximately 600 individuals (880 active burrows; two-thirds times the number of active burrows equals the number of tortoises) have been located on 85,000± acres of Camp Shelby (pers. comm. Mr. Ed Wester). DeSoto NF contains 18,137 acres of suitable gopher tortoise habitat which consist of priority soils (droughty, sandy soils over a meter in depth). Within the areas required for the preferred alternative, there are about 125 tortoises (two thirds of 190 burrows).

The species is characterized by spadelike forelimbs with large flattened toenails, stumpy elephantine hindlimbs, heavily scaled head, and gray to grayish brown carapace. Gopher tortoises generally occur in colonial aggregations and are best known for the extensive burrows they dig. The burrows provide the tortoise, as well as a number of other species, with refuge from the otherwise physiologically demanding environment in which the gopher tortoise occurs (Wester and Swing 1992).

The tortoise, historically and currently, is a component of xeric plant communities originally identified by the presence of longleaf pine. Changes altering the longleaf pine ecosystem also affected the gopher tortoise. Longleaf pine forest occupied 60-70 million acres of coastal uplands before European man arrived and now there may be no more than four million acres remaining. Second growth longleaf stands came back after the timber cutting operations that took place throughout longleaf forests in the early part of this century. Because of planting problems with longleaf, original longleaf sites were often planted in slash and loblolly pines. This practice, along with excessive burning intervals and oftentimes heavy site preparation, has continued on soils which naturally grew longleaf pine (Service 1989).

The natural longleaf community and its associated diversity probably represent optimal habitat for the gopher tortoise. Those management practices which alter this system are clear cutting, heavy soil churning for site preparation, and prolonged burning intervals. Timber practices that most nearly mirror the natural system very likely improve survivorship opportunities for the tortoise. Longleaf pine trees, fire-dependent animals, and perennials thrived with a summertime burning cycle, a cycle which has long since been interrupted. The change in fire frequency and timing has produced profound changes in these original xeric communities. While gopher tortoises can be maintained at some level under a modified (heavily thinned, frequently burned) plantation system of management, it has been shown that tortoise densities are significantly greater in more naturally managed stands of longleaf pine (Service 1990).

While the Service believes that forestry practices are and have been the single largest threat to gopher tortoise populations, other factors contributing to their decline are listed (essentially) as follows in the biological assessment: a) habitat loss from clearing for development; b) human depredation; c) vehicular traffic mortality; d) fragmentation of range, resulting in populations with little or no opportunity for immigration or emigration, and consequently for gene exchange; and e) possible increase in the rate of predation, particularly by raccoons, imported fire ants, coyotes, armadillos, and domestic and feral dogs (Wester and Swing 1992).

PROJECT IMPACTS

Current military activities on the 134,000 acres used by Camp Shelby which may affect the gopher tortoise are addressed in the Service's January 26, 1989, Biological Opinion. The annual monitoring inspection, as required in the 1989 opinion, reveals that military training activities do not appear to be adversely affecting the tortoise. There are 62 active burrows located within (and associated with) Colonies 82, 88, 89, and 90 in the impact area. Because of the existing danger of explosive impacts, the assessment recommends relocating these individuals. However, due to an almost complete lack of research data on gopher tortoises at Camp Shelby, the population trend and whether or not military operations may actually be having a positive impact on the tortoise is unknown.

As pointed out in the biological assessment, military training activities such as intensive tracked-vehicle maneuvers, are inherently destructive. As such, these activities can adversely affect ground dwelling species such as the threatened gopher tortoise. Without careful consideration of the gopher tortoise during planning and subsequent conduct of training activities, the potential for adverse impact is high (Wester and Swing 1992).

The direct impacts associated with military training including vehicle maneuvering, artillery firing, and bivouacking pose direct and obvious threats such as mortality, burrow destruction, egg destruction, and habitat alteration. Without avoidance and other mitigation, these activities would result in significant adverse impacts to the gopher tortoise. However, military training use of sites occupied by gopher tortoises is, in most cases, completely

restricted or mitigated. Most colony sites are fenced with buffer zones and posted as off-limits areas. Infrequent military training is conducted at firing points and observation points occupied by gopher tortoises, but even on these sites individual burrows are protected from direct impacts with a large steel post and sign at the burrow entrance. Thus, the Service concurs with your assessment that existing military activities do not result in direct adverse impacts to the gopher tortoise at Camp Shelby.

The adverse indirect impacts of military activities on the gopher tortoise include interference with mating, nesting, feeding, burrow construction, natural movements, and gene flow within the population. In addition, alteration of potential (suitable but unoccupied) habitats would preclude future use of those sites. These indirect impacts, as well as any action alternative, cause fragmentation of gopher tortoise habitat. However, as stated in the assessment, due to a lack of knowledge about gopher tortoise population dynamics and a lack of historical data on Camp Shelby, the degree to which military activities indirectly interfere with the tortoise is unknown.

The proposed reconfiguration of tank maneuvering at Camp Shelby represents a major modification of current military training. Action alternatives 1, 2, 3A, and 3B propose variations of plans to meet new tracked-vehicle training requirements at Camp Shelby (alternative 4 would be continued use of existing maneuver areas and alternative 5 proposes no tracked-vehicle maneuvers). The action alternatives are still conceptual in nature and a certain degree of flexibility in design still exists. However, the proposed facilities improvements associated with the action alternatives are, according to the military, more limited in their design and location than the maneuver corridors and training areas.

As just stated above, current military training activities are not directly impacting the gopher tortoise. The Service has determined that implementation of most of the action alternatives, with appropriate mitigation measures, would not result in direct adverse impacts to the tortoise. We do not, however, have enough data to assess indirect impacts of tank maneuvering to the tortoise. The following is a discussion of the impacts associated with the proposed new facilities improvements common to all action alternatives and then a discussion of each alternative.

Automated Tank Table VIII

This upgrade of Range 45 would total 750 acres and use the existing impact area for firing. No other gopher tortoises would be impacted by the proposed tank table.

Multi Purpose Range Complex-Heavy (MPRCH)

The MPRCH is a standard Army gunnery range. The preferred site is the existing Range 40 complex and would encompass approximately 2,135 acres, 317 of which have previously been cleared. The alternate site has a greater abundance of tortoises than the preferred site. A total of 25 tortoises would be adversely impacted if the preferred plan is implemented as

planned. The assessment recommends that the preferred plan be redesigned to avoid the tortoise colonies and burrows with the exception of the relocation of one isolated burrow. The military has stated that the preferred MPRCH site cannot be altered and proposes to relocate the 25 tortoises. The Service reviewed the NGB proposal to relocate the 25 tortoises and concurred with that proposal to relocate the tortoises.

Automated Tank Wash

No active burrows are located in the preferred site, and one isolated active tortoise burrow is within the alternate site. The assessment recommends that this tortoise be relocated.

Explosive Ordinance Disposal Facility

No tortoise burrows occur on the proposed site at grid coordinates 990463, however a small colony was found at the alternate site (coordinates 997458). The assessment recommends that the site with the tortoises not be used.

Combined-Arms Live-Fire Exercise Assembly Areas(CALFEX)

The CALFEX purpose is to train units to perform combat missions in a live-fire environment. Three tracked-vehicle assembly areas of approximately 25 acres each and a tactical operation center of approximately 3 - 5 acres are proposed. Three gopher tortoise colonies with a total of 16 active burrows and 14 isolated/semi-isolated tortoise burrows occur within proposed Training Areas 29 and 35. With the exception of moving tortoises from four isolated burrows, the assessment recommends that the assembly areas be modified to avoid the colonies and the other active individual burrows. The military agrees that the CALFEX will be modified to avoid the 26 active burrows.

Tactical Aviation Areas

No active tortoise burrows occur on any of the aviation areas. The assessment recommends the adjustment of boundaries to avoid inactive tortoise burrows and priority soils. It also recommends that two isolated tortoises be relocated since they are over 1,000 meters from any other known active burrows. The military and Service agree with these recommendations.

The above facilities improvements are common to all action alternatives. Variations between alternatives are discussed below.

Alternative 1- Battalion Task Force Maneuver Area

Fourteen gopher tortoise colonies (89 active burrows) and 46 isolated or semi-isolated burrows are widely distributed throughout the proposed maneuver areas. Approximately 1,323 acres of priority gopher tortoise soils are distributed throughout the maneuver areas.

Ten gopher tortoise colonies, with a total of 46 active burrows, and 25 isolated or semi-isolated burrows occur within, or immediately adjacent to, the proposed maneuver corridors between proposed maneuver areas 1, 2 and 3. Approzimately 293 acres of priority gopher tortoise soils occur within these proposed maneuver corridors. The NGB will reconfigure the maneuver corridor to avoid these tortoises and priority soils.

The assessment recommends that no training activities take place within 200 feet of any colony or within 200 feet of any semi-isolated burrow. There are also several specific recommendations for fencing and posting colonies, semi-isolated burrows, and priority soils as off-limits and relocating 42 isolated individuals. The Service concurs with the assessment which states that if existing conservation recommendations contained in the 1989 Biological Opinion and the specific recommendations of your assessment are followed, then Alternative 1 can be implemented without significant adverse impacts to the gopher tortoise.

Alternative 2- Company Team Maneuver Area

Sixteen gopher tortoise colonies (107 active burrows) and 40 isolated or semi-isolated burrows are distributed throughout the proposed maneuver areas. Approximately 1,311 acres of priority soils are also found throughout the maneuver areas. The NGB will reconfigure the maneuver corridor to avoid these tortoises and priority soils.

In addition to the general recommendations that apply to all alternatives, there are several specific recommendations for rerouting of maneuver corridors; fencing and posting of colonies, burrows, and priority soils as off-limits; and relocating 34 isolated individuals. It is concluded that if existing conservation guidelines and the specific recommendations are followed, then Alternative 2 can be implemented without significant adverse impacts to the gopher tortoise. The Service concurs.

Alternative 3A- Company Team Maneuver Area

Five gopher tortoise colonies (33 active burrows) and 10 isolated or semi-isolated burrows are distributed throughout the proposed maneuver areas. Approximately 168 acres of priority soils are found throughout the maneuver areas.

One gopher tortoise colony, with six active burrows, and two isolated burrows or semi-isolated burrows occur within the proposed maneuver corridors between propsed maneuver areas 3, 4 and 5. No priority gopher tortoise soils occur within those proposed maneuver corridors.

Again, numerous recommendations for the avoidance, protection, or relocation of 9 isolated tortoises are outlined in the assessment. As with the above alternatives, the determination is made that if existing guidelines and the specific recommendations are followed, Alternative 3A would not result in significant adverse impacts to the tortoise.

Alternative 3B- Battalion Task Force Maneuver Area

Twenty five gopher tortoise colonies, and a portion of a 26th colony, (200 active burrows) occur throughout the maneuver areas. Approximately 213 acres of priority soils are located within the maneuver areas. One gopher tortoise colony, with six active burrows, and a portion of a second colony, with 32 total active burrows; and two isolated burrows occur with the proposed maneuver corridors between proposed maneuver areas 3, 4, 5 and 6. No priority gopher tortoise soils occur within these proposed maneuver corridors.

The assessment concludes that given the distribution and abundance of colonies and individuals in the proposed maneuver areas, Alternative 3B cannot be fully implemented without significant adverse impacts to the gopher tortoise. A summary of impacts is displayed in Table 1.

BIOLOGICAL OPINION

As stated in the Service's 1989 Biological Opinion, the prospects for gopher tortoise survival and recovery rest to a large extent with the Mississippi Military and the FS since a large portion of the tortoise's range is in the DeSoto NF, and they have statutory obligations pursuant to Section 7 of the Endangered Species Act. The assessment states that gopher tortoise conservation/management efforts associated with the two ongoing federal actions (Camp Shelby military operations and FS habitat management) have no doubt greatly increased the prospects for long term survival and recovery of the western population. The Service concurs with that statement.

The assessment concludes that any action alternative (with the exception of 3B as discussed above) can be implemented with the avoidance and other recommendations provided in the assessment and not result in significant adverse impacts to the tortoise. We concur. However, the military has proposed that tortoises in the MPRCH training area be relocated whereas the assessment recommended that these tortoises be avoided by reconfiguring the training areas. Our opinion is based on the assessment and the conservation measures in Appendix 1, and also approves the military's proposal to relocate 25 tortoises from the MPRCH training area.

The Service has determined that the direct and indirect effects of any action alternative (except 3B) together with the accumulated effects of past and present actions and events currently affecting the gopher tortoise, as well as cumulative effects, are not likely to jeopardize the continued existence of the gopher tortoise.

TABLE 1. SUMMARY OF ALTERNATIVE IMPACTS						
Alternative--->	1[2]	2	3A	3B	4	5
Acres Impacted	39,772	33,835	12,327	23,335	N/A	N/A
Number of Colonies	29	29	11	32	8	8
Total Active Burrows in Colonies	176	178	80	273	86	86
Total Active Semi/isolated Burrows	85	77	26	40	45	45
Total Active Burrows	261	255	106	313	131	131
Individuals Proposed for Relocation[1,4]	73	65	42	[3]	4	31

[1] Does not include relocation of 62 burrows in impact area.
[2] Preferred Plan.
[3] Project not considered.
[4] Maximum individuals that could be relocated as recommended in the Biological Assessment.

INCIDENTAL TAKE

Sections 4(d) and 9 of the Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement. The measures described below are nondiscretionary, and must be included by the FS as binding conditions of any permit issued to the NGB, as appropriate, and implemented by the NGB in order for the exemption of Section 7 (o)(2) to apply.

The Service anticipates that four individual tortoises could be taken annually as a result of the implementation of alternatives 1, 2, or 3A. The incidental take is expected to be in the form of killing either as a direct result of military vehicular traffic or entombment by a tracked vehicle covering an active burrow entrance from which the tortoise cannot dig out and eventually dies. Our determination is based on the increased level of military vehicle traffic and additional encounters in proximity to occupied gopher tortoise habitat over and above current military training activities. Further, open areas such as maneuver corridors attractive to tortoises would be created by implementation of any action alternative. These new attractive areas would be heavily travelled by military vehicles at times of the year when gopher tortoises are active. This obviously increases the chance for incidental take.

The Service has determined that this level of impact is not likely to result in jeopardy to the species because the taking of four individuals per year represents less than one percent of the Camp Shelby population. That estimate is based on the surveyed number of active burrows on Camp Shelby which is now 880 (Wester and Swing 1992). As discussed with Mr. Wester perhaps two thirds of those active burrows are actually occupied by a tortoise. One percent of 600 would be approximately six individuals. Following discussions with qualified gopher tortoise experts, the Service has determined the Camp Shelby population can perpetuate itself with an annual loss of four individuals from military training activities.

Incidental take in the from of interference with breeding, feeding, and other behavior patterns may occur to tortoises occupying semi-isolated burrows (burrows within approximately 1,000 meters of colonies). Since it is believed that these semi-isolated individuals are biologically connected to the colony, military vehicle crossings of the corridor between the semi-isolated burrow and the colony may interfere with the individual's interaction with the colony. The NGB has determined that the following number of semi-

isolated burrows could be affected with each alternative: No. 1-23, No. 2-23, No. 3A-1, and No. 3B-35, and No. 4-20.

Incidental take would also occur during the proposed relocation of the tortoises in the 62 active burrows in the impact zone as well as the individuals relocated in connection with implementation of any alternative. Take includes harassment, pursuit, and capture. Use of formerly occupied gopher tortoise habitat for military activities would also constitute a taking of habitat. Provided you adhere to the excellent guidelines contained in Appendix E of the assessment and a site specific plan is developed for all relocations, we do not expect the relocation process to result in the deaths of any tortoises. However, it has not been proven that the relocation of tortoises will result in sustainable, reproducing colonies.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take:

a) To minimize killing of tortoises by military vehicles, any individual which moves on to a maneuver corridor will be relocated to a suitable transplant site.

b) To reduce isolation and death of tortoises, vehicle use of the corridor between semi-isolated burrows and colonies should be held to a minimum.

In order to be exempt from the prohibitions of Section 9 of the Act, the NGB military must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. Compliance will be accomplished by implementing the assessment's specific recommendations to avoid colonies and individuals and the recommended relocation of tortoises occupying isolated burrows except the construction of MPRCH.

In addition to providing a 200 foot buffer around semi-isolated burrows, a 200 foot wide habitat corridor should be posted with caution signs between the burrow and the closest colony. Priority soils as defined in the Recovery Plan are to be avoided. Finally, as discussed in the assessment and at our June 1992 meetings, a specific monitoring plan for the relocated tortoises should be developed and submitted to the Service for approval. Also, a site specific plan for the proposed relocation of any tortoise will be developed and submitted to the FS and to the Service for approval. Please be advised that incidental take is not authorized until receipt and approval of these plans.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impacts of the incidental take that might otherwise result from the proposed action. With implementation of these measures, the Service believes that no more than three tortoises will be incidentally taken. If, during the course of the action, this level of incidental take is exceeded, such incidental take would represent new information

requiring review of the reasonable and prudent measures provided. The military must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Upon locating a dead, injured, or sick endangered or threatened species specimen, initial notification must be made to the Service's Law Enforcement Office, Slidell, Louisiana, telephone number 504-641-6209. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

This concludes formal consultation on the actions outlined in the consultation request for the gopher tortoise. Please be advised that consultation may be necessary for other listed species. As required by 50 CFR Section 402.16, reinitiation of formal consultation is required if: (1) the amount or extent of incidental take of three per year is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations that are causing such take must be stopped in the interim period between the initiation and completion of the new consultation if any additional taking is likely to occur.

One final note. Please be advised that on June 22, 1992, the Service received a "Notice Of Intent To File A Citizen Suit Under Section 11 (g) Of The Endangered Species Act For Failure To Designate Critical Habitat For The "Threatened" Western Gopher Tortoise (*Gopherus polyphemus*)." This possible lawsuit did not alter the contents or conclusions of this Biological Opinion.

Sincerely,

Charles A. McCabe
Acting Field Supervisor

cc: Fish and Wildlife Service, Atlanta, GA (AWE)
Fish and Wildlife Service, Jackson, MS
U.S. Forest Service, Jackson, MS

CONSERVATION RECOMMENDATIONS OF THE JANUARY 26, 1989 BIOLOGICAL OPINION

(A) It is recommended that protection/management requirements for the gopher tortoise be incorporated in introduction briefings for incoming users of Camp Shelby's training area. This has been done successfully at other military installations and should be helpful.

(B) For the environmental staff person located at Camp Shelby, we feel it important that this individual establish liaison with both Federal and State wildlife law enforcement personnel, and devise some workable strategy to combat illegal take.

(C) The contractor's recommendations for use of signs to alert users of Camp Shelby should be carried out, at least for all major entrances to the military reservation.

(D) The establishment of the T-44 training area as a gopher tortoise refuge provides a unique opportunity for research on questions about the gopher tortoise that are tied into the accumulated effects of past timber management and military training activities. Research that compares the effects of management/protection on the refuge with less intensively managed areas on Camp Shelby would be valuable in guiding continued management activity by NGB/MSARNG and USFS.

(E) Reference Figure 1, Map, enclosed...

The High Explosive Impact Area should be treated as a no survey, no management zone with regard to the gopher tortoise. The other impact zone on the map (Artillery Impact Area) should not be managed to encourage gopher tortoise use. However, new activities proposed within this outer zone would require a gopher tortoise survey prior to implementation. If the new project would impact any gopher tortoise burrows, then the NGB should contact the FWS for consultation. [1]

[1] This recommendations not included in the 1989 Biological Opnion.

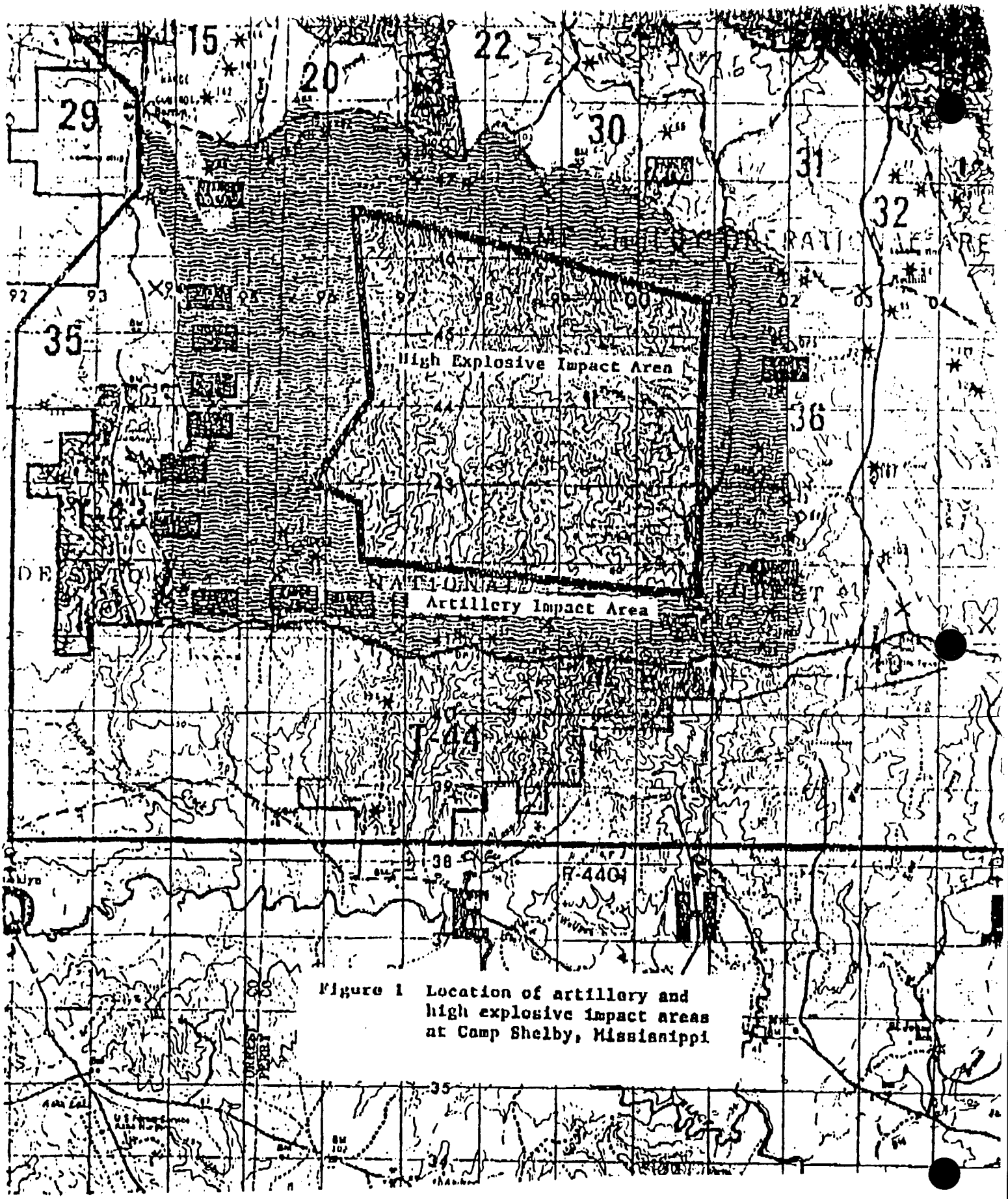


Figure 1 Location of artillery and high explosive impact areas at Camp Shelby, Mississippi

Literature Cited

U.S. Department of the Army. 1991. Military Training Use of National Forest Lands Camp Shelby, Mississippi. Draft Environmental Impact Statement, Vol. I.

_____. 1989. Biological Opinion regarding the effects of Camp Shelby military operations and forest management on the federally threatened gopher tortoise. Jackson, Mississippi. 10 pp.

U.S. Fish and Wildlife Service. 1990. Gopher Tortoise (*Gopherus polyphemus)* Recovery Plan. Southeast Region, Atlanta, Georgia. 28 pp.

Wester, E.E. and C. K. Swing. 1992. Biological Assessment of the Effects of Continued/Proposed Military Training Activities on the federally threatened Gopher Tortoise, *Gopherus polyphemus*, on Selected Lands at Camp Shelby, Mississippi. 187 pp.

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APPENDIX L

3. Opinion Issued to U.S. Forest Service

United States Department of the Interior
FISH AND WILDLIFE SERVICE
900 Clay Street, Room 235
Vicksburg, Mississippi 39180

October 13, 1993

Mr. Marvin C. Meier
Acting Regional Forester
U.S. Forest Service
1720 Peachtree Road
Atlanta, Georgia 30367

Dear Mr. Meier:

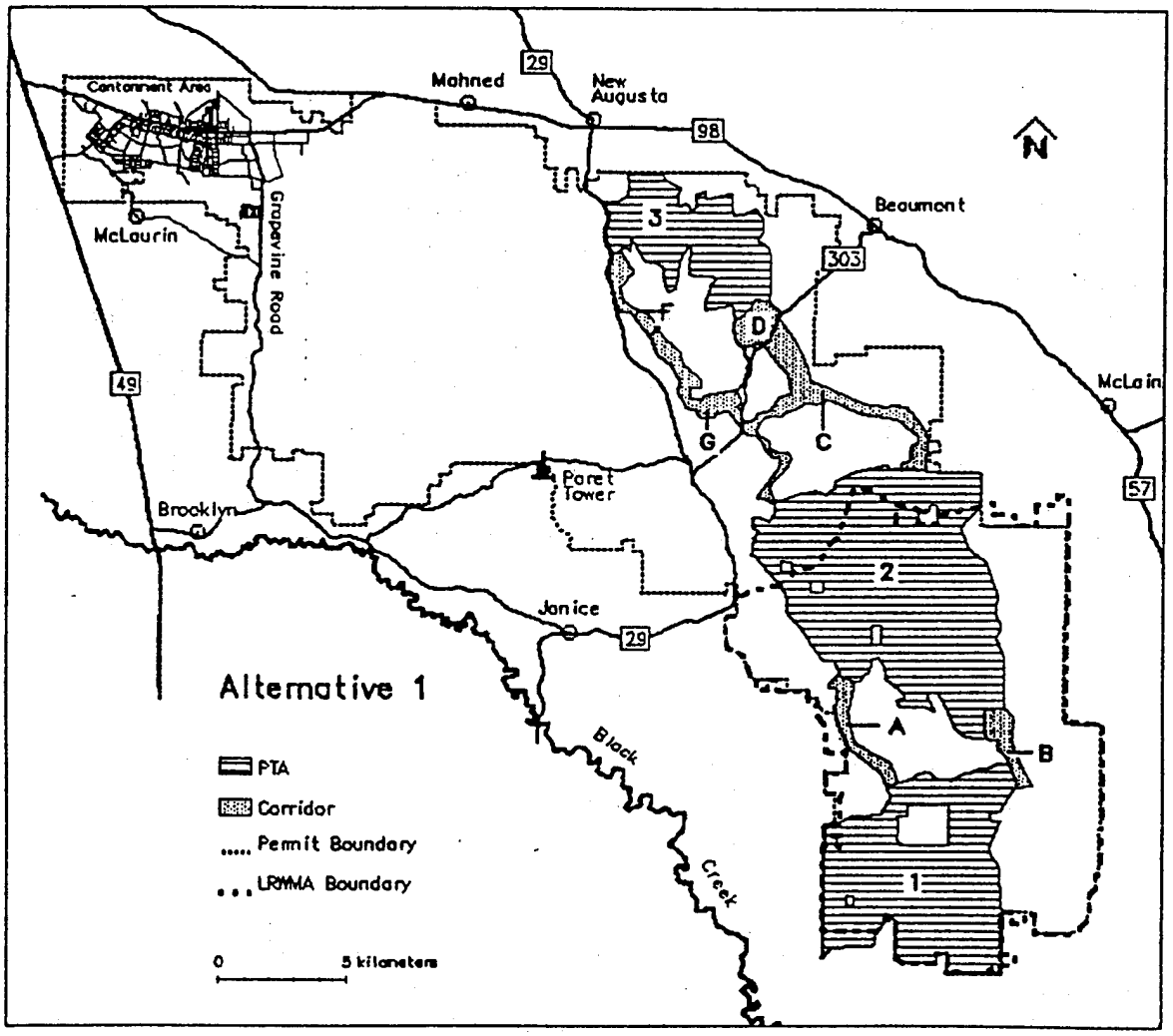
This is the biological opinion of the U.S. Fish and Wildlife Service (Service) regarding the effects of the U.S. Forest Service's (FS) proposed issuance of a Special Use Permit (SUP) to the National Guard Bureau (NGB) for the reconfiguration of tank maneuver training and new/improved facilities at Camp Shelby, Mississippi, and its effects on the western population of the threatened gopher tortoise (*Gopherus polyphemus*). This opinion is provided in response to your letter of June 30, 1993. A FS SUP allows military activities on FS lands provided those uses are consistent with FS objectives and are conducted under conditions that protect the public interest. The Army's preferred alternative is to construct certain new facilities and expand tank maneuvering (for the Battalion Task Force level) into 39,772 acres of Forest Service lands. The military currently conducts training activities on 134,000 acres in south central Mississippi, of which approximately 117,000 acres are in DeSoto National Forest (NF).

PROJECT DESCRIPTION

This opinion concerns the FS proposed issuance of a SUP to the NGB which would allow the expansion of tank maneuvering and certain new facilities. The Service has already issued a biological opinion on the reconfiguration of tank maneuvering to the NGB on September 29, 1992.

Please note that the action alternatives are conceptual at this time and the acreage figures are estimates. Subsequent environmental evaluations will address site specific acreages. The Army's preferred Alternative (No. 1) is to continue military training with provisions for a new battalion task force training area. Three training areas (TA's) would be needed and they would be connected by permanent travel corridors (Figure 1). Alternative 1 expands tank maneuvering southward in DeSoto NF and would require the clearing of 14,053 forested acres in the training areas and corridors that would connect the three TA's, and 5,788 acres of thinning in the TA's. Thus, if Alternative 1 is implemented, 19,841 acres of the proposed 34,190 acre maneuver area would be cleared or thinned, of which approximately one third is

Figure 1


Containment Area
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McLain
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Brooklyn
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Alternative 1
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Permit Boundary
LRMMA Boundary
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60 year old longleaf pine forest. Alternative 1 would also involve turning back an estimated 7,128 acres presently used by Camp Shelby, but no longer needed, to the FS for management (U.S. Department of the Army 1991).

Alternative 2 is to continue training with provisions for a new company team maneuver area. This is a slightly scaled back version of the proposed action and still requires three TA's (Figure 2). Proposed clearing for TA's and the corridors would be 11,930 acres, and 5,923 acres of thinning. Therefore, 17,853 acres of the 30,286 acre maneuver area would be cleared or thinned. With Alternative 2, approximately 9,314 acres in TA's now used by Camp Shelby would be turned back (U.S. Department of the Army 1991).

Alternative 3 is to continue military training with tracked vehicle maneuver limited to the northwest section. This alternative, suggested during scoping meetings, would restrict off-road tracked vehicle maneuvering to the area north and west of FS Route 303 (Eight Mile Road). Tracked vehicle maneuver activity in other areas would be terminated and these areas returned to the FS. Two sub-options of this alternative have been identified: 3A) company team maneuver area and 3B) battalion task force maneuver area. Both of these options would require the construction of an interior gravel road in proposed TA 5. Alternative 3A would use three small TA's (Figure 3) with the proposed clearing of 3,603 acres including corridors. Thinning of 2,505 acres in the TA's would be necessary (U.S. Department of the Army 1991). An estimated 8,603 acres no longer required for training would be returned to the FS.

Alternative 3B proposes four TA's also northwest of Route 303. Clearing of 4,579 acres and thinning of 5,580 would be required for TA's and the corridors (Figure 4). In the case of this sub-option, 7,153 acres of existing TA's would be turned back to forest management (U.S. Department of the Army 1991).

All four of the above alternatives would also involve several new facilities and/or improvements as follows:

a) automated tank table VIII (tank training area), which would cover about 750 acres.
b) multi-purpose range complex-heavy, for advanced combat gunnery training. The preferred site is the approximate 2,135 acre existing Range 40 complex.
c) automated tank wash, a 69 acre facility on state or Department of Defense (DOD) lands.
d) explosive ordinance disposal facility, two alternative sites have been identified on state or DOD lands.
e) combined-arms live-fire exercise assembly areas, would involve clearing a total of 75 acres.
f) tactical aviation training areas, three sites of between 22 acres and 62 acres and one site between 158 and 247 acres are deemed necessary. The sites would be cleared, the area graded, and intensively revegetated.

Figure 2

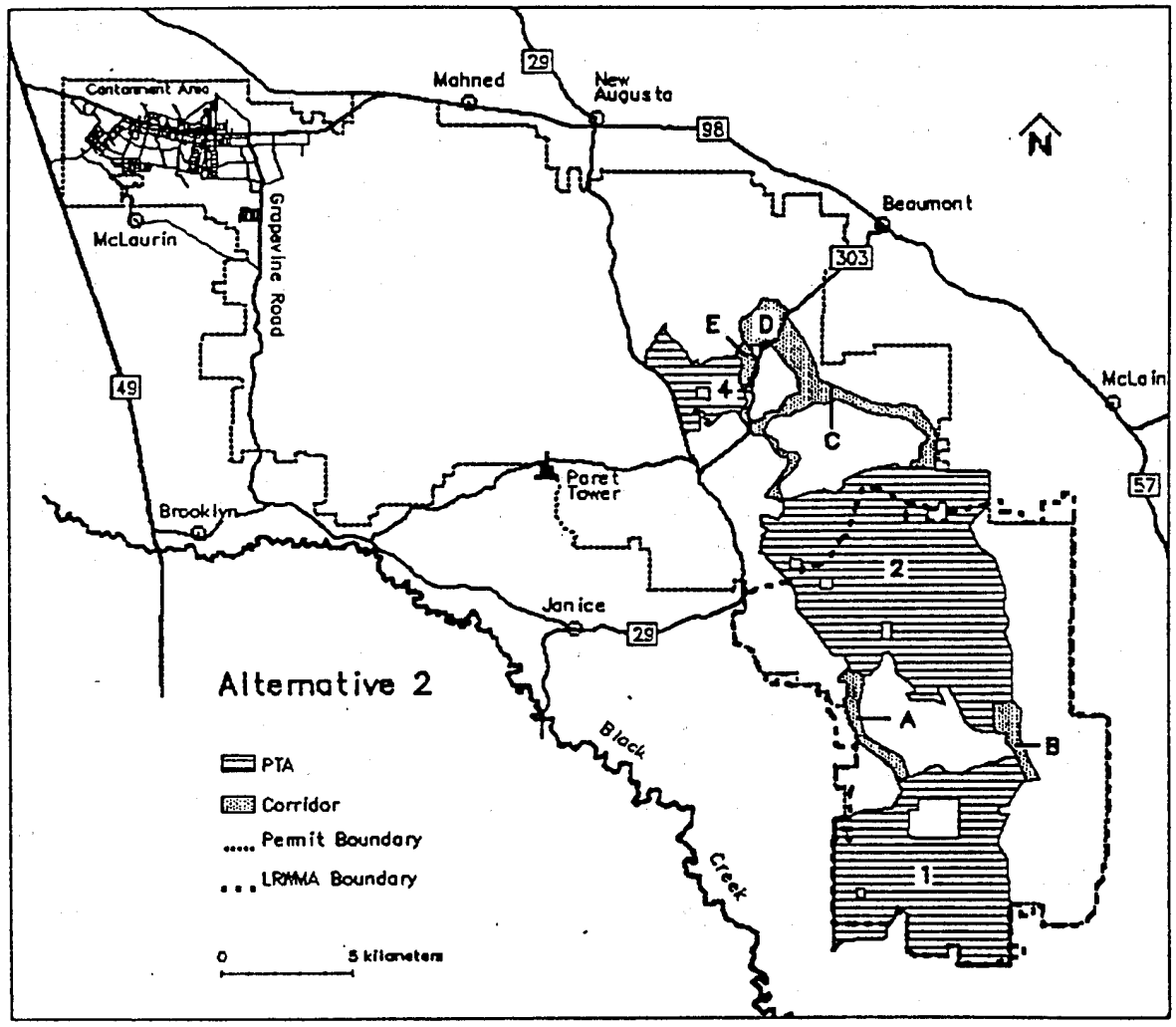

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Alternative 2
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LRMMA Boundary
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Figure 3

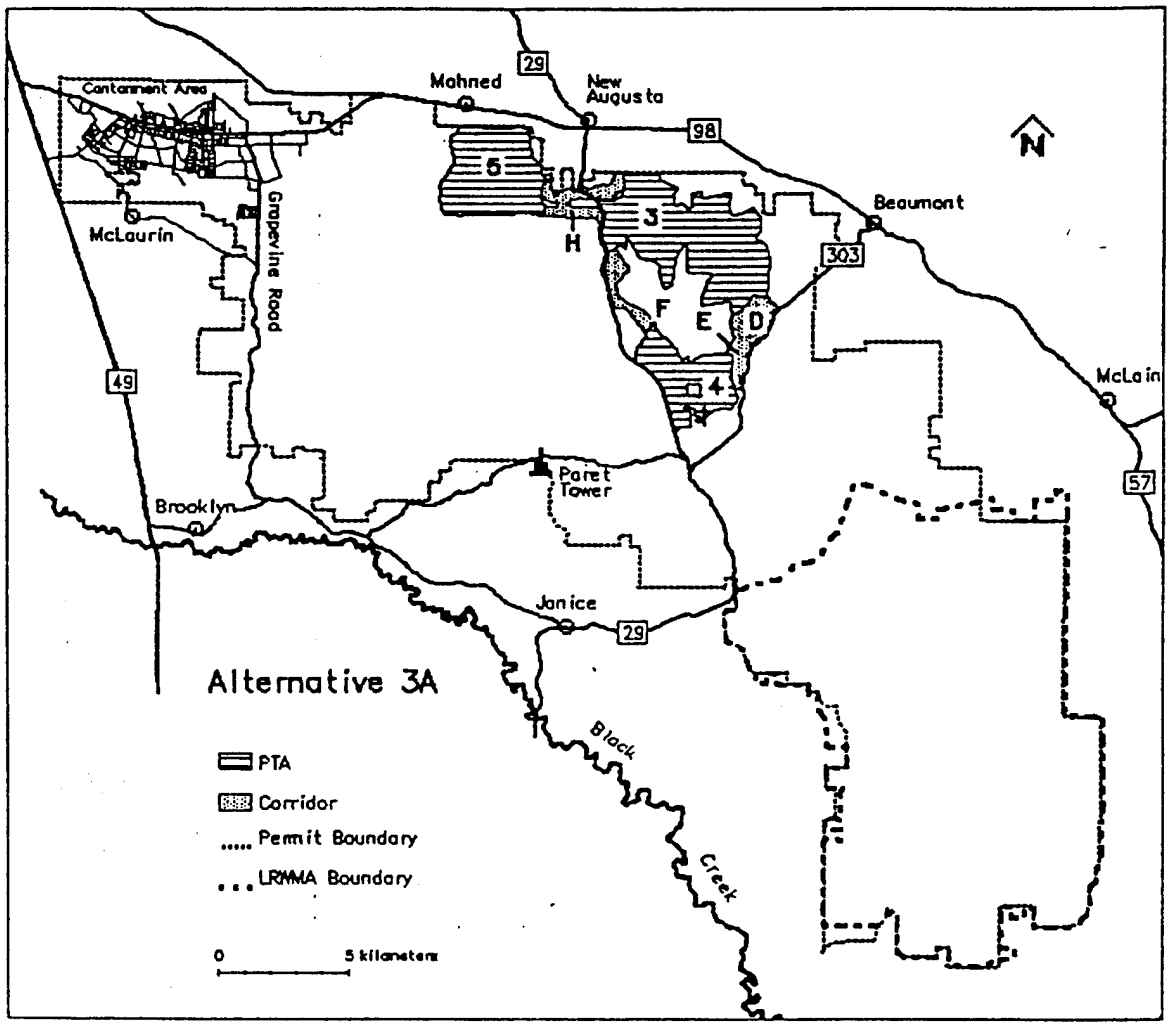
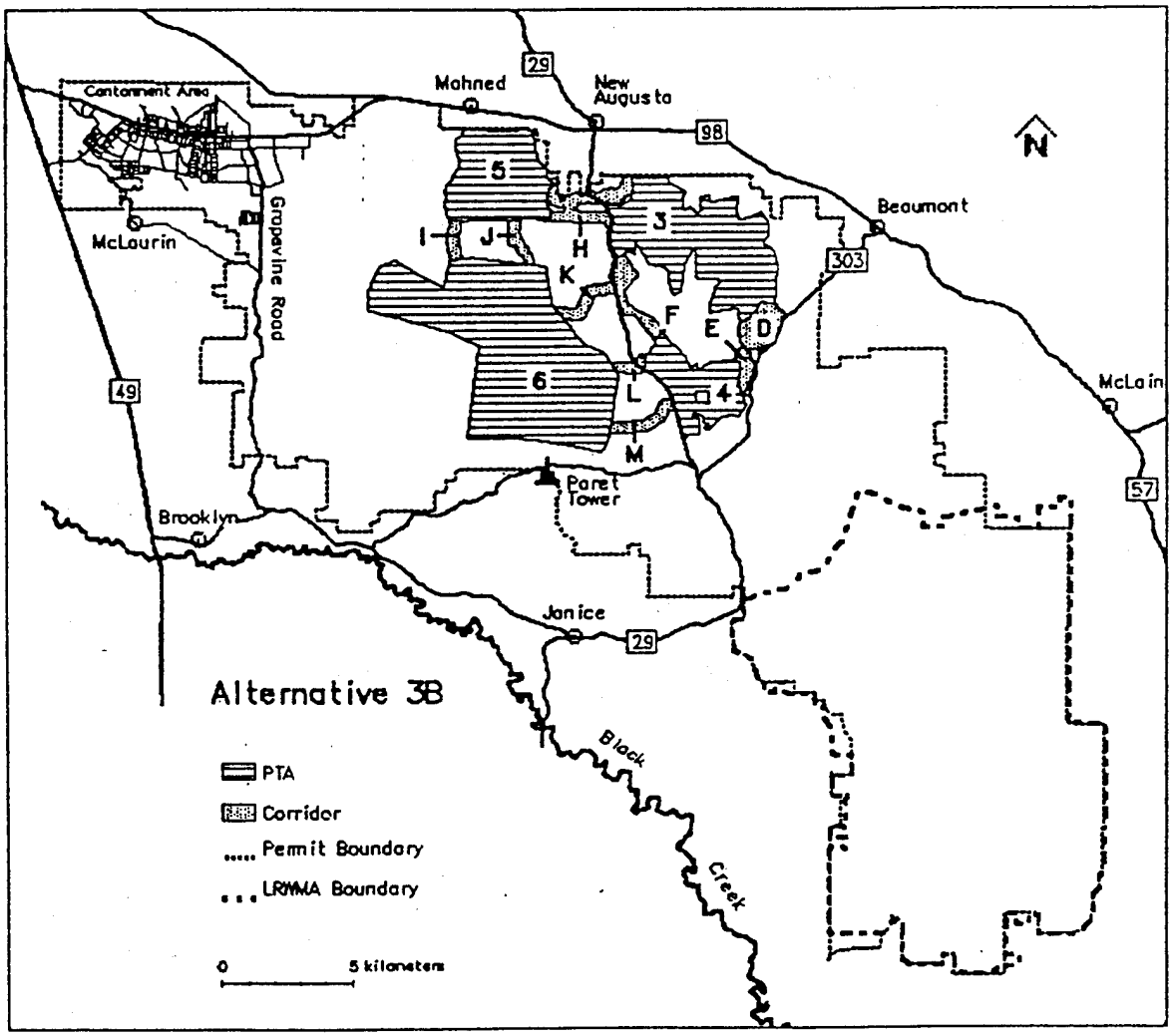

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Figure 4


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Alternative 3B
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Creek

Alternative 4 is to continue military training with current activities on existing areas and the construction of the above facilities, whereas alternative 5 would continue range and firing activities but discontinue off road tank maneuvering. If alternative 4 or 5 is selected, the 1989 biological opinion concerning the impacts of military training on the gopher tortoise at Camp Shelby (as amended by annual inspections) would continue to apply to these alternatives. Even if alternatives 1, 2, or 3 are selected, the conservation measures for current military activities would still apply. No action, which would be to discontinue military training, is the sixth alternative. All FS lands would return to the FS for management.

CONSULTATION HISTORY

As just discussed, ongoing military activities at Camp Shelby which affect the gopher tortoise are addressed in the Service's January 26, 1989, biological opinion which was issued jointly to the NGB and FS. Those activities include tracked and wheeled vehicle use, range construction, facility construction, use of firing points, and management of state and DOD lands. On July 26, 1990, the Service issued a no jeopardy biological opinion to the FS regarding the implementation of the proposed habitat management guidelines (Handbook Chapter 424) which addressed management of the gopher tortoise on DeSoto NF.

Over two years ago the initial meeting was held with the NGB and the FS to discuss the proposed reconfiguration of tank maneuvering at Camp Shelby and any effects it may have on the gopher tortoise. At that meeting it was determined, with the advice of the Service, that the proposal to reconfigure tank maneuvering may adversely affect the gopher tortoise. It was also decided that the scope of the proposed tank maneuvering expansion was not covered under the existing January 26, 1989, Biological Opinion which, as just described, addressed ongoing activities.

In June 1991, the Service, FS, and military met with the contractor, Mr. Edward Wester, who was to survey remaining areas of Camp Shelby for the gopher tortoise and prepare the biological assessment. The Service presented areas of concern that we believed should be discussed in the biological assessment.

In October 1991, the National Guard and FS hand delivered the October 11, 1991, draft biological assessment of the effects of continued/proposed military training activities on the federally threatened gopher tortoise to this office. Discussions of the content and direction of the draft assessment were held at that time.

On May 11, 1992, the National Guard hand delivered the final biological assessment and accompanying letter prepared by the FS and the guard for the effects of continued and proposed expansion of military training on the gopher tortoise at Camp Shelby. The letter requested that formal consultation be initiated and also requested a biological opinion on the effects of the proposed NGB actions on the threatened gopher tortoise. The Service

responded on May 15, and concurred in our letter that the expansion of military activities on DeSoto NF may adversely affect the gopher tortoise.

The Service hosted a June 2, 1992, meeting with the FS and the National Guard to discuss the biological assessment including questions the Service had with the assessment. The areas of concern to be included in the biological opinion were also covered during the meeting. A second meeting to discuss questions and progress of the opinion was held at Camp Shelby on June 25, 1992, and the third meeting was also held at Camp Shelby on August 4, 1992. On September 29, 1992, the Service issued a no jeopardy biological opinion to the NGB for the expansion of the military activities described in this opinion.

On June 18, 1993, the Service and the NGB met with the FS in Jackson, Mississippi, to discuss the initiation of formal consultation with the FS on the effects of the issuance of a SUP for expanded military training activities on the gopher tortoise. In the FS letter of June 30, 1993, the Service was requested to enter formal consultation regarding the effects of the possible issuance of the SUP for expanded tank maneuvering and other facilities. The Service letter of July 8, 1993 concurred with the FS that we should enter formal consultation, since the FS action was not covered by the September 29, 1992 opinion, and stated that we would provide our biological opinion in 135 days (November 12, 1993).

The Service provided a first draft biological opinion to the FS on July 20, 1993, and on August 5, 1993 the Service met with the FS in Jackson, Mississippi, and by telephone conference call with the FS in Atlanta, to discuss the draft opinion including suggestions to clarify certain issues in the draft.

The second draft biological opinion was also discussed with the FS in Jackson and by telephone conference call with the FS in Atlanta. A third meeting was held on September 20, 1993 with the FS and Mississippi Military Department in Jackson to discuss the second draft opinion.

BIOLOGICAL BACKGROUND

The gopher tortoise is a large terrestrial turtle. Its western population was listed as threatened in the Federal Register on July 7, 1987 (50 CFR 25376). This population is found west of the Tombigbee and Mobile Rivers of Alabama and across south Mississippi to extreme southeastern Louisiana. This population is found wholly within the natural range of the longleaf pine along the lower Gulf coastal plain. Its known historic distribution is similar to its present distribution. Within the longleaf pine forest, the best gopher tortoise habitat is found on excessively drained soils with adequate sand depth for burrowing (usually 1+ meter). The species is commonly associated with a pine overstory and an open understory with a grass and forb groundcover. Approximate present ownership of gopher tortoise habitat (listed population) is as follows: 20 percent National Forest, 10 percent other public lands, 30 percent forest industry, and 40 percent in other private ownership (Service 1989).

As stated in our Recovery Plan (Service 1990), there are estimated 10,923 tortoises in 252,246 acres of Mississippi habitat, 12,900 tortoises in 99,753 acres of Alabama habitat, and a near extinction situation in 11,898 acres of Louisiana habitat. At present, approximately 1,500 individuals (2,146 active burrows) have been surveyed and located on 125,000± acres of Camp Shelby (pers. comm. Mr. Ed Wester). Ongoing intensive camera surveys in each potentially active burrow will clarify the number of tortoises within the SUP area. DeSoto NF contains 18,137 acres of suitable gopher tortoise habitat which consist of priority soils (droughty, sandy soils over a meter in depth). Within the areas of proposed reconfiguration for training in Camp Shelby necessary for the preferred alternative, there are about 135 tortoises (two thirds of 206 active burrows).

The species is characterized by spadelike forelimbs with large flattened toenails, stumpy elephantine hindlimbs, heavily scaled head, and gray to grayish brown carapace. Gopher tortoises generally occur in colonial aggregations and are best known for the extensive burrows they dig. The burrows provide the tortoise, as well as a number of other species, with refuge from the hot and dry environment in which the gopher tortoise occurs (Wester and Swing 1992).

The tortoise is a component of xeric plant communities originally identified by the presence of longleaf pine. Changes altering the longleaf pine ecosystem also affect the gopher tortoise. Longleaf pine forest occupied some 60-70 million acres of coastal uplands before European man arrived and now there may be no more than four million acres remaining. Second growth longleaf stands came back after the timber cutting operations that took place throughout longleaf forests in the early part of this century. Because of planting problems with longleaf, original longleaf sites were often planted in slash and loblolly pines. This practice, along with excessive burning intervals and oftentimes heavy site preparation, has continued on soils which naturally grew longleaf pine, however this practice does not occur on FS lands (Service 1989).

The natural longleaf community and its associated diversity probably represent optimal habitat for the gopher tortoise. Those management practices which alter this system are clear cutting, heavy soil churning for site preparation, and prolonged burning intervals. Timber practices that most nearly mirror the natural system very likely improve survivorship opportunities for the tortoise. Longleaf pine trees, fire-dependent animals, and perennials thrived with a summertime burning cycle, a cycle which has long since been interrupted. The change in fire frequency and timing has produced profound changes in these original xeric communities. While gopher tortoises can be maintained at some level under a modified (heavily thinned, frequently burned) plantation system of management, tortoise densities are significantly greater in more naturally managed stands of longleaf pine (Service 1990).

While the Service believes that forestry practices are and have been the single largest threat to gopher tortoise populations, other factors contributing to their decline are listed (essentially) as follows in the biological assessment: a) habitat loss from clearing for development; b) human depredation; c) vehicular traffic mortality; d) fragmentation of range,

resulting in populations with little or no opportunity for immigration or emigration, and consequently for gene exchange; and e) possible increase in rate of predation, particularly by raccoons, imported fire ants, coyotes, armadillos, and domestic and feral dogs (Wester and Swing 1992). Military activities are also a threat to gopher tortoise populations particularly concerning fragmentation of range.

PROJECT IMPACTS

Current Activities

The existing military activities (Alternative 4) on the 134,000 acres used by Camp Shelby which may affect the gopher tortoise are addressed in the Service's January 26, 1989 biological opinion. The annual monitoring inspection, as required in the 1989 opinion, reveals that military training activities do not appear to be adversely affecting the tortoise. However, due to an almost complete lack of research data on gopher tortoises at Camp Shelby, the population trend and whether or not military operations may actually be having a positive impact on the tortoise is unknown.

As pointed out in the biological assessment, military training activities such as intensive tracked-vehicle maneuvers, are inherently destructive. As such, these activities can adversely affect ground dwelling species such as the threatened gopher tortoise. Without careful consideration of the gopher tortoise during planning and subsequent conduct of training activities, the potential for adverse impact is high (Wester and Swing 1992). However, based on our annual inspections, the Service has determined that through the Mississippi Military Department's environmental awareness program, careful planning and protective measures are being implemented at Camp Shelby for the tortoise.

The direct impacts associated with military training including vehicle maneuvering, artillery firing, and bivouacking, pose obvious threats such as direct killing, burrow destruction, egg destruction, and habitat alteration. Without avoidance and other mitigation, these activities would result in significant adverse impacts to the gopher tortoise. However, military training use of sites occupied by gopher tortoises is, in most cases, completely restricted or mitigated. Most colony sites are fenced with buffer zones and posted as off-limits areas. Infrequent military training is conducted at firing points and observation points occupied by gopher tortoises, but even on these sites individual burrows are protected from direct impacts with a large steel post and sign at the burrow entrance. Thus, the Service concurs with the assessment that existing military activities do not result in direct adverse impacts to the gopher tortoise at Camp Shelby. Our no-jeopardy biological opinion of January 26, 1989, reached that conclusion.

The adverse indirect impacts of military and other human activities on the gopher tortoise include interference with mating, nesting, feeding, burrow construction, natural movements, and gene flow within the population. In addition, alteration of unoccupied but potential

habitats may preclude future use of those sites. These indirect impacts, as well as any action alternative, result in fragmentation of gopher tortoise habitat. However, as stated in the assessment, due to a lack of knowledge about gopher tortoise population dynamics and a lack of historical data on Camp Shelby, the degree to which military activities indirectly interfere with the tortoise is largely unknown.

Proposed Action Alternatives

The proposed reconfiguration of tank maneuvering at Camp Shelby represents a major modification of current military training. Action alternatives 1, 2, 3A, and 3B propose variations of plans to meet new tracked-vehicle training requirements at Camp Shelby (alternative 4 would be continued use of existing maneuver areas and alternative 5 proposes no tracked-vehicle maneuvers). The action alternatives are still conceptual in nature and a certain degree of flexibility still exists. However, the proposed facilities common to all the action alternatives are, according to the military, less flexible in their design and location than the maneuver corridors and training areas.

Current military training activities are not directly impacting the gopher tortoise and we have an adequate understanding of the direct impacts that would result from the proposed actions. We do not, however, have enough data to fully assess any indirect impacts of additional tank maneuvering to the tortoise. The following is a discussion of the impacts associated with the proposed new facilities improvements common to all action alternatives and then a discussion of each alternative.

Automated Tank Table VIII

This would be an upgrade of Range 45 and would total 750 acres. This tank training area would use the existing impact area for firing. There are 62 active burrows located within (and associated with) Colonies 82, 88, 89, and 90 in the impact area. Because of the existing danger of explosive impacts, the assessment recommends that, regardless of any future military activities, these individuals be relocated. No other gopher tortoises would be impacted by the proposed tank table.

Multi Purpose Range Complex-Heavy (MPRCH)

The MPRCH is a standard Army gunnery range. The preferred site is the existing Range 40 complex and would encompass approximately 2,135 acres, 317 of which have previously been cleared. A total of 25 tortoises would be adversely impacted if the preferred plan is implemented as planned. The assessment recommends that the preferred plan be redesigned to avoid the tortoise colonies and burrows with the exception of the relocation of one isolated burrow. The military has stated that the preferred MPRCH site cannot be altered and proposes to relocate the 25 tortoises. An alternate site has a greater abundance of tortoises than the preferred site.

Automated Tank Wash

No active burrows are located in the preferred site, and one isolated active tortoise burrow is within the alternate site. The assessment recommends that this tortoise be relocated so that it has an opportunity to associate with other tortoises.

Explosive Ordinance Disposal Facility

No tortoise burrows occur on the proposed site at grid coordinates 990463, however a small colony was found at the alternate site (coordinates 997458). The assessment recommends that the site with the tortoises not be used.

Combined-Arms Live-Fire Exercise Assembly Areas(CALFEX)

The CALFEX purpose is to train units to perform combat missions in a live-fire environment. Three tracked-vehicle assembly areas of approximately 25 acres each are proposed. Three gopher tortoise colonies with a total of 16 active burrows and 14 isolated/semi-isolated tortoise burrows occur within proposed Training Areas 29 and 35. With the exception of moving four isolated burrows, the assessment recommends that the assembly areas be modified to avoid the colonies and the other active individual burrows. The military proposes to relocate all tortoises to accommodate the CALFEX as proposed (please refer to Reasonable and Prudent Measures, page 19).

Tactical Aviation Areas

No active tortoise burrows occur on any of the aviation areas. The assessment does recommend, however, the adjustment of boundaries to avoid tortoise burrows and priority soils that are adjacent to the aviation areas. It also recommends that two isolated tortoises be relocated since they are over 1,000 meters from any other known active burrows. The military and Service agree with these recommendations.

The above facilities improvements are common to all action alternatives which are discussed below.

Alternative 1- Battalion Task Force Maneuver Area

Fourteen gopher tortoise colonies (89 active burrows) and 46 isolated or semi-isolated burrows are widely distributed throughout the proposed maneuver areas. Approximately 1,323 acres of priority gopher tortoise soils are distributed throughout the project area.

Ten gopher tortoise colonies, with a total of 46 active burrows, and 25 isolated or semi-isolated burrows occur within, or immediately adjacent to, the proposed maneuver corridors between proposed maneuver areas 1, 2 and 3 (See Table 1 for summary of impacts). Approximately 293 acres of priority gopher tortoise soils occur within these proposed

TABLE 1. SUMMARY OF ALTERNATIVE IMPACTS						
Alternative->	1[1]	2	3A	3B	4	5
Additional Acres Affected	34,190	30,286	9,925	19,071	na[5]	na
Acres Not Directly Affected	14,707	12,732	4,331	10,587	na	na
Acres Cleared or Thinned	19,483	17,554	5,594	8,484	na	na
Number of Colonies[2]	28	27	14	33	20	7
Colonies in Areas Not Directly Affected[3]	21	20	7	26	13	0
Total Active Burrows in Colonies[2]	300	294	176	449	277	101
Active Burrows in Colonies in Areas Not Directly Affected[3]	199	193	75	348	176	0
Total Active Semi/Isolated Burrows	65	65	26	49	34	19
Active Semi/Isolated Burrows in Areas Not Directly Affected[3]	19	19	2	23	15	0
Total Active Burrows	365	359	202	498	311	120
Proposed Relocations Due to Military Construction	39	39	39	NC[4]	39	39
Proposed Relocations From High Explosive Impact Area	62	62	62	NC	62	62
Proposed Relocations Due to Isolation	51	51	16	NC	23	9
Total Relocations	152	152	117	NC	124	110

[1] Proposed action
[2] Includes colonies/burrows in high explosive impact area
[3] Remaining colonies/burrows in action areas to be relocated
[4] Project not considered
[5] Not applicable

maneuver corridors. The NGB will reconfigure the maneuver corridors to avoid these tortoises and priority soils.

The assessment recommends that no training activities take place within 200 feet of any colony or within 200 feet of any semi-isolated burrow. There are also several specific recommendations for fencing and posting colonies, semi-isolated burrows, and priority soils as off-limits and relocating 42 isolated individuals. These 42 tortoises are so isolated that Mr. Wester believes that unless they are relocated, they will never interact or breed with other tortoises. The recommendation to move the tortoises is not to accommodate military activities. The Service concurs with the relocations, and we also believe that if existing conservation recommendations contained in the 1989 biological opinion and the specific recommendations for avoidance, and relocation contained in the biological assessment (pages 71-78) are followed, then Alternative 1 can be implemented without significant adverse impacts to the gopher tortoise.

Alternative 2- Company Team Maneuver Area

Sixteen gopher tortoise colonies (107 active burrows) and 40 isolated or semi-isolated burrows are distributed throughout the proposed maneuver areas. Approximately 1,311 acres of priority soils are also found throughout the project area.

Eight gopher tortoise colonies, with a total of 30 active burrows, and 23 isolated or semi-isolated burrows occur within, or immediately adjacent to, the proposed maneuver corridors between proposed maneuver areas 1, 2 and 4. Approximately 293 acres of priority soils occur within these proposed corridors.

In addition to the general recommendations that apply to all alternatives, the biological assessment has several specific recommendations for rerouting of maneuver corridors; fencing and posting of colonies, burrows, and priority soils as off-limits; and relocating of 34 isolated individuals. It is concluded that if existing conservation guidelines and the specific recommendations are followed, then Alternative 2 can be implemented without significant adverse impacts to the gopher tortoise. The Service concurs.

Alternative 3A- Company Team Maneuver Area

Five gopher tortoise colonies (33 active burrows) and 10 isolated or semi-isolated burrows are distributed throughout the proposed maneuver areas. Approximately 168 acres of priority soils are found throughout the project area.

One gopher tortoise colony, with six active burrows, and two isolated or semi-isolated burrows occur within the proposed maneuver corridors between maneuver areas 3, 4 and 5. No priority gopher tortoise soils occur within those proposed maneuver corridors.

Again, numerous recommendations for the avoidance, protection, and relocation of nine isolated tortoises are outlined in the assessment. As with the above alternatives, the determination is made that if existing guidelines and the specific recommendations are followed, Alternative 3A would not result in significant adverse impacts to the tortoise.

Alternative 3B- Battalion Task Force Maneuver Area

Twenty-five gopher tortoise colonies, and a portion of a 26th colony (200 active burrows), occur throughout the maneuver areas. Approximately 213 acres of priority soils are located within the maneuver areas. One gopher tortoise colony, with six active burrows, and a portion of a second colony, with 32 total active burrows; and two isolated burrows occur within the proposed maneuver corridors between proposed maneuver areas 3, 4, 5 and 6. No priority tortoise soils occur within these proposed maneuver corridors.

The assessment concludes that given the distribution and abundance of colonies and individuals in the proposed maneuver areas, Alternative 3B cannot be fully implemented without significant adverse impacts to the gopher tortoise. Therefore, this biological opinion will not evaluate the impact of the selection and implementation of this alternative on the gopher tortoise.

BIOLOGICAL OPINION

As stated in the Service's 1989 biological opinion, the prospects for gopher tortoise survival and recovery rest to a large extent with the Mississippi Military Department and the FS, since a large portion of the tortoise's range is in the DeSoto NF and they have statutory obligations pursuant to Section 7 of the Endangered Species Act to promote the recovery of listed species. Continued losses of tortoise habitat on privately owned lands has accentuated the importance of the FS's contribution to survival and recovery of the gopher tortoise. Indeed, without the FS's full exercise of its authority to conserve this species, its recovery is unlikely. The assessment states that gopher tortoise conservation/management efforts associated with the two ongoing federal actions (Camp Shelby operations and FS habitat management) have increased the prospects for long term survival and recovery of the western population. The Service concurs with that statement.

The Service has reviewed the direct and indirect effects of the FS proposed issuance of a SUP for action Alternatives 1, 2, and 3A together with the cumulative effects of other activities in the action area on the gopher tortoise. In evaluating the effects of this proposed action, the Service has used the best available scientific and commercial information on the proposed project and the gopher tortoise.

In developing a biological opinion, the Service is required to evaluate whether or not the proposed action would jeopardize the continued existence of the listed species. This standard has been defined to mean, "to engage in an action that reasonably would be expected,

directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." In evaluating the proposed issuance of a SUP for Alternatives 1, 2, and 3A, the Service has determined that these actions are likely to appreciably reduce the likelihood of the recovery of the gopher tortoise. The recovery plan for the threatened gopher tortoise specifically states that the status of this species on DeSoto NF is critical to prevent the species from becoming endangered. Therefore, the fragmentation and conversion of additional significant acreage of the DeSoto NF pine ecosystem to military maneuver areas would adversely affect the recovery potential of this species. However, the jeopardy standard dictates that only those actions which are determined to appreciably reduce both survival and recovery of a species exceed this threshold.

Section 7(a)(1) of the ESA requires federal agencies to promote the conservation and recovery of endangered and threatened species. "Conservation" is defined as "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary." Forest Service policy states that they must manage habitats at levels that accomplish the recovery of federally listed species so that protective measures under the ESA are no longer necessary (WO Amendment 2672.21- Recovery Requirements). Finally, the biological opinion of July 1990 was in response to the proposed FS habitat management chapter for the gopher tortoise which has a commitment to habitat improvements with a goal of restoring gopher tortoise populations on DeSoto NF to a non-threatened status.

Issuance of the SUP for Alternative 1, the preferred plan, would have the most negative impacts on recovery objectives for the gopher tortoise when compared to other action alternatives. Alternative 2, for the Company maneuver area, is a somewhat scaled back version of the Battalion size preferred plan, and would result in less adverse impacts to tortoise recovery efforts on DeSoto NF than the preferred plan. Alternative 3A, which is the Company maneuver proposal restricted to the northwest part of the NF, is scaled back in area when compared to Alternative 2, and thus would have the least impact to recovery objectives. Alternative 3B has not been evaluated due to significant adverse impacts to the gopher tortoise.

In reviewing the proposed action, the Service does not believe that the issuance of a SUP would appreciably reduce the likelihood of the survival of this threatened species. Therefore, based on the direct and indirect effects of the proposed action and cumulative impacts of other activities in the action area on the gopher tortoise and the standard by which all federal actions are evaluated in Section 7 consultation, it is the biological opinion of the Service that the proposed issuance of a SUP by the FS for Alternatives 1, 2, and 3A is not likely to jeopardize the continued existence of the gopher tortoise.

INCIDENTAL TAKE

Sections 4(d) and 9 of the Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement. The measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply.

The Forest Service has a continuing duty to regulate the activity that is covered by this incidental take statement. If the agency fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse.

Incidental take statements follow for each of the alternatives except Alternative 3B which the was eliminated from consideration by the NGB because of unacceptable impacts to the gopher tortoise.

Alternative 1

Based upon the best available information on the distribution of the gopher tortoise within the project area and the anticipated impacts of Alternative 1, the Service anticipates that four tortoises could be taken (killed) annually as a direct result of military vehicular traffic or entombment by tracked vehicles covering as active burrow entrance from which the tortoise cannot dig out and eventually dies. A total of 101 tortoises (62 within the impact area and 39 from facilities construction) may be taken (harassed) associated with the necessity to relocate the tortoises out of the project area. Additionally, 51 tortoises would also be relocated to increase the possibility of mating with other tortoises. Therefore, the FS issuance of a SUP to allow the NGB to implement Alternative 1 would result in taking through relocation (harassment) of 152 tortoises and the potential taking through mortality of up to four tortoises annually. Further, it is anticipated that an unquantifiable number of gopher tortoises which remain in the project area may be harassed from military operations interfering with breeding, feeding and other behavior patterns.

Alternative 2

Based upon the best available information on the distribution of the gopher tortoise within the project area and the anticipated impacts of Alternative 2, the Service anticipates that four tortoises could be taken (killed) annually as a direct result of military vehicular traffic or entombment by tracked vehicles covering an active burrow entrance from which the tortoise cannot dig out and eventually dies. Additionally, a total of 101 tortoises (62 within the impact area and 39 the result of constructing the facilities) may be taken (harassed) associated with the necessity to relocate the tortoises out of the project area. Again, it is proposed to relocate 39 isolated tortoises so that they may breed with other tortoises. Therefore, the FS issuance of a SUP to allow the NGB to implement Alternative 2 would result in the taking through relocation (harassment) of 140 tortoises and the potential taking through mortality of up to four tortoises annually. Additionally, it is anticipated that an unquantifiable number of gopher tortoises which remain in the project area may be harassed from military operations interfering with breeding, feeding and other behavior patterns.

Alternative 3A

Based upon the best available information on the distribution of the gopher tortoise within the project area and the anticipated impacts of Alternative 3A, the Service anticipates that four tortoises could be taken (killed) annually as a direct result of military vehicular traffic or entombment by tracked vehicles covering an active burrow entrance from which the tortoise cannot dig out and eventually dies. Again, a total of 101 tortoises (62 within the impact area and 39 the result of constructing the facilities) may be taken (harassed) associated with the necessity to relocate the tortoises out of the project area. Also, 16 isolated tortoises would be relocated for possible breeding opportunities. Therefore, the FS issuance of a SUP to allow the NGB to implement Alternative 3A would result in the taking of 117 tortoises through relocation (harassment) and the potential taking through mortality of up to four tortoises annually. Additionally, it is anticipated that an unquantifiable number of gopher tortoises which remain in the project area may be harassed by military operations interfering with breeding, feeding and other behavior patterns.

Alternatives 4 and 5

Based upon the best available information on the distribution of the gopher tortoise within the project area and the anticipated impacts of Alternative 4 or 5, the Service anticipates that the FS issuance of a SUP to allow the NGB to implement these alternatives would result in the taking through relocation (harassment) of 62 tortoises. The taking of these animals would be in the form of harassment as a result of relocation.

Alternative 6

This alternative is the "no action alternative" and would result in the discontinuation of all military training. It would result in no anticipated incidental take.

The Service anticipated incidental take of tortoises through mortality for Alternatives 1, 2, and 3A is based on the increased level of military vehicle traffic and additional encounters in proximity to occupied tortoise habitat over and above the current military training activities. The action alternatives would also result in the loss of previously occupied gopher tortoise habitat. Further, open areas such as maneuver corridors attractive to tortoises would be created by implementation of the action alternatives. These areas would be heavily travelled by military vehicles at times of the year when gopher tortoises are active.

The Service has determined that this level of annual mortality is not likely to result in jeopardy to the species since the taking of four individuals per year represents less than four-tenths of one percent of the Camp Shelby population. That estimate is based on the surveyed number of active burrows on Camp Shelby, which is now 1,683 (Wester, pers. comm.). As discussed with Mr. Wester, perhaps two-thirds (1,222) of those active burrows are actually occupied by tortoises. It is the Service's opinion that the Camp Shelby population can perpetuate itself with an annual loss of four individuals from military training exercises.

All relocation efforts must comply with the reasonable and prudent measures and terms and conditions provided in this opinion. The loss of gopher tortoises through mortality as a result of relocation actions taken in compliance with the provided incidental take statement is not anticipated.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take.

a) As recommended in the assessment, redesign the CALFEX to avoid tortoise colonies and individual burrows.

b) To minimize killing of tortoises by military vehicles, any individual which moves on to a maneuver corridor will be relocated to a suitable transplant site.

c) To reduce isolation and death of tortoises, corridors between semi-isolated burrows and colonies should be closed to traffic except during military training periods.

d) The High Explosive Impact Area (Figure 5) should be treated as a no survey, no management zone with regard to the gopher tortoise. The other impact zone on the map (Artillery Impact Area) should not be managed to encourage gopher tortoise use. However, new activities proposed within this outer zone would require a gopher tortoise survey prior to implementation. If the new project would impact any gopher tortoise burrows, then the NGB should contact the FWS for consultation.

e) Use the biological assessment's relocation guidelines (provided in Appendix A).

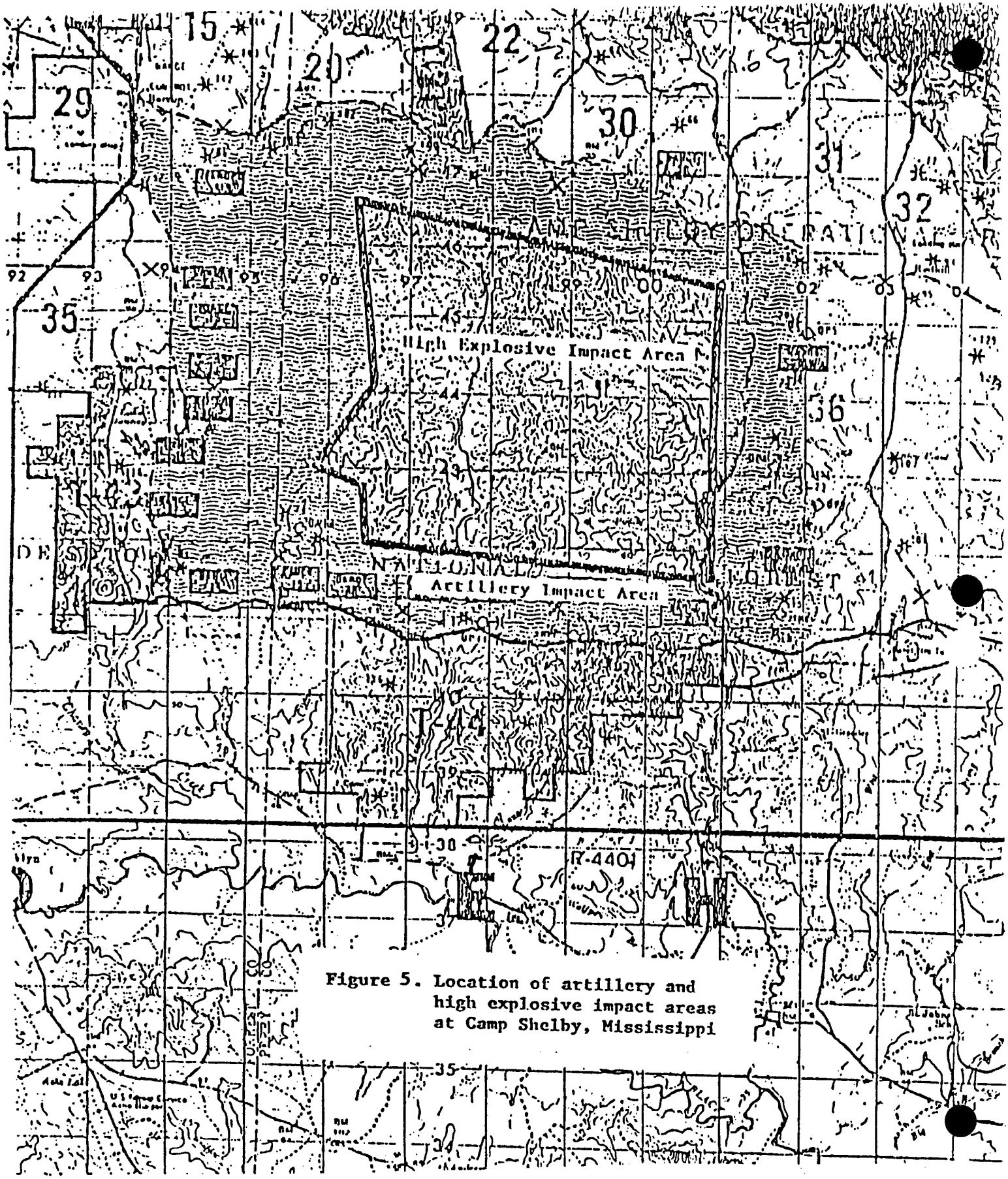


Figure 5. Location of artillery and high explosive impact areas at Camp Shelby, Mississippi

In order to be exempt from the prohibitions of Section 9 of the Act, the FS must condition any SUP (if issued) to comply with the following terms and conditions, which implement the reasonable and prudent measures described above. Compliance will be accomplished by implementing the assessment's specific recommendations for reconfiguration of the CALFEX to avoid colonies and individuals and the recommended relocation of tortoises occupying isolated burrows. Further, the relocation guidelines (See Appendix A) will be used throughout the planning and implementation of the action authorized by the SUP.

In addition to providing a posted 200 foot buffer around semi-isolated burrows, a 200 foot wide habitat corridor shall be posted with caution signs between the burrow and the closest colony. Finally, as discussed in the assessment and at our June 1992 meetings, a specific longterm monitoring plan for the relocated tortoises should be developed and submitted to the Service for approval prior to the initiation of any relocation efforts. Also, a site specific plan for the proposed relocation of any tortoise which moves on to a maneuver corridor will be developed and submitted to the Service for approval. In light of the recent development of a few cases of respiratory tract infections of gopher tortoises in Florida, the relocation plans will include extra precautionary measures (such as sterilization of holding containers) in order to reduce the possibility of infection. Please be advised that incidental take is not authorized until receipt and approval of these plans.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impacts of the incidental take that might otherwise result from the proposed action. With implementation of these measures, the Service believes that no more than four tortoises will be killed annually. If, during the course of the action, this level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures. The military must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Upon locating a dead, injured, or sick endangered or threatened species specimen, initial notification must be made to the nearest Fish and Wildlife Service Law Enforcement Office. Care should be taken in handling sick or injured specimens to ensure effective treatment and care, and in handling sick or injured specimens to preserve biological materials in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

This concludes formal consultation on the actions outlined in the consultation request for the gopher tortoise. As required by 50 CFR Section 402.16, reinitiation of formal consultation is required if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not

considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. If during the course of the action, the amount or extent of the incidental take is exceeded, the federal agency must reinitiate consultation with the Service immediately to avoid violation of Section 9. If it is determined that the impact of the additional taking will cause an unreasonable and adverse impact on the species as per Section 402.14(i), operations must be stopped in the interim period between the initiation and completion of the new consultation. The federal agency should provide an explanation of the causes of the taking.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Endangered Species Act directs federal agencies to use their authorities to further the purposes of the act by carrying out conservation programs for the benefit of endangered and threatened species. The term conservation recommendations has been defined as suggestions of the Service regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information.

Therefore, the Service recommends that:

1. The FS restrict military training to currently used areas to prevent potential adverse effects of this action on the recovery of the gopher tortoise in DeSoto NF.

2. Since the relocation of gopher tortoises continues to be discussed as a means to avoid or minimize impacts to the species, the FS should initiate a study to review the effects of such actions on the species.

In order for the Service to be kept informed of actions that either minimize or avoid adverse effects or benefit listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

Sincerely,

Allan J. Mueller
Field Supervisor

cc: U.S. Forest Service, Jackson, MS
Mississippi Military Dept., Jackson, MS
Fish and Wildlife Service, Jackson, MS
Fish and Wildlife Service, Atlanta, GA (AWE)

Ten days from the date of issuance of this opinion, copies will be sent to the following:

Mississippi Wildlife Federation, Jackson, MS
Sierra Club, Jackson, MS
Sierra Club Legal Defense Fund, New Orleans, LA
Mississippi Museum of Natural Science, Jackson, MS

CBJ/ds

Literature Cited

U.S. Department of the Army. 1991. Military training use of national forest lands Camp Shelby, Mississippi. Draft Environmental Impact Statement, Vol. I.

U.S. Fish and Wildlife Service. 1989. Biological opinion regarding the effects of Camp Shelby military operations and forest management on the federally threatened gopher tortoise. Jackson, Mississippi. 10 pp.

_____. 1990. Gopher tortoise (*Gopherus polyphemus)* recovery plan. Southeast Region, Atlanta, Georgia. 28 pp.

Wester, E.E. and C. K. Swing. 1992. Biological assessment of the effects of continued/proposed military training activities on the federally threatened gopher tortoise, *Gopherus polyphemus*, on selected lands at Camp Shelby, Mississippi. 187 pp.

APPENDIX L

4. Guidelines for Relocation of Gopher Tortoise on Camp Shelby

GUIDELINES FOR RELOCATION OF GOPHER TORTOISES ON CAMP SHELBY

Implementation of any of the relocation recommendations made in this Assessment will require the development of a specific relocation plan. The following is a set of general guidelines that should minimize most of the potential adverse effects that might be associated with relocation of gopher tortoises while at the same time maximizing the potential for long-term success of the relocation effort. As such, these guidelines should be incorporated into any specific plan for relocation of gopher tortoises on Camp Shelby.

GENERAL

(1) ALL gopher tortoise relocation efforts on Camp Shelby should be coordinated, on a case-by-case basis, with the U.S. Fish and Wildlife Service, U.S. Forest Service and Mississippi Department of Wildlife Fisheries and Parks.

(2) Gopher tortoise relocations should be conducted or supervised only by persons knowledgeable of the biology of the gopher tortoise. Ideally, such persons should have previous experience in relocating gopher tortoises.

(3) If at all possible, tortoises should not be relocated any farther than 10 miles from their original location.

(4) All local enforcement officials should be notified of the relocation effort. These officials should be provided with names of all individuals involved in the effort and should also be requested to monitor the activities at the relocation site as frequently as possible.

(5) Detailed records documenting the entire relocation effort should be kept.

TIMING OF RELOCATION EFFORT

(1) Relocation of gopher tortoises should occur during the period of April 15 - August 31 to allow sufficient time to construct/lengthen burrows prior to winter. If at all possible relocation efforts should be conducted during the period of April 15 - May 15. Although this may coincide with courtship/mating activities it will help to avoid the possibility of adverse effects from overheating during the warmer months of the year.

(2) Relocation efforts should only be conducted with sufficient manpower to insure that all traps (which may be widely separated) can be checked efficiently and that tortoises will be held for a minimal period of time before release.

RELOCATION SITE SELECTION

(1) Given the unknown but potentially adverse genetic, disease/parasite transmission, behavioral, social and demographic consequences, tortoises should generally not be relocated to sites currently occupied by other tortoises. However, in that small colonies may to some extent be reproductively isolated and thus not realizing their full reproductive potential, limited relocations into such colonies may not be unacceptable. Although it is somewhat arbitrary, given our incomplete knowledge of gopher tortoise biology, it is recommended that tortoises not be relocated to sites occupied by more that four resident tortoises.

(2) Because of the above potential adverse effects, relocation sites should, if at all possible, not be located any closer than 1,000 m to an existing colonial aggregation of more than four resident tortoises. However, in that relocated tortoises may have the potential for contributing to gene flow within the population, relocation of tortoises to strategic positions inbetween (but not closer than 1,000 m) existing aggregations may be of some future benefit.

(3) Ideally, a potential relocation site should have supported gopher tortoises in the past. The presence of abandoned burrows is a good indicator of previous use of a site by gopher tortoises.

(4) If tortoises are relocated to a formerly occupied site, the reasons that the site is no longer occupied should be determined.

(5) The relocation site should not be located in an area where the activities that will occur on the site will attract public attention.

(6) Given the importance of natural recolonization of Priority Gopher Tortoise Soils to efforts to recover the threatened western population, sites on Priority Gopher Tortoise Soils should NOT be used for relocation of tortoises.

(7) The relocation site should be of sufficient size to support the relocated individuals and the resultant population. Although tortoises have relatively small home ranges and naturally occur in sometimes dense aggregations, the maximum suitable stocking density for relocation projects is not known. However, we suggest that densities not exceed two tortoises/acre.

RELOCATION SITE PREPARATION

(1) All relocation site preparations should be completed prior to any collection of tortoises.

(2) Habitat quality on the relocation site should be suitable for gopher tortoises. Tree thinning or burning and planting of suitable herbaceous vegetation may be necessary. Site preparation techniques that might involve heavy machinery and its associated soil disturbance should be avoided.

(3) To prevent subsequent emigration of tortoises, the entire relocation site should be fenced in a manner capable of retaining gopher tortoises. A number of fencing materials have been used in past relocation efforts (e.g. plastic sheeting, wire mesh, aluminum sheeting, and metal and fiberglass panels). In that a large quantity of fencing materials will be required, we recommend that the strong, woven, black plastic material used as erosion control fencing on construction sites be utilized to fence the perimeter

of relocation sites. This fence should be a minimum of 24 inches tall and must be buried at least six inches deep.

(4) To minimize the potential for emigration and to prevent initial potentially adverse behavioral encounters, a sufficient number of individual enclosures should be constructed throughout the relocation site. Individual enclosures should be round in construction to eliminate corners in which tortoises will tend to dig and should contain ample herbaceous vegetation. Water should also be provided in a container small enough such that a tortoise cannot fall into or otherwise enter the container. Individual enclosures should be a minimum of 40 feet in diameter. In that these enclosures may receive greater abuse from enclosed tortoises, we recommend that they be constructed of aluminum sheeting a minimum of 24 inches tall and buried at least six inches deep.

(5) A "starter burrow" approximating the general shape of an appropriately sized gopher tortoise burrow should be dug at an approximately 30-degree angle and for a length of at least one meter in each individual enclosure. Additional starter burrows should also be excavated at random locations throughout the general relocation site. All starter burrows should be permanently numbered and marked to assess their subsequent value to the relocation effort.

(6) To the extent possible, efforts should be made to camouflage the relocation site fence and individual enclosures. Pattern disrupting paint schemes can have substantial camouflaging effects.

(7) Consideration should also be given to erecting a simple electric fence around the relocation site fence (one wire immediately above the enclosure fence and one near the base) to deter potential predators.

(8) Any persons that might find the relocation site will quickly become aware of the activities on the site. Signs (that should be cryptic from a distance but easily visible up close) should be posted around the relocation site warning of the potential fines associated with disturbance of the site or its tortoises.

COLLECTION OF TORTOISES

(1) All areas from which tortoises are to be relocated should be intensively searched to insure that no active burrows have been overlooked.

(2) All active and apparently inactive burrows in the area from which tortoises are being relocated should be inspected for occupation using some type of burrow examining video system to prevent the possibility that tortoises that should be relocated are missed.

(3) Because of the potential for adverse impacts to tortoises and burrow commensals, use of a backhoe to remove tortoises from burrows is not recommended. Additionally, not excavating burrows leaves these burrows available for future return of the resident tortoises if relocation site fidelity in some individuals (at least the isolated tortoises that we have recommended be relocated) is not established. If a backhoe must be used a bendable steel rod/pipe should be progressively inserted into the burrow to prevent "loss" of the burrow during excavation. The final stages of excavation should proceed very carefully with frequent visual inspection to avoid damage to the resident tortoise.

(4) If pit-fall type traps are used, prior to excavation the area at the entrance of the burrow should be inspected for eggs. If eggs are found, we recommend that they not be disturbed. Instead, some type of protective wire mesh enclosure should be placed securely over the nest. This enclosure should be inspected periodically during the hatching season and any hatchlings transferred to the relocation site.

(5) Pit-fall traps should be shaded and the buckets used should have at least six, one-half inch or larger holes to drain any water that might accumulate. Pit-fall traps should be checked in the late morning and early and late afternoon. If possible, to avoid unnecessary disturbance of tortoises, pit-fall traps should be examined from a distance.

(6) Pit-fall traps should be removed immediately following capture of a tortoise and the hole refilled to ground

level. Any other animals caught in the traps should be released.

(7) If wire live-traps are used, they should be shaded and checked with the same frequency as pit-fall traps.

SUBSEQUENT HANDLING AND RELEASE OF TORTOISES

(1) Ideally, tortoises should be transported immediately to the relocation site following collection. Tortoises should be held in separate, shaded, ventilated boxes or heavy cloth bags. If immediate release is not feasible, tortoises should be held individually for no more that 24 hours.

(2) All relocated tortoises should be examined for signs of injury/disease and if necessary, treated by a knowledgeable veterinarian.

(3) All relocated tortoises should be permanently and individually marked. There are a number of potential marking methods. Passive Integrated Transponders (PIT tags) have been suggested but these devices require surgical implantation or gluing to the shell and a special decoder to read. We recommend that tortoises be marked by drilling a small hole in the marginal scutes based on some numbering scheme. This method has been used successfully throughout the range of the gopher tortoise for many years.

(4) Prior to release, all relocated tortoises should be fitted with radio transmitters to facilitate monitoring of subsequent movements. Radio transmitters should be of a tested and reliable design with sufficient strength to be detected some distance from a burrow. Although given battery size constraints for small tortoise radios, radio transmitters should have a long life expectancy. Radio transmitters are available with estimated life expectancies exceeding two years.

(5) Small blood/tissue samples should be taken by a knowledgeable person for future genetic analysis.

(6) Prior to release, all tortoises should be given the opportunity to drink water to replenish fluids that may have been lost during trapping and handling.

(7) Tortoises should be released directly into starter burrows within each of the individual enclosures.

ACTIVITIES FOLLOWING RELEASE

(1) All tortoises should be observed once each morning and once each afternoon to determine if they are exhibiting any abnormal behaviors for a minimum of two weeks following release. Observations should not be made more frequently (and if possible should be made from a distance) to avoid disturbing tortoise activities.

(2) Although individual tortoises should be disturbed as little as possible, the relocation site should be continuously monitored from a nearby location for the entire period that tortoises are confined to individual enclosures to prevent human predation. Individuals monitoring relocation sites can move periodically among any multiple relocation sites but their "presence" and movements should be as discrete as possible to avoid unnessary attention.

(3) The length of time for which individual enclosures are left in place should depend to some extent on the activities of the associated tortoise. Past experiences suggest many tortoises may leave the enclosures upon removal even if they have lengthened their starter burrows or constructed other burrows (which is why the relocation site fence should be left in place). However, individual enclosures should be left in place for a minimum of two weeks following release.

(4) The integrity of the relocation site fence should be checked daily and damage repaired as necessary.

FOLLOW-UP MONITORING

(1) Information generated during subsequent monitoring of the relocation effort is of extreme importance to efforts to recover the threatened western population of gopher tortoises. Monitoring efforts should be conducted only by competent individuals with previous radio telemetry experience.

(2) For at least the first month following removal of individual enclosures, all tortoises should be radio-located (and if possible visually located) twice daily. Detailed records of individual tortoise locations and activities should be kept.

(3) For the next 12 months following removal of individual enclosures, all tortoises should be located at least once every two weeks. Detailed records of individual tortoise locations, activities and new burrow construction should be kept.

(4) During this period an effort should be made to determine if nesting has occurred. If nests are identified, they should be protected with wire mesh enclosures and inspected regularly. Any hatchlings should be marked and their initial burrow locations identified and subsequently monitored.

(5) During each of these biweekly visits, the relocation site fence should be inspected and general relocation site habitat quality changes noted.

(6) At the end of this 12-month period, the relocation site fence should be removed.

(7) Following removal of the relocation site fence, all tortoises should be radio-located twice each day for a period of at least two weeks.

(8) Using previous penning procedures, any tortoises that disperse more than approximately 500 m from the relocation site after fence removal should be returned to the site and individually enclosed. If such individuals repeatedly disperse, the relocation site

fence should be erected for an additional period of time. If this does not result in site fidelity, the new location of such a tortoise should be identified and protected as required by Camp Shelby Operating Guidelines.

(9) Once it is apparent that a tortoise is likely to remain on or near the relocation site, most individuals should be trapped and their radios removed before their batteries expire.

(10) At least 20% of the relocated tortoises should be fitted with new transmitters as necessary to facilitate long-term tracking.

(11) Following removal of the relocation site fence, the relocation site should be intensively searched for new burrows and nests at least once every six months for a period of at least five years.

(12) Throughout this five-year period, the ongoing and preliminary results of the relocation effort should be made available to the USFWS and to the scientific community via publication in appropriate outlets.

(13) At the end of this five-year period, all tortoises occurring on or near the relocation site should be trapped, marked, aged, sexed, etc. to quantify the potential success of the relocation effort. The results of the relocation effort should be published in a refereed scientific journal.

(14) Following this five-year period, the relocation site should be intensively examined at least once every five years for evidence of establishment of a viable, self-sustaining population.

(15) Long-term results of relocation efforts should be published in refereed scientific journals as they become available.

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Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix M

Economic Impact Forecast System Results

APPENDIX M

ECONOMIC IMPACT FORECAST SYSTEM RESULTS

SECTION A: Standard EIFS Forecast Model Results
SECTION B: Rational Threshold Values
SECTION C: Employment by SIC Codes
SECTION D: Obers Projections
SECTION E: Demographic Data

SECTION A: STANDARD EIFS FORECAST MODEL RESULTS

Economic Impact Forecast System - Version 4.0

First county or region (type ? for help): forrest, ms
Next county or region (type RETURN if done): greene, ms
Next county or region (type RETURN if done): lamar, ms
Next county or region (type RETURN if done): perry, ms
Next county or region (type RETURN if done): stone, ms
Next county or region (type RETURN if done):

aggregating data...

1982 multipliers are being calculated for your list (5 counties)

You have selected 5 counties:

#	FIPS	County	State	'80 Population	Area(sq mi)
1	28035	Forrest	Ms	66,018	469
2	28041	Greene	Ms	9,827	718
3	28073	Lamar	Ms	23,821	499
4	28111	Perry	Ms	9,864	651
5	28131	Stone	Ms	9,716	446
		Total		119,246	2,782

STANDARD EIFS FORECAST MODEL

Project name: Camp Shelby0

Enter d to enter your own price deflators
RETURN to use the default price deflators (latest year):

Default price deflators:

baseline year (ex. business volume)	(CPI - 1982)	= 100.0
output and incomes (ex b.v.)	(CPI - 1990)	= 129.0
baseline year (business volume)	(PPI - 1982)	= 100.0
local services and supplies	(PPI - 1990)	= 116.3
output and incomes (business volume)	(PPI - 1990)	= 116.3

(Enter decreases as negative numbers)
If entering total expenditures, enter 1
local expenditures, enter 2 : 2
Change in expenditures for local services and supplies: 16032000
Change in civilian employment: 211
Average income of affected civilian personnel: 19500
Percent expected to relocate (enter <cr> to accept default): (0.0) 0
Change in military employment: 480
Average income of affected military personnel: 22000
Percent of military living on-post: 0

****** STANDARD EIFS MODEL FORECAST FOR Camp Shelby0 ******

Export income multiplier:		2.1057	
Change in local			
Sales volume	Direct:	$23,670,000	
	Induced:	$26,172,000	
	Total:	$49,842,000	(3.679%)
Employment	Direct:	249	
	Total:	1,216	(2.454%)
Income	Direct:	$3,301,000	
	Total (place of work):	$21,626,000	
	Total (place of residence):	$21,626,000	(1.716%)
Local population .....:		1,195	(0.974%)
Local off-base population .....:		1,195	
Number of school children .....:		246	
Demand for housing	Rental:	307	
	Owner occupied:	173	
Government expenditures.....:		$2,106,000	
Government revenues .....:		$4,607,000	
Net Government revenues .....:		$2,501,000	
Civilian employees expected to relocate:		0	
Military employees expected to relocate:		480	

STANDARD EIFS FORECAST MODEL

Project name: Camp Shelby60

(Enter decreases as negative numbers)
If entering total expenditures, enter 1
local expenditures, enter 2 : 2
Change in expenditures for local services and supplies: 16032000
Change in civilian employment: 211
Average income of affected civilian personnel: 19500
Percent expected to relocate (enter <cr> to accept default): (0.0) 60
Change in military employment: 480
Average income of affected military personnel: 22000
Percent of military living on-post: 0

****** STANDARD EIFS MODEL FORECAST FOR Camp Shelby60 ******

Export income multiplier:		2.1057	
Change in local			
Sales volume	Direct:	$23,670,000	
	Induced:	$26,172,000	
	Total:	$49,842,000	(3.679%)
Employment	Direct:	249	
	Total:	1,216	(2.454%)
Income	Direct:	$3,301,000	
	Total (place of work):	$21,626,000	
	Total (place of residence):	$21,626,000	(1.716%)
Local population ..... :		1,571	(1.281%)
Local off-base population ..... :		1,571	
Number of school children ..... :		317	
Demand for housing	Rental:	344	
	Owner occupied:	263	
Government expenditures..... :		$2,517,000	
Government revenues ..... :		$4,838,000	
Net Government revenues ..... :		$2,321,000	
Civilian employees expected to relocate:		127	
Military employees expected to relocate:		480	

STANDARD EIFS FORECAST MODEL

Project name: Camp Shelby Negative Values

(Enter decreases as negative numbers)
If entering total expenditures, enter 1
local expenditures, enter 2 : 2
Change in expenditures for local services and supplies: -16032000
Change in civilian employment: -211
Average income of affected civilian personnel: 19500
Percent expected to relocate (enter <cr> to accept default): (0.0) 0
Change in military employment: -480
Average income of affected military personnel: 22000
Percent of military living on-post: 0

***** STANDARD EIFS MODEL FORECAST FOR Camp Shelby Negative Values *****

Export income multiplier:		2.1057	
Change in local			
Sales volume	Direct:	-$23,670,000	
	Induced:	-$26,172,000	
	Total:	-$49,842,000	(-3.679%)
Employment	Direct:	-249	
	Total:	-1,216	(-2.454%)
Income	Direct:	-$3,301,000	
	Total (place of work):	-$21,626,000	
	Total (place of residence):	-$21,626,000	(-1.716%)
Local population ..... :		-1,195	(-0.974%)
Local off-base population ..... :		-1,195	
Number of school children ..... :		-246	
Demand for housing	Rental:	-307	
	Owner occupied:	-173	
Government expenditures..... :		-$2,106,000	
Government revenues ..... :		-$4,607,000	
Net Government revenues ..... :		-$2,501,000	
Civilian employees expected to relocate:		0	
Military employees expected to relocate:		-480	

SECTION B: RATIONAL THRESHOLD VALUES

RATIONAL THRESHOLD VALUES

5 COUNTY AREA: aggregated

All dollar amounts are in thousands of dollars.
Dollar adjustment based on Consumer Price Index (1982 = 100).

BUSINESS VOLUME (using Non-Farm Income)

Year	Non-Farm Income	Adjusted Income	Change	Deviation	%Deviation
1969	173,128	455,600			
1970	191,057	474,087	18,487	1,367	0.300 %
1971	208,600	496,667	22,580	5,460	1.152 %
1972	236,440	544,793	48,126	31,006	6.243 %
1973	264,375	573,482	28,689	11,569	2.124 %
1974	296,320	578,750	5,268	-11,851	-2.067 %
1975	320,251	572,900	-5,850	-22,970	-3.969 %
1976	371,552	628,684	55,784	38,664	6.749 %
1977	429,268	682,461	53,777	36,658	5.831 %
1978	479,326	708,015	25,554	8,434	1.236 %
1979	528,496	700,923	-7,092	-24,211	-3.420 %
1980	566,798	662,147	-38,776	-55,896	-7.975 %
1981	612,423	648,753	-13,394	-30,514	-4.608 %
1982	618,738	618,738	-30,015	-47,135	-7.265 %
1983	699,236	678,211	59,473	42,354	6.845 %
1984	736,261	690,676	12,465	-4,655	-0.686 %
1985	746,361	676,052	-14,625	-31,744	-4.596 %
1986	792,570	729,807	53,755	36,635	5.419 %
1987	853,630	758,782	28,976	11,856	1.625 %
1988	913,623	780,874	22,092	4,972	0.655 %

average yearly change:	17,120
maximum historic positive deviation:	42,354
maximum historic negative deviation:	-55,896
maximum historic % positive deviation:	6.845 %
maximum historic % negative deviation:	-7.975 %
positive rtv:	6.845 %
negative rtv:	-5.981 %

PERSONAL INCOME

Year	Personal Income	Adjusted Income	Change	Deviation	%Deviation
1969	228,408	601,074			
1970	255,208	633,270	32,197	2,824	0.470 %
1971	281,248	669,638	36,368	6,995	1.105 %
1972	318,322	733,461	63,823	34,450	5.145 %
1973	364,823	791,373	57,912	28,540	3.891 %
1974	412,413	805,494	14,121	-15,251	-1.927 %
1975	452,781	809,984	4,490	-24,883	-3.089 %
1976	518,168	876,765	66,781	37,409	4.618 %
1977	591,198	939,901	63,137	33,764	3.851 %
1978	666,619	984,666	44,765	15,392	1.638 %
1979	743,366	985,897	1,230	-28,142	-2.858 %
1980	823,135	961,606	-24,290	-53,663	-5.443 %
1981	920,048	974,627	13,021	-16,352	-1.700 %
1982	976,989	976,989	2,362	-27,011	-2.771 %
1983	1,017,415	986,823	9,834	-19,538	-2.000 %
1984	1,085,055	1,017,875	31,052	1,679	0.170 %
1985	1,132,977	1,026,247	8,372	-21,000	-2.063 %
1986	1,189,962	1,095,729	69,482	40,110	3.908 %
1987	1,254,917	1,115,482	19,752	-9,620	-0.878 %
1988	1,356,204	1,159,149	43,667	14,295	1.281 %

average yearly change:	29,372
maximum historic positive deviation:	40,110
maximum historic negative deviation:	-53,663
maximum historic % positive deviation:	5.145 %
maximum historic % negative deviation:	-5.443 %
positive rtv:	5.145 %
negative rtv:	-3.647 %

EMPLOYMENT

Year	Employment	Change	Deviation	%Deviation
1969	36,674			
1970	38,227	1,553	489	1.333 %
1971	39,903	1,676	612	1.600 %
1972	42,244	2,341	1,277	3.200 %
1973	44,131	1,887	823	1.948 %
1974	45,141	1,010	-54	-0.123 %
1975	44,940	-201	-1,265	-2.803 %
1976	46,855	1,915	851	1.893 %
1977	49,194	2,339	1,275	2.721 %
1978	51,234	2,040	976	1.984 %
1979	51,988	754	-310	-0.605 %
1980	51,459	-529	-1,593	-3.065 %
1981	50,793	-666	-1,730	-3.362 %
1982	49,561	-1,232	-2,296	-4.521 %
1983	51,836	2,275	1,211	2.443 %
1984	52,384	548	-516	-0.996 %
1985	52,394	10	-1,054	-2.012 %
1986	53,306	912	-152	-0.291 %
1987	55,148	1,842	778	1.459 %
1988	56,894	1,746	682	1.236 %

average yearly change:	1,064
maximum historic positive deviation:	1,277
maximum historic negative deviation:	-2,296
maximum historic % positive deviation:	3.200 %
maximum historic % negative deviation:	-4.521 %
positive rtv:	3.200 %
negative rtv:	-3.029 %

POPULATION

Year	Population	Change	Deviation	%Deviation
1969	98,400			
1970	99,000	600	-789	-0.802 %
1971	101,200	2,200	811	0.819 %
1972	104,600	3,400	2,011	1.987 %
1973	106,700	2,100	711	0.679 %
1974	108,900	2,200	811	0.760 %
1975	110,200	1,300	-89	-0.082 %
1976	111,900	1,700	311	0.282 %
1977	114,400	2,500	1,111	0.992 %
1978	115,900	1,500	111	0.097 %
1979	117,700	1,800	411	0.354 %
1980	119,700	2,000	611	0.519 %
1981	121,300	1,600	211	0.176 %
1982	122,700	1,400	11	0.009 %
1983	124,300	1,600	211	0.172 %
1984	125,200	900	-489	-0.394 %
1985	124,800	-400	-1,789	-1.429 %
1986	125,200	400	-989	-0.793 %
1987	124,900	-300	-1,689	-1.349 %
1988	124,800	-100	-1,489	-1.193 %

average yearly change:	1,389
maximum historic positive deviation:	2,011
maximum historic negative deviation:	-1,789
maximum historic % positive deviation:	1.987 %
maximum historic % negative deviation:	-1.429 %
positive rtv:	1.987 %
negative rtv:	-0.715 %

Source: Bureau of Economic Analysis

SECTION C: EMPLOYMENT BY SIC CODES

Economic Impact Forecast System

Economic Data Profiles (e)

Type: For Data:
1 Census of Governments, Government Finance - 1982
2 Economic Censuses - 1982 (Wholesale, Retail, Services, Manufactures)
3 Census of Agriculture - 1982
4 BEA employment/income timeseries - Short
5 BEA employment/income/transfer payments timeseries - Detailed
6 BLS labor force timeseries - 1988-1990
7 County Business Patterns - 1982 or 1987
8 Export employment profile (1982 or 1987 County Business Patterns)
9 BEA Regional Projections - (OBERS) - for selected states only:
AL, FL, GA, IL, IN, KY, MS, NC, OH, PA, SC, TN, VA, WV
- To return to EIFS main menu
r To review your county list
? For a list of valid responses
?? For more detailed help
quit To exit EIFS

by us is available for: 1 2 4 5 7
by county is available for: 1 2 3 4 5 6 7 9
spreadsheet options are available for: 1 4 5 6 7 9

EIFS v4.0 (e) - Profile 7 selected

1987 COUNTY BUSINESS PATTERNS

AREA: aggregated for the selected five-county region

1987 County Business Patterns - Employment

SIC	Employment	Key	Industry
-	45,103		Total
0800	145	D	Forestry
0810	145	D	Forestry
2400	1,496	D	Lumber and Wood Products
2410	569		Logging Camps & Logging Contractors
2420	478	D	Sawmills and Planing Mills
2430	229	C	Millwork, Plywood & Structural Members
2440	41	B	Wood Containers
2490	170	D	Miscellaneous Wood Products

24r0	9		(residual)
2600	1,321	D	Paper and Allied Products
2610	396	E	Pulp Mills
2620	67	B	Paper Mills, except Building Paper
2640	759	F	Misc. Converted Paper Products
2650	99	B	Paperboard Containers and Boxes
91--	12,128		Government (BEA)
9100	1,676		Federal Government (BEA)
9110	824		Federal Civilian (BEA)
9120	852		Federal Military (BEA)
9200	10,452		State and Local Government (BEA)

1987 County Business Patterns - Income (thousands of dollars)

SIC	Income	Key	Industry
----	671,090		Total
0800	2,222	D	Forestry
0810	2,222	D	Forestry
2400	23,992	D	Lumber and Wood Products
2410	8,370		Logging Camps & Logging Contractors
2420	7,810	D	Sawmills and Planing Mills
2430	4,132	C	Millwork, Plywood & Structural Members
2440	407	B	Wood Containers
2490	3,016	D	Miscellaneous Wood Products
24r0	108		(residual)
2600	38,847	D	Paper and Allied Products
2610	14,821	E	Pulp Mills
2620	2,359	B	Paper Mills, except Building Paper
2640	16,377	F	Misc. Converted Paper Products
2650	2,354	B	Paperboard Containers and Boxes
91--	185,542		Government (BEA)
9100	26,533		Federal Government (BEA)
9110	20,638		Federal Civilian (BEA)
9120	5,895		Federal Military (BEA)
9200	159,009		State and Local Government (BEA)

1987 County Business Patterns - Establishments

SIC	Establishments	Industry
----	2,727 Total	
0800	9	Forestry
0810	9	Forestry
2400	91	Lumber and Wood Products
2410	68	Logging Camps & Logging Contractors
2420	10	Sawmills and Planing Mills
2430	2	Millwork, Plywood & Structural Members
2440	1	Wood Containers
2490	8	Miscellaneous Wood Products
24r0	2	(residual)
2600	5	Paper and Allied Products
2610	1	Pulp Mills
2620	1	Paper Mills, except Building Paper
2640	2	Misc. Converted Paper Products
2650	1	Paperboard Containers and Boxes

This list includes 305 SIC's

Key: CBP codes for suppressed employment data appear in this column.

Where employment figures from CBP are suppressed, NPDC uses a mathematical technique known as "Iterative Proportional Fitting" (IPF) to arrive at estimates for employments.

NPDC estimates for payroll for suppressed employment are obtained by multiplying the estimated employment by an average payroll figure for that SIC at the state or US level (whichever is unsuppressed).

CBP Non-disclosure keys for number of employees (minimum-maximum):

A:	0- 19	E:	250- 499	H:	2,500- 4,999	K:	25,000- 49,999
B:	20- 99	F:	500- 999	I:	5,000- 9,999	L:	50,000- 99,999
C:	100-249	G:	1000-2499	J:	10,000-24,999	M:	100,000 or more

D: Aggregated non-disclosures

Source:
National Planning Data Corporation, Enhanced County Business Patterns, 1987
derived from Bureau of the Census, County Business Patterns, 1987
Bureau of Economic Analysis (Agriculture and Government)

SECTION D: OBERS PROJECTIONS (HISTORICAL AND PROJECTION YEARS)

Economic Impact Forecast System

Economic Data Profiles (e)

EIFS v4.0 (e) - What profile? (<cr> to see list): 2
1982 ECONOMIC CENSUSES - Which census(es)? (type ? for help): ?

Enter: To see Census(es) of:
1 or m Manufactures
2 or w Wholesale, Retail and Services
9 or a All of the Economic Censuses
q To return to EIFS

1982 ECONOMIC CENSUSES - Which census(es)? (type ? for help): 9

1982 ECONOMIC CENSUSES - WHOLESALE, RETAIL, SALES

**** aggregated ****

	Wholesale	Retail	Services*	TOTAL
Sales	344,058	497,854	113,276	955,188
Employment	1,753	6,724	3,224	11,701
Income	23,832	54,508	41,771	120,111
Establishments	168	1,026	484	1,678

Dollar values are in thousands.

* Services data are for establishments with payroll. Establishments without payroll (e.g., single-owner, partnerships) were not included in the 1982 Census of Service Industries. Missing data may be significant in some areas.

Source: Bureau of the Census, 1982 -
Censuses of Wholesale Trade, Retail Trade and Service Industries

1982 CENSUS OF MANUFACTURES - Which table? (type ? for help): ?

Type: For:
1 Establishments
2 All Employees - Number
3 All Employees - Payroll

4 Production Workers - Number
5 Production Workers - Hours Worked
6 Production Workers - Wages
7 Value Added by Manufactures
8 Cost of Materials
9 Value of Shipments
10 New Capital Expenditures

RETURN For table of all variables
r To return to Economic Censuses menu
q To return to EIFS

1982 CENSUS OF MANUFACTURES - Which table? (type ? for help):

Detailed - What level of detail? (type ? for help): 3
Start with which SIC? (type RETURN to start at the beginning):
End with which SIC? (type RETURN to end at the end):

1982 CENSUS OF MANUFACTURES - Detailed

AREA: aggregated (5 counties)

	Admin	Estab'ments		All Employees		Production Workers		
SIC	#1	Number	#2	Number	Payroll	Number	Hours	Wages
19--	E	155		6.6	86.9	5.2	9.8	61.7
2000	10-19%	5		0.6	5.4	0.5	0.8	3.4
2300		5		0.0D	0.0D	0.0D	0.0D	0.0D
2320		1		0.0D	0.0D	0.0D	0.0D	0.0D
2340		3		0.0D	0.0D	0.0D	0.0D	0.0D
2600		3		0.0D	0.0D	0.0D	0.0D	0.0D
2640		2		0.0D	0.0D	0.0D	0.0D	0.0D
2800		8		0.0D	0.0D	0.0D	0.0D	0.0D
2820		2		0.0D	0.0D	0.0D	0.0D	0.0D

Numbers of workers are in thousands; hours are in millions; payroll and wages are in millions of dollars.

SIC	Admin. #1	Value Added by Manfacture #3	Cost of Materials #4	Value of Shipments #4	New Capital Expenditures
19--	E	209.6	665.2	884.2	33.8
2000	10-19%	10.3	23.2	32.8	0.7
2300		0.0D	0.0D	0.0D	0.0D
2320		0.0D	0.0D	0.0D	0.0D
2340		0.0D	0.0D	0.0D	0.0D
2600		0.0D	0.0D	0.0D	0.0D
2640		0.0D	0.0D	0.0D	0.0D
2800		0.0D	0.0D	0.0D	0.0D
2820		0.0D	0.0D	0.0D	0.0D

All values are in millions of dollars.

Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated.

#1 Values in this column indicate percentages of data estimated from administrative records rather than from census report forms.
An entry of E indicates data were aggregated from data including some which were estimated.
#2 Includes establishments with payroll at any time during the year.
#3 Value added by manufacture for 1982 is computed using inventory data reported at cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for value added by manufacture are not comparable to data from prior years.
#4 Aggregate of cost of materials and value of shipments includes extensive duplication, since products of some industries are used as materials by others.
Statistics for some industry groups and industries were withheld to avoid disclosing data for individual companies. Statistics for industry groups shown include data for all component industries, regardless of whether data are shown for individual industries in the group.
D Statistics are withheld to avoid disclosing data for individual companies.

Source: Bureau of the Census, Census of Manufactures, 1982

BLS LABOR FORCE TIMESERIES

AREA: aggregated

1988 Labor Force Profile

Date	Civilian Labor Force	Employment Number	Employment Rate	Unemployment Number	Unemployment Rate
Jan '88	56,445	52,810	93.56 %	3,635	6.44 %
Feb '88	56,864	53,202	93.56 %	3,662	6.44 %
Mar '88	56,995	53,662	94.15 %	3,333	5.85 %
Apr '88	56,187	53,147	94.59 %	3,040	5.41 %
May '88	55,613	52,234	93.92 %	3,379	6.08 %
Jun '88	56,397	51,700	91.67 %	4,697	8.33 %
Jul '88	57,472	52,861	91.98 %	4,611	8.02 %
Aug '88	56,614	52,063	91.96 %	4,551	8.04 %
Sep '88	57,970	53,123	91.64 %	4,847	8.36 %
Oct '88	57,828	53,735	92.92 %	4,093	7.08 %
Nov '88	58,316	53,656	92.01 %	4,660	7.99 %
Dec '88	58,582	54,194	92.51 %	4,388	7.49 %
Annual Avg	57,109	53,033	92.86 %	4,076	7.14 %

1989 Labor Force Profile

Date	Civilian Labor Force	Employment Number	Employment Rate	Unemployment Number	Unemployment Rate
Jan '89	59,132	54,746	92.58 %	4,386	7.42 %
Feb '89	59,403	55,548	93.51 %	3,855	6.49 %
Mar '89	59,010	55,087	93.35 %	3,923	6.65 %
Apr '89	59,061	55,394	93.79 %	3,667	6.21 %
May '89	60,039	56,054	93.36 %	3,985	6.64 %
Jun '89	62,273	56,972	91.49 %	5,301	8.51 %
Jul '89	61,868	57,719	93.29 %	4,149	6.71 %
Aug '89	60,765	57,196	94.13 %	3,569	5.87 %
Sep '89	60,097	56,741	94.42 %	3,356	5.58 %
Oct '89	60,078	57,135	95.10 %	2,943	4.90 %
Nov '89	60,795	57,610	94.76 %	3,185	5.24 %
Dec '89	60,922	57,901	95.04 %	3,021	4.96 %
Annual Avg	60,288	56,509	93.73 %	3,779	6.27 %

1990 Labor Force Profile

Date	Civilian Labor Force	Employment Number	Rate	Unemployment Number	Rate
Jan '90	61,295	57,716	94.16 %	3,579	5.84 %
Feb '90	61,122	57,469	94.02 %	3,653	5.98 %
Mar '90	61,403	57,681	93.94 %	3,722	6.06 %
Apr '90	61,556	58,056	94.31 %	3,500	5.69 %
May '90	61,735	58,216	94.30 %	3,519	5.70 %
Jun '90	62,796	57,995	92.35 %	4,801	7.65 %
Jul '90	0	0	-	0	-
Aug '90	0	0	-	0	-
Sep '90	0	0	-	0	-
Oct '90	0	0	-	0	-
Nov '90	0	0	-	0	-
Dec '90	0	0	-	0	-
Annual Avg	0	0	-	0	-

Source: Bureau of Labor Statistics, 1990
EIFS v4.0 (e) - What profile? (<cr> to see list): 9

OBERS PROJECTIONS - Which year(s)? (type ? for help): ?

Historical years: 1969, 1973, 1978, 1983
Projection years: 1990, 1995, 2000, 2005, 2015, 2035

To see years:	Enter:
Historical	h
Projection	p
All	a
All -> spreadsheet	L
Any 1 to 4 years	year numbers separated by commas (ie: 78,90,00,35) (1969, 2015, 2000 is also valid)
To return to EIFS	q
To leave EIFS	cntrl-d

***** AREA: aggregated *****

Total Personal Income, Per Capita Income, and Earnings By Industry

INDUSTRY	1990	1995	2000	2005
Total Personal Income	602,917	674,700	746,059	821,111
Population (number)	128,688	130,455	132,528	135,178
Per Capita Income	4,685	5,172	5,629	6,074
Per Capita Relative	72	74	76	78
Total Earnings	395,288	435,356	479,468	525,208
Farm	10,154	9,863	9,650	9,521
Ag. Serv.,For.,Fish.	2,399	2,854	3,240	3,627
Mining	6,005	6,540	7,142	7,829
Construction	41,749	43,684	46,924	50,626
Total Manufacturing	70,400	76,560	82,518	88,398
Non-Durable Goods	39,006	40,925	42,949	44,934
Durable Goods	31,394	35,635	39,569	43,464
Transp.&Public Util.	34,441	38,313	42,655	47,072
Wholesale Trade	18,298	19,871	21,823	24,122
Retail Trade	48,155	53,805	59,825	65,479
Finance,Ins. & R.E.	19,280	22,013	24,658	27,100
Services	73,538	87,356	101,248	115,191
Total Government	70,869	74,497	79,785	86,243
Federal,Civilian	8,880	9,300	9,899	10,639
Federal,Military	2,508	2,641	2,773	2,909
State & Local	59,481	62,556	67,113	72,695

Total Personal Income, Per Capita Income, and Earnings by Industry

INDUSTRY	2015	2035
Total Personal Income	950,246	1,224,923
Population (number)	142,464	151,748
Per Capita Income	6,670	8,072
Per Capita Relative	78	79
Total Earnings	598,345	729,481
Farm	9,644	10,524
Ag. Serv.,For.,Fish.	4,166	5,092
Mining	8,780	10,599
Construction	56,030	66,931
Total Manufacturing	98,872	117,865
Non-Durable Goods	49,034	56,775
Durable Goods	49,838	61,090
Transp.&Public Util.	53,961	65,516
Wholesale Trade	27,612	33,248
Retail Trade	73,899	91,408
Finance,Ins. & R.E.	30,735	36,724
Services	138,065	177,198
Total Government	96,581	114,376
Federal,Civilian	11,858	14,170
Federal,Military	3,225	3,937
State & Local	81,498	96,269

D Not shown to avoid disclosure of confidential information, data are included in higher level totals.
N Not reported.
m Aggregation for this variable includes some missing information.

Earnings and Total Personal Income are in thousands of 1972 dollars.
Per Capita Personal Income is in 1972 dollars.
Per Capita Relative: US = 100.

***** AREA: aggregated *****

Employment by Industry (Total Number of Jobs)

INDUSTRY	1990	1995	2000	2005
Total Employment	52,332	54,471	56,737	58,744
Farm	2,680	2,657	2,611	2,544
Ag. Serv.,For.,Fish.	491	566	621	661
Mining	388	388	392	400
Construction	4,230	4,232	4,327	4,434
Total Manufacturing	7,581	7,604	7,610	7,574
Non-Durable Goods	4,222	4,106	4,006	3,889
Food & Kindred	766	760	752	733
Textiles	0	0	0	0
Paper & Allied	877	907	930	948
Chemicals & Allied	744	746	754	763
Petroleum Refining	206	210	216	225
Durable Goods	3,359	3,498	3,604	3,685
Primary Metals	43	49	53	56
Stone,Clay & Glass	362	385	399	412
Transp.&Public Util.	2,494	2,601	2,723	2,838
Wholesale Trade	2,016	2,087	2,193	2,319
Retail Trade	10,085	10,988	11,811	12,509
Finance,Ins. & R.E.	2,344	2,571	2,770	2,924
Services	9,536	10,440	11,295	12,011
Total Government	10,487	10,337	10,384	10,530
Federal,Civilian	744	732	733	742
Federal,Military	791	791	791	791
State & Local	8,952	8,814	8,860	8,997

Employment by Industry (Total Number of Jobs)

INDUSTRY	2015	2035
Total Employment	60,226	59,876
Farm	2,407	2,237
Ag. Serv.,For.,Fish.	693	696
Mining	395	377
Construction	4,456	4,307
Total Manufacturing	7,426	7,019
Non-Durable Goods	3,721	3,410
Food & Kindred	708	628
Textiles	0	0
Paper & Allied	960	934
Chemicals & Allied	774	711
Petroleum Refining	251	290
Durable Goods	3,705	3,609
Primary Metals	58	59
Stone,Clay & Glass	424	421
Transp.&Public Util.	2,914	2,873
Wholesale Trade	2,433	2,473
Retail Trade	13,170	13,497
Finance,Ins. & R.E.	3,056	3,079
Services	12,804	13,306
Total Government	10,472	10,012
Federal,Civilian	737	711
Federal,Military	791	791
State & Local	8,944	8,510

D Not shown to avoid disclosure of confidential information, data are included in higher level totals.
N Not reported.
m Aggregation for this variable includes some missing information.

Projected two-digit employment data in Manufacturing are shown only for selected industries, therefore they will not add to Total Durable Employment and Total Non-Durable Employment.

Source: Bureau of Economic Analysis,
Regional Economic Analysis Division

OBERS PROJECTIONS

***** AREA: aggregated *****

Total Personal Income, Per Capita Income, and Earnings by Industry

INDUSTRY	1969	1973	1978	1983
Total Personal Income	250,446	337,861	428,539	480,740
Population (number)	98,400	106,700	115,900	123,300
Per Capita Income	2,544	3,166	3,697	3,898
Per Capita Relative	60	66	70	71
Total Earnings	193,258	251,331	312,216	321,018
Farm	7,751	14,210	12,112	6,923
Ag. Serv.,For.,Fish.	928m	1,584m	778m	1,784
Mining	2,572m	3,258m	3,843	4,426m
Construction	15,876	15,503m	20,007m	37,201m
Total Manufacturing	44,266	54,474	69,054	56,322
Non-Durable Goods	31,285	29,837m	36,547m	33,222m
Durable Goods	12,981	11,529m	25,985m	17,151m
Transp.&Public Util.	15,624	19,621	26,222m	27,519
Wholesale Trade	9,149	10,192	14,162	14,733
Retail Trade	23,995	31,361	37,011	38,873
Finance,Ins. & R.E.	7,800m	11,397	15,925	14,115
Services	26,082m	33,961m	45,938	53,876
Total Government	37,799	55,116	65,135	64,655
Federal,Civilian	6,543	7,843	8,619	8,092
Federal,Military	1,322	1,844	1,949	2,269
State & Local	29,934	45,429	54,567	54,294

D Not shown to avoid disclosure of confidential information, data are included in higher level totals.
N Not reported.
m Aggregation for this variable includes some missing information.

Earnings and Total Personal Income are in thousands of 1972 dollars.
Per Capita Personal Income is in 1972 dollars.
Per Capita Relative: US = 100.

***** AREA: aggregated *****

Employment by Industry (Total Number of Jobs)

INDUSTRY	1969	1973	1978	1983
Total Employment	36,051	43,023	48,709	48,204
Farm	3,077	3,499	2,970	2,634
Ag. Serv.,For.,Fish.	218m	291m	180m	371
Mining	290m	347m	378	349m
Construction	2,276	2,275m	2,700m	4,203m
Total Manufacturing	7,267	8,321	9,097	7,090
Non-Durable Goods	5,099	4,305m	4,838m	4,009m
Food & Kindred	0N	0N	0N	0N
Textiles	0N	0N	0N	0N
Paper & Allied	0N	0N	0N	0N
Chemicals & Allied	0N	0N	0N	0N
Petroleum Refining	0N	0N	0N	0N
Durable Goods	2,168	1,548m	3,293m	2,244m
Primary Metals	0N	0N	0N	0N
Stone,Clay & Glass	0N	0N	0N	0N
Transp.&Public Util.	1,822	2,029	2,258m	2,287
Wholesale Trade	1,110	1,266	1,705	1,807
Retail Trade	4,932	6,375	7,375	8,373
Finance,Ins. & R.E.	930m	1,476	1,800	1,927
Services	5,917m	6,749m	8,370	8,171
Total Government	7,867	10,175	11,574	10,839
Federal,Civilian	696	739	799	769
Federal,Military	990	965	880	791
State & Local	6,181	8,471	9,895	9,279

D Not shown to avoid disclosure of confidential information, data are included in higher level totals.
N Not reported.
m Aggregation for this variable includes some missing information.

Projected two-digit employment data in Manufacturing are shown only for selected industries, therefore they will not add to Total Durable Employment and Total Non-Durable Employment.

Source: Bureau of Economic Analysis,
Regional Economic Analysis Division

SECTION E: DEMOGRAPHIC DATA

Economic Impact Forecast System - Version 4.0

First county or region (type ? for help): forrest, ms
Next county or region (type RETURN if done): george, ms
Next county or region (type RETURN if done): greene, ms
Next county or region (type RETURN if done): perry, ms
Next county or region (type RETURN if done): stone, ms
Next county or region (type RETURN if done):

aggregating data...

1982 multipliers are being calculated for your list (5 counties)

You have selected 5 counties:

#	FIPS	County	State	'80 Population	Area(sq mi)
1	28035	Forrest	Ms	66,018	469
2	28039	George	Ms	15,297	483
3	28041	Greene	Ms	9,827	718
4	28111	Perry	Ms	9,864	651
5	28131	Stone	Ms	9,716	446
		Total		110,722	2,766

*NOTE: This data is not for the same five-county area as other sections. It includes George county and excludes Lamar county.

Demographic Data Profiles (d)

Type: For Data:
1 Census overview - 1980
2 Census overview - 1970
3 Sub-county Demographic Update - Population, Housing, Wealth-1989
4 Census of Housing and Population - 1980 (STF3A)-SUB-COUNTY LEVEL
5 Population Pyramids - 1970, 80, 82, 84
6 Sub-county Consumer Spending Patterns -1989
7 Sub-county profile - d3 & d6

- To return to EIFS main menu
r To review your county list
? For a list of valid responses
?? For more detailed help
quit To exit EIFS

by us is available for: 3 4 6 7
by county is available for: 1 2 3 4 5 6 7
spreadsheet options are available for: 1 2 3 4 5 6 7

EIFS v4.0 (d) - What profile? (<cr> to see list): 3

1989 SUB-COUNTY DEMOGRAPHICS
Which output format? (t/s/q/?/<cr>): t

Are you entering PolyID's (y/<cr>)?

SELECT LEVEL: county data only or choose MCD's/tracts ? (c/t/?): c

There are 5 areas on your list from 5 counties.

PolyID	seq	LEVEL	#	FIPS	Name
228035	1	COUNTY		28035	Forrest, Ms
228039	2	COUNTY		28039	George, Ms
228041	3	COUNTY		28041	Greene, Ms
228111	4	COUNTY		28111	Perry, Ms
228131	5	COUNTY		28131	Stone, Ms

Default: data shown is aggregated
You may toggle this option at the "Which table?" prompt.

NPDC 1989 UPDATE - POPULATION, HOUSING, WEALTH (5 areas - aggregated)
- Which table? (type ? for help t to toggle output): t

Type: For:

TIMESERIES:

1 Population Counts
2 Household Counts
3 Per-capita Income
4 Average Household Income
5 Average Household Wealth
6 Population Counts and Income (Group Quarters)

POPULATION, HOUSEHOLDS and INCOME for:

7 1969/70
8 1979/80
9 1979/80 (Group Quarters)

POPULATION and INCOME for:

10 1989 (Estimated) and 1994 (Projected)

HOUSEHOLDS for:

11 1989 (Estimated)
12 1994 (Projected)

a All of the above tables
s To see selected set of MCD/Tract Names and Codes
t To toggle 'by polygon/aggregated'
q To leave this program

NPDC 1989 UPDATE - POPULATION, HOUSING, WEALTH (5 areas - separately)
- Which table? (type ? for help t to toggle output): 1

TABLE 1
Population

PolyID	FIPS	1960	1970	1980	1989e	1994p
228035	28035	52,725	57,850	66,018	67,009	65,842
228039	28039	11,099	12,459	15,297	16,396	16,695
228041	28041	8,366	8,545	9,827	9,296	8,956
228111	28111	8,745	9,064	9,864	10,106	10,117
228131	28131	7,012	8,101	9,716	10,583	11,179

NPDC 1989 UPDATE - POPULATION, HOUSING, WEALTH (5 areas - separately)
- Which table? (type ? for help t to toggle output): 2

TABLE 2
Households

PolyID	FIPS	1970	1980	1989e	1994p
228035	28035	17,547	22,978	25,908	27,060
228039	28039	3,576	4,828	5,537	5,881
228041	28041	2,448	3,065	3,007	2,965
228111	28111	2,604	3,160	3,673	3,981
228131	28131	2,258	2,996	3,599	4,042

NPDC 1989 UPDATE - POPULATION, HOUSING, WEALTH (5 areas - separately)
- Which table? (type ? for help t to toggle output): 3

TABLE 3
Per-Capita Income

PolyID	FIPS	1969	1979	1989e	1994p
228035	28035	2,205	5,365	9,363	11,508
228039	28039	1,934	4,890	8,303	10,081
228041	28041	1,389	3,855	6,591	8,027
228111	28111	1,505	4,400	7,675	9,430
228131	28131	1,887	4,833	7,683	9,070

NPDC 1989 UPDATE - POPULATION, HOUSING, WEALTH (5 areas - separately)
- Which table? (type ? for help t to toggle output): 4

TABLE 4
Average Household Income

PolyID	FIPS	1969	1979	1989e	1994p
228035	28035	6,995	14,962	23,757	27,552
228039	28039	6,730	15,369	24,425	28,445
228041	28041	4,848	12,287	20,269	24,124
228111	28111	5,228	13,915	21,396	24,281
228131	28131	6,578	15,414	22,530	25,184

NPDC 1989 UPDATE - POPULATION, HOUSING, WEALTH (5 areas - separately)
- Which table? (type ? for help t to toggle output): 5

TABLE 5
Average Household Wealth

PolyID	FIPS	1989e	1994p
228035	28035	61,006	70,446
228039	28039	69,591	81,009
228041	28041	60,033	71,743
228111	28111	62,077	70,676
228131	28131	65,821	73,818

NPDC 1989 UPDATE - POPULATION, HOUSING, WEALTH (5 areas - separately)
- Which table? (type ? for help t to toggle output): 6

TABLE 6
Population and Per Capita Income (Group Quarters)

		Population			Per-Capita Income
PolyID	FIPS	1980	1989e	1994p	1979
228035	28035	4,422	4,422	4,422	1,869
228039	28039	116	116	116	4,765
228041	28041	74	74	74	6,460
228111	28111	3	3	3	0
228131	28131	667	667	667	1,985

NPDC 1989 UPDATE - POPULATION, HOUSING, WEALTH (5 areas - separately)
- Which table? (type ? for help t to toggle output): 9

TABLE 9
Year 1979/80 (Group Quarters)

PolyID	FIPS	All Group Quarters Pop '80	PCI '79	Mental Hosps	Homes /Aged	Other Instit	College Dorms	Other GQ *
228035	28035	4,422	1,869	6	594	364	3,362	70
228039	28039	116	4,765	0	83	8	0	0
228041	28041	74	6,460	0	68	0	0	8
228111	28111	3	0	0	0	3	0	0
228131	28131	667	1,985	0	122	8	533	0

* = includes military barracks

NPDC 1989 UPDATE - POPULATION, HOUSING, WEALTH (5 areas - separately)
- Which table? (type ? for help t to toggle output): 10

TABLE 10
1989 (Estimated) 1994 (Projected)

PolyID	FIPS	Population '89e	Per-Capita Income '89e	Population '94p	Per-Capita Income '94p
228035	28035	67,009	9,363	65,842	11,508
228039	28039	16,396	8,303	16,695	10,081
228041	28041	9,296	6,591	8,956	8,027
228111	28111	10,106	7,675	10,117	9,430
228131	28131	10,583	7,683	11,179	9,070

NPDC 1989 UPDATE - POPULATION, HOUSING, WEALTH (5 areas - separately)
- Which table? (type ? for help t to toggle output): 11

TABLE 11

1989 Households (Estimated)

PolyID	FIPS	Households '89e	Average Household Income '89e	Average Household Size '89e	Average Household Wealth '89e
228035	28035	25,908	23,757	2.42	61,006
228039	28039	5,537	24,425	2.94	69,591
228041	28041	3,007	20,269	3.07	60,033
228111	28111	3,673	21,396	2.75	62,077
228131	28131	3,599	22,530	2.76	65,821

$$\text{avg household size} = \frac{\text{(total population - group quarters population)}}{\text{\# households}}$$

NPDC 1989 UPDATE - POPULATION, HOUSING, WEALTH (5 areas - separately)
- Which table? (type ? for help t to toggle output): 12

TABLE 12

1994 Households (Projected)

PolyID	FIPS	Households '94p	Average Household Income '94p	Average Household Size '94p	Average Household Wealth '94p
228035	28035	27,060	27,552	2.27	70,446
228039	28039	5,881	28,445	2.82	81,009
228041	28041	2,965	24,124	3.00	71,743
228111	28111	3,981	24,281	2.54	70,676
228131	28131	4,042	25,184	2.60	73,818

$$\text{avg household size} = \frac{\text{(total population - group quarters population)}}{\text{\# households}}$$

Source: National Planning Data Corporation,
Population, Housing, Income and Wealth - 1989 update

EIFS v4.0 (d) - What profile? (<cr> to see list): 6

1989 SUB-COUNTY CONSUMER SPENDING PATTERNS
Which output format? (t/s/q/?/<cr>): t
Are you entering PolyID's (y/<cr>)?

SELECT LEVEL: county data only or choose MCD's/tracts ? (c/t/?): c

There are 5 areas on your list from 5 counties.

Default: data shown is aggregated

NPDC 1989 UPDATE - CONSUMER SPENDING PATTERNS (5 areas - aggregated)
- Which table? (type ? for help t to toggle output):

Type:	For:
1	Income Less Average Taxes
2	Grocery Expenditures, Food & Non-Food
3	Food, Drink, Misc. Personal Items
4	Household Equipment & Services
5	Apparel
6	Entertainment
7	Shelter & Related Expenditures
8	Transportation Expenses
9	Health Care, Misc. Items
10	Gift Expenditures
11	SUMMARY - Totals for all catgories
a	All detailed tables (1-10)
s	To see selected set of MCD/Tract Names and Codes
f	To see footnotes
t	To toggle 'by polygon/aggregated'
q	To leave this program

NPDC 1989 UPDATE - CONSUMER SPENDING PATTERNS (5 areas - aggregated)
- Which table? (type ? for help t to toggle output): 11

AREA: aggregated

------ Consumer Expenditures -----

TABLE 11

	Average Household	Annual Per Capita	Market Index
INCOME, LESS AVERAGE TAXES	20,622.85	7,982.32	0.6724
GROCERY & OTHER MISC. EXP.	3,846.53	1,486.16	0.8716
Food Total	2,876.80	1,112.80	0.9732
Non-Food Total	969.73	373.36	0.8527
TOTAL EXPENDITURES	17,344.85	6,710.96	0.8120
Food, Drink, Misc Personal Items	3,781.58	1,462.90	0.8641
Household Equip & Services	1,119.88	433.45	0.7234
Apparel	1,024.58	396.53	0.7589
Entertainment	1,441.39	557.86	0.7533
Shelter & Related Items	4,818.56	1,864.15	0.8298
Transportation	4,058.89	1,570.59	0.8015
Health Care, Misc	1,099.97	425.48	0.8454
GIFTS	221.62	85.77	0.8480

Market Index = area Average Household value / U.S. Average Household value.

Expenditures per household are for ALL households in the area, not just those spending for the category. Likewise, per capita expenditures are for ALL people in the area. This makes some items, such as housing seem low.
Gift expenditures are also counted in the appropriate product category.

Data contained in the Grocery and Other Misc. Exp. table are derived from the diary portion of the CEX. Data contained in the other tables are derived from the interview portion. Due to differences in the two CEX surveys, data for similar categories (ie Food at Home or Tobacco/Smoking Products) may differ according to the table in which it is found.

Source: National Planning Data Corporation,
1989 Consumer Spending Patterns

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Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix N

Field Survey Results for Red-Cockaded Woodpecker;

Complete Survey of Camp Shelby, MS

Final Report to

U.S. Army Construction Engineering Research Laboratory

Champaign, Illinois

RED-COCKADED WOODPECKER SURVEY

OF

CAMP SHELBY, MISSISSIPPI

GARY D. SCHNELL

and

BRIAN R. CHAPMAN

Oklahoma Biological Survey

Norman, Oklahoma

June 1991

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Red-Cockaded Woodpecker Survey

In 1970, the red-cockaded woodpecker (Picoides borealis) was officially listed as an endangered species. It is endemic to the mature pine-forest ecosystem of the southeastern United States (Hooper et al. 1980, Jackson 1986). These woodpeckers typically are found in groups called clans, usually composed of two to nine birds, but never more than one breeding pair (Hooper et al. 1980). The other adult birds are usually males called "helpers", and they assist with incubation of eggs, feeding of young, excavating new cavities, and defending the clan's territory. Jackson (1986) indicated that the species has four major requirements: (1) open pine forest; (2) old pines (e.g., about 95+ years for longleaf pine, Pinus palustris, and 75+ years for loblolly pine, P. taeda; Jackson and Schardien 1986) for cavity excavation and foraging; (3) large tracts of forest for foraging (mean home range about 200 acres/clan); and (4) several clans in an area to provide population stability and genetic variability.

Numbers of red-cockaded woodpeckers have been significantly reduced with loss of old growth and fire suppression in the southern pine forests (Ligon et al. 1986). By the mid-1900s, these forests were reduced in extent by 50 to 65% from the acreage present at the time of European immigration (Wahlenberg 1960). As pointed out by Ligon et al.(1986), the loss probably was even more serious for the red-cockaded woodpeckers, since longleaf woodland (considered its preferred habitat) has declined much more rapidly. Jackson (1978) estimated a total population of the species of 4,800 to 10,000 individuals. Lennartz et al. (1983) estimated that about 6,000 breeding birds and 3,000 active colonies were present on federal lands; the status of the species on federal lands has important implications with respect to the overall well-being of red-cockaded woodpeckers, since a substantial portion of the suitable habitat for the species is managed by the federal government. Given that there is little evidence of the species colonizing new areas in recent years (Ligon et al. 1986), numbers on federal and other lands likely have declined below the numbers indicated. In general, most populations of the species are small and declining, with habitat alteration having fragmented the originally suitable areas (Rudolph and Conner 1991). Because of the current endangered status of this species, it is important to document the presence of the species and to track all currently and previously used colony sites.

Lands used for activities at Camp Shelby near Hattiesburg, Mississippi, encompass approximately 134,000 acres (Fig. 1). Most of the land is owned by the U.S. Forest Service (DeSoto National Forest), with additional holdings by the State of Mississippi and the U.S. Army. Camp Shelby has extensive tracts of loblolly and longleaf pines; they range in age from very young trees to mid-aged pines (probably 30-50 years old), and to several areas with mature pines (probably over 80 years old). In the Camp vicinity (area outlined in Fig. 1), 15 sites are known to have been used in the past (i.e., prior to October 1990) by red-cockaded woodpeckers (records provided by U.S. Forest Service personnel). The most recent record of red-cockaded woodpeckers using lands within the bounded area in Figure 1 was in January-February 1990; from February through September 1990, no red-cockaded woodpeckers have been reported from the lands used by Camp Shelby.

Red-Cockaded Woodpecker Survey

From October 1990 through January 1991, a comprehensive survey was conducted of areas outlined in Figure 1 to record the presence of red-cockaded woodpeckers or signs indicating recent use of the area. In addition to looking for the species from the ground, an aerial survey also was conducted, since Jackson (1985) has demonstrated that a high proportion of colony sites can be recognized from the air.

Methods

As an initial step, project personnel met on 12 October 1990 with U.S. Forest Service personnel (John White and Mike Hurst) to determine the sites where red-cockaded woodpeckers had been recorded in the past. Forest Service personnel provided a map of forest compartments (Figure 1). A general orientation session was held to summarize past woodpecker activities and use. In addition, Dr. Jerome A. Jackson, a specialist from Mississippi State University on red-cockaded woodpeckers gave a presentation on general habits and characteristics of the species. This was followed by visits to a site recently used by red-cockaded woodpeckers (in forest compartment 229; Figure 1) to familiarize project personnel with appropriate ground-survey techniques and with characteristics of sites used by the bird. Furthermore, project personnel flew over the recently used site to become familiar with appropriate techniques for identifying active woodpecker colonies from the air.

Ground Surveys. A total of 113 forest compartments was surveyed (Table 1). These were subdivided into three groups of compartments considered to be of first priority (19 compartments), second priority (27), and third priority (67). The first-priority compartments were those that included locations previously known to have been used by red-cockaded woodpeckers (some of the previous sites were located on a boundary of two or more compartments). The 27 second-priority compartments were those adjacent to compartments designated as first priority. The remaining 67 were considered as third-priority compartments. Ground personnel visited all sites, with efforts initially concentrated on first-priority compartments, then on second-priority compartments, and finally on those listed as having third priority.

One compartment (number 100) was not surveyed. It included the bombing and artillery impact zone on Camp Shelby, an area considered too hazardous to enter. Given the vegetation found in this compartment, it is improbable that the compartment would be used by red-cockaded woodpeckers.

Ground surveys consisted of survey teams walking through a forest compartment looking for woodpeckers or signs of recent activities. Personnel, equipped with binoculars, walked parallel transects to comprehensively cover the area within each compartment. Typically, individuals were about 30 meters apart (somewhat farther apart in open habitats and closer in habitats with a higher density of vegetation). In addition to searching for new areas used by woodpeckers, personnel visited all previously known colony sites to look for

new signs of use.

When a compartment had habitats that clearly would not be used regularly by woodpeckers (for example, no pines were present or the pines clearly were less than 30 years of age), personnel did not walk through the entire compartment, but simply drove through the area to make certain that no isolated clumps of mature pines were present.

Most ground surveys were completed by William Dinkines, Rich Fry, Rhonda Beyke, and Candy Gedge. For a few surveys, Gary Schnell, Brian Chapman, and Jerome Jackson, and Robert Piazza also participated.

Ground surveys were conducted from 11 October to 15 November 1990 and from 18 January through 30 January 1991. A total of 112 person-days of effort was involved.

Aerial Surveys. Jackson (1985) found that a high proportion of active woodpecker colonies could be located from the air using fixed-wing aircraft. Successful aerial location of the colonies is possible because of: (1) the high visibility of gum on the trunks of cavity trees above and below red-cockaded woodpecker cavities; (2) the species' preferences for excavating in pines located in relatively open stands; (3) the habit of red-cockaded woodpeckers of typically excavating cavities below the lowest branch; and (4) the usual presence of multiple cavity trees in a colony. Given the increased maneurverability and slower speeds possible with helicopters, they provide considerable promise for locating active colony sites.

Huey helicopters were employed for aerial surveys conducted 13-14 October and 20-21 October 1990. In order to familiarize observers with aerial characteristics of trees used by red-cockaded woodpeckers, the site in compartment 229 recently abandoned by them was flown over as part of a training exercise for observers.

From four to six observers (not including pilots; total of 26 person-days) were used as observers to search for signs of woodpecker use. A parallel series of transects was flown so as to cover the complete area outlined in Figure 1. Typically, adjacent aerial transects were 0.5 km apart. Flights were conducted at about 50 kilometers per hour and at 50 to 75 meters above ground level. If an observer located a potential "woodpecker site", pilots were instructed to circle the area in order to ascertain whether or not the location included actual signs of use by woodpeckers.

Jerome Jackson, Gary Schnell, Brian Chapman, and William Dinkines participated in all aerial surveys. Some of the flights also included Rick Fry, Rhonda Beyke, and Candy Gedge. Robert Piazza accompanied survey personnel on all flights.

Red-Cockaded Woodpecker Survey

Results and Conclusion

The aerial surveys covered all areas (except compartment 100) on Camp Shelby. No signs of active colonies were identified using this procedure. All compartments except no. 100 were visited on the ground. The visit to compartment no. 229 is documented below to provide an example of how one of the high-priority compartments was surveyed.

Individual Compartments with Example.

The compartment map for no. 229 is shown in Figure 2. Workers visited the compartment on 26 October 1990, starting at 09:00 and ending at 17:30. After visiting the area of a previously active colony (general area shown in Fig. 2), the compartment was surveyed in sections, with observers walking in lines approximately 30 meters apart. The survey lines were run in different directions (see Fig. 2) depending on the boundaries of different subportions of the compartment. The compartment contains many residual pines, mostly midaged with a low hardwood understory. The creek bottoms contained thick vegetation. The vegetation was very uniform throughout the compartment. In our judgment, the habitat in this compartment is potentially the "best" for red-cockaded woodpeckers on Camp Shelby.

A number of individual trees in the compartment were checked. These included: (1) a longleaf pine, no tree tag number (but tree marked with painted stripes, 48.3 cm DBH, 19.82 m tree height, 9.76 m to lowest limb, 1 inactive cavity (filled with pine needles); (2) longleaf, tag no. 229-1-1, 50.7 cm DBH, 25 m height, lowest limb 11 m, 2 inactive cavities and 1 that appeared to be "marginally active"; (3) longleaf, tag no. 229-1-2, 50 cm DBH, 20.73 m height, 8.23 m to lowest limb, 2 inactive cavities; (4) longleaf, tag no. 229-1-3, 39.2 cm DBH, 22.26 m height, 10.98 m to lowest limb, one inactive cavity; (5) longleaf, tag no. 229-1-4, 36 cm DBH, 16.77 m height, 7.01 m to lowest limb, one inactive cavity; (6) longleaf, tag no. 229-1-5, 61.0 cm dbh, 31.1 m height, 16.77 m to lowest limb, 1 inactive cavity; (7) longleaf, tag no. 229-2-3, 52.3 cm DBH, 28.35 m height, 13.41 m to lowest limb, 8 inactive cavities; (8) longleaf, tag no. 229-2-4, 53.5 cm DBH, 24.39 m height, 5.79 m to lowest limb, 1 inactive cavity; (9) longleaf, tag no. 229-3-1, 50.0 cm DBH, 26.52 m height, 8.84 m to lowest limb, 7 inactive cavities; (10) longleaf, tag no. 229-3-4, 53.6 cm DBH, 26.22 m height, 14.63 m to lowest limb, 3 inactive cavities; (11) longleaf, tag no. 229-3-6, 53.8 cm DBH, 26.34 m height; 10.67 m to lowest height, 1 inactive cavity; (12) longleaf, tag no. 229-3-7, 39.7 cm DBH, 26.52 m height, 9.76 m to lowest limb, 3 inactive cavities and 1 "marginal" cavity (with some possible recent work). There was no evidence of very recent activity by the woodpeckers in this compartment.

Compartment 229 is a good example of how ground surveys typically were conducted, although of course most compartments had few or no trees that had been actively used in the past. Brief summaries of the results for each compartment are given in Table 2.

Overall, there is no evidence that red-cockaded woodpeckers are currently using any of the lands on Camp Shelby. A few locations appear to be "suitable" for supporting red-cockaded woodpeckers, and a few may be appropriate as translocation sites if attempts are made to re-establish red-cockaded woodpeckers in the area. Personnel should continue to take special precautions to protect previously used nest trees and other potentially usable sites at Camp Shelby.

Acknowledgements

We thank Jerome A. Jackson for reviewing a draft of this report.

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Table 1.

List of forest compartments, with an indication of whether they were considered to be first (two asterisks), second (one asterisk) or third priority. Compartments identified in Figure 1.

1, 2, 3**, 4**, 5, 6, 7, 8, 9, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21*, 22*, 23*, 24, 25, 26, 27*, 28*, 29*, 30, 31, 32*, 33, 34, 35, 36, 37, 38*, 39*, 40*, 41, 42, 43*, 44**, 45, 46, 47, 48, 49, 50, 51**, 52**, 54**, 55, 56, 57, 58, 59, 60*, 61**, 62**, 63, 64, 69, 70, 71, 72*, 73**, 74**, 75, 76*, 77*, 78**, 79*, 80**, 81**, 82**, 85*, 90*, 91**, 92*, 93*, 94, 95, 96, 97, 98, 102, 103**, 108, 109, 110, 112, 113, 114, 120**, 208, 209, 210, 211*, 212**, 213*, 214 , 215*, 216, 217, 218, 226, 227*, 228*, 229**, 230*, 231*, 232

Table N-2

Summary of ground survey findings by forest compartment. (Compartments identified in Figure 1)

No. 1, 28 January 1991, 10:30-11:15, tall mid-age pines with tall hardwood understory, with some areas having very thick, tall young pines. Road survey used. No woodpecker signs.

No. 2, 28 January 1991, 9:30-10:30, tall mid-age pines with medium-height hardwood midstory. Some areas clear cut with small regeneration pines. No woodpecker signs.

No. 3, 7 November 1990, 10:00-12:00. Part young to midaged pines, few residuals, high to medium hardwood midstory. Another part young pines with hardwood midstory. Third area with midaged pines and low shrubby understory. Foot and road surveys. No woodpecker signs.

No. 4, 7 November 1990, 9:30-11:30. Part young to midaged pines, few residuals, high to medium hardwood midstory. Another part young pines with hardwood midstory. Third part with midaged pines and low shrubby understory. Surveyed compartment in sections using foot and road survey. Inactive colony on boundary with compartment 3 (all tagged trees in this compartment No. 5, 15 November 1990, 10:50-11:30. Range of young to midaged pines. A few residual pines present. Foot and road surveys. No woodpecker signs.

No. 6, 14 November 1990, 13:50-15:20. Saplings to midaged pines. Thick hardwoods in places. Some clearcut. Some young to midaged pines. Foot and road surveys. No woodpecker signs.

No. 7, 14 November 1990, 14:00-16:00. Sapling to midaged pines. Some hardwood areas. Some clear cut. Also young and midaged pines. Foot and road surveys. No woodpecker signs.

No. 8, 28 January 1991, 11:00-12:40. Small area of tall midaged pines with hardwood understory. Considerable area clearcut with regenerating pines. Road survey. No woodpecker signs.

No. 9, 28 January 1991, 12:45-13:40. Small area of tall midaged pines with thick hardwood understory. Rest clearcut with small regenerating pines. Road survey. No woodpecker signs.

No. 12, 15 November 1990, 9:15-10:30. Part sapling to midaged pines. Part thick hardwoods with some pines, including a few residuals. Some clearcut. Also area with young to midaged pines with medium to tall midstory of pine and/or hardwood. Foot and road surveys. No woodpecker signs.

No. 13, 28 January 1991, 13:45-14:45. Part midaged pines with hardwood understory. Some clearcut. Foot and road surveys. No woodpecker signs.

No. 14, 13 November 1990, 15:30-16:30. Young to midaged pine overstory in part. Very tall, thin trees. Other areas with thick seedling and young pines. Some with thick hardwood midstory and other areas clearcut. Foot and road surveys. No woodpecker signs.

No. 15, 13 November 1990, 14:40-15:30. Young to midaged pine overstory; very tall and thin trees. Some areas with young pines. Thick hardwood midstory in a few areas. Some clearcut. Foot and road surveys. No woodpecker signs.

No. 16, 13 November 1990, 8:05-9:00. Midaged pine overstory, with thick and/or tall understory. Some thick seedlings and young pines. Some clearcut areas close. Foot and road surveys. No woodpecker signs.

No. 17, 13 November 1990, 9:00-11:00. Young to midaged pine overstory, with understory of shrubs and hardwoods (usually tall and/or thin). Some young pines. Some clearcut. Foot and road surveys. No woodpecker signs.

No. 18, 13 November 1990, 9:00-12:00. Similar to no. 17. Mostly road survey. No woodpecker signs.

No. 19, 13 November 1990, 11:45-13:20. Young to midaged pine overstory. Some young pines. Some clearcut. Primarily road survey used. No woodpecker signs.

No. 20, 13 November 1990, 9:30-10:30. Young to midaged pines with low to high hardwood midstory. Some clearcut. Road survey. No woodpecker signs.

No. 21, 1 November 1990, 9:30-11:00. Medium to tall hardwoods with shrub midstory. Some clearcut. Other areas with thick understory of pines and hardwoods. Another area with pine saplings. Foot and road surveys. No woodpecker signs.

No. 22, 1 November 1990, 11:00-12:20. Tall hardwoods in some areas. Some clearcut and other areas with thick understory. Foot and road surveys. No woodpecker signs.

No. 23, 1 November 1990, 8:00-9:30. Tall lower and midstory hardwoods. Tall midaged pines. Few pines of sufficient age to serve as cavity trees. Some clearcut. Foot and road surveys. No woodpecker signs.

No. 24, 13 November 1990, 10:30-11:45. Had difficulty getting into compartment. General observations indicate that it is very unlikely that red-cockaded woodpeckers would use this stand.

No. 25, 13 November 1990, 9:00-10:00. Some areas with young to midaged trees. Some clearcut, while a few areas had old trees with low shrubby understory. Road survey. No woodpecker signs.

No. 26, 13 November 1990, 8:00-9:20. Some young to midaged pines, with low to high hardwood midstory. Some clearcut. Road survey. No woodpecker signs.

No. 27, 2 November 1990, 13:00-14:00. Some has low midstory. Mostly midaged pines. A few mature pines. Some areas with seedlings and young pines. Foot and road surveys. No woodpecker signs.

No. 28, 4 November 1990, 8:30-10:10. Young pines and hardwoods (very thick). Some tall midaged pines. A few residual old pines. Foot survey using roads and creeks as boundaries. No woodpecker signs.

No. 29, 4 November 1990, 10:10-10:30. Some young pines; other areas with midaged pines. A few residual old pines. Foot survey using roads and creeks as boundaries. No woodpecker signs.

No. 30, 13 November 1990, 16:00-16:50. Some old pines, with shrubby understory. Some clearcut. Other parts with young to midaged pines. Foot survey. No woodpecker signs.

No. 31, 13 November 1990, 14:45-16:00. Some midaged to old pines, with understory. Some clearcut and some young or midaged pines. Foot survey. No woodpecker signs.

No. 32, 4 November 1990, 11:10-1:15. Young pines and hardwoods in parts. Some midaged pines. Foot survey. No woodpecker signs.

No. 33, 15 November 1990, 8:00-9:10. Some saplings. Other areas with thick hardwoods. Some clearcut. Some young to midaged pines. Few residuals. Road survey. No woodpecker signs.

No. 34, 29 January 1991, 9:00-10:00. Young to midaged pines. Road survey. No woodpecker signs.

No. 35, 29 January 1991, 9:45-10:45. Midaged pines. Some clear-cut. Road survey. No woodpecker signs.

No. 36, 29 January 1991, 10:45-12:00. Midaged pines. Some pine areas thinned, leaving mostly hardwoods. Road survey. No woodpecker signs.

No. 37, 14 November 1990, 10:00-10:50. Range of areas from clearcut to midaged pines. Road survey. No woodpecker signs.

No. 38, 6 November 1990, 8:30-9:40. Clearcut in part. Also young pines. Some midaged with a few mature pines. Other areas have mature pines. Foot survey. No woodpecker signs.

No. 39, 6 November 1990, 9:40-11:20. Similar to 38 in mixture of types. Foot survey. No woodpecker signs.

No. 40, 6 November 1990, 11:25-16:05. Some mixed-aged pines. Some mature pine. Range of habitat types. Foot survey. No woodpecker signs.

No. 41, 13 November 1990, 13:30-14:45. Midaged to old pines. Some clearcut. Some concentrated hardwood areas. Some areas with young pines. Road survey. No woodpecker signs.

No. 42, 14 November 1990, 7:45-8:30. Much clearcut or young pines. Road survey. No woodpecker signs.

No. 43, 4 November 1990, 10:35-10:55. Mostly young pines or tall midaged pines. Foot survey. No woodpecker signs.

No. 44, 24 October 1990, 8:00-17:30. Fairly thick hardwood midstory throughout compartment. Midaged pines. Foot survey. Some previously used trees checked. No woodpecker signs.

No. 45, 13 November 1990, 11:00-11:45. Midaged to old pines in a few areas. Some young to midaged pines. Road survey. No woodpecker signs.

No. 46, 13 November 1990, 13:15-14:30. Some young to midaged pines. Some seedling and young pines. Some clearcut. Road survey. No woodpecker signs.

No. 47, 25 January 1991, 12:20-14:00. Tall midaged pines with tall hardwood midstory. Road survey. No woodpecker signs.

No. 48, 25 January 1991, 12:30-13:15. Some midaged pines. Some clearcut. Road survey. No woodpecker signs.

No. 49, 23 January 1991, 15:00-15:40. Some young to midaged pines. Some clearcut. Road survey. No woodpecker signs.

No. 50, 23 January 1991, 15:35-16:15. Similar to no. 49. Road survey. No woodpecker signs.

No. 51, 25 October 1990, 8:00-16:30. Midaged pines with hardwood understory. Foot survey. Several tagged trees, but no cavity holes.

No. 52, 29 October 1990, 12:30-14:00. Midaged pines. Considerable underbrush. Road survey. No woodpecker signs.

No. 54, 18 October 1990, 8:00-17:00. Low hardwood understory, with midaged pines. Few residual, older pines. Foot survey. Some inactive marked trees. No woodpecker signs.

No. 55, 14 November 1990, 10:00-10:45. Range of types. Much being regenerated, with only young pines being present. A few mature pines. Road survey. No woodpecker signs.

No. 56, 14 November 1990, 11:00-11:25. Mostly young pines, regeneration. Road survey. No woodpecker signs.

No. 57, 22 January 1991, 14:30-15:05. Midaged pines with tall hardwood understory. Regeneration pines in other areas. Road survey. No woodpecker signs.

No. 58, 14 November 1990, 11:30-12:05. Variety of young to midaged plots. Some regeneration areas and some clearcut. Road survey. No woodpecker signs.

No. 59, 14 November 1990, 11:30-12:05. Similar to no. 58. Road survey. No woodpecker signs.

No. 60, 31 October 1990, 7:30-9:00. Mostly understory open, with midaged pines. Foot and road surveys. No woodpecker signs.

No. 61, 29 October 1990, 14:00-16:30. Little if any suitable habitat. Foot and road surveys. Previously used tree checked. No woodpecker signs.

No. 62, 29 October 1990, 8:00-later in morning. Mostly too young for red-cockaded woodpeckers. Old colony checked. Foot and road surveys. No woodpecker signs.

No. 63, 25 January 1991, 9:45-10:45. Tall midaged pines, plus other areas with regeneration pines. Road survey. No woodpecker signs.

No. 64, 23 January 1991, 14:45-15:30. Similar to no. 63. Road survey. No woodpecker signs.

No. 69, 23 January 1991, 10:15-12:15. Similar to no. 63. Road survey. No woodpecker signs.

No. 70, 23 January 1991, 12:20-13:30. Similar to no. 63. Road survey. No woodpecker signs.

No. 71, 25 January 1991, 9:20-10:45. Similar to no. 63. Road survey. No woodpecker signs.

No. 72, 12 November 1990, 10:10-11:45. Sporadic pine overstory. Much has young to midaged pines with some mature pines. Midstory varies. Foot and road surveys. No woodpecker signs.

No. 73, 30 October 1990, 12:30-16:30. Mix-aged pines, mostly midaged. A few residual pines. Mixed hardwood midstory in some areas. Foot survey. Inactive trees checked. No woodpecker signs.

No. 74, 30 October 1990, 9:00-12:00. Some mature trees, but heavy understory. Some mixed age, while others have some old pines. Trees marked as old colony could not be located, although some boundary trees were located. A few previously used trees checked. Foot and road surveys. No woodpecker signs.

No. 75, 11 November 1990, 8:15-9:15. Mostly young to midaged pines. Foot and road surveys. No woodpecker signs.

No. 76, 22 January 1991, 11:30-14:10. Midaged pines. Some clearcut with regeneration pines. Foot and road surveys. No woodpecker signs.

No. 77, 11 November 1990, 12:15-14:30. Much of compartment with young to midaged pines. Other areas have mature pines. Some areas with numerous mature pines. Understory seems to have grown to thick in places. Previously used pines checked. No woodpecker signs.

No. 78, 31 October 1990, 7:00-9:00. Open parkland with mixed pine/hardwood areas with some mature pines. Some areas with young pines. Some hardwood stands. Foot and road surveys. Previously used colony checked. No woodpecker signs.

No. 79, 12 November 1990, 12:30-15:30. Much with young to midaged pines. Some seedlings and young pines. Much of compartment blocked off because of impact area. No woodpecker signs.

No. 80, 5 November 1990, 14:00-17:05. Midaged pine overstory in some areas, with moderate understory. Some mature pines. Some clearcut. Inactive tree checked. Foot and road surveys. No woodpecker signs.

No. 81, 5 November 1990, 8:45-11:10. Midaged pines. Some mature pines, but midstory of hardwoods quite high. Some areas with young pines. Foot and road surveys. No woodpecker signs.

No. 82, 5 November 1990, 11:10-14:20. Similar to no. 81. Inactive trees checked. Foot and road surveys. No woodpecker signs.

No. 85, 12 November 1990, 8:15-9:50. Pines young to midaged. Foot and road surveys. No woodpecker signs.

No. 90, 31 October 1990, 13:00-14:00. Mixed pine. Habitat not good for woodpeckers. Foot and road surveys. No woodpecker signs.

No. 91, 28 October 1990, 7:00-15:30. Also finished up section of no. 54. Some residual old pines, but dense midstory and understory. Some young pines. Inactive tree checked. Foot and road surveys. No woodpecker signs.

No. 92, 8 November 1990, 9:30-10:00. Also, 11 November 1990, 9:30-11:00. Thick young to midaged pines. Some open areas. Foot and road surveys. One possible tree located. Later determined not to be active.

No. 93, 31 October 1990, 15:00-late afternoon. Much clearcut or with thick understory and midstory below pines. Foot and road surveys. No woodpecker signs.

No. 94, 22 January 1991, 10:30-11:25. Young to midaged pines. Some clearcut. Road survey. No woodpecker signs.

No. 95, 14 November 1990, 12:50-14:30. Variety of areas. Much young to midaged or clearcut. Some open. Road survey. No woodpecker signs.

No. 96, 21 January 1991, 16:00-17:00. Young pines. Other areas in regeneration. Road survey. No woodpecker signs.

No. 97, 21 January 1991, 14:00-15:00. Much clearcut. Other areas with young pines. Road survey. No woodpecker signs.

No. 98, 14 November 1990, 12:50-14:30. Variety of types. Some young to midaged. Other areas regenerating. Some mature pines. Foot and road surveys. No woodpecker signs.

No. 102, 21 January 1991, 8:45-10:10. Midaged pines. Some clearcut and some regenerating. Road survey. No woodpecker signs.

No. 103, 22 October 1990, 8:00-15:30. Midaged pines with low to medium hardwood understory. Previously used trees checked. Foot survey. No woodpecker signs.

No. 108, 21 January 1991, 13:30-14:45. Young to midaged pines. Most quite young. Road survey. No woodpecker signs.

No. 109, 22 January 1991, 12:30-13:30. Young to midaged pines. Some clearcut. Some regeneration. Road survey. No woodpecker signs.

No. 110, 22 January 1991, 13:30-14:30. Young to midaged pines. Some clearcut. Road survey. No woodpecker signs.

No. 112, 21 January 1991, 13:05-13:30. Midaged pines. Other areas clearcut. Road survey. No woodpecker signs.

No. 113, 21 January 1991, 12:06-13:00. Midaged pines. Other areas with regeneration. Road survey. No woodpecker signs.

No. 114, 21 January 1991, 10:15-11:30. Midaged pines, with thick understory. Foot and road surveys. No woodpecker signs.

No. 120, 6 November 1990, 16:05-16:40. Midaged pines and some areas with mature pines. Inactive trees evaluated. Foot and road surveys. No woodpecker signs.

No. 208, 24 January 1991, 13:15-14:00. Young and midaged trees. Road survey. No woodpecker signs.

No. 209, 14 November 1990, 9:40-10:45. Sapling to midaged pines. Some clearcut. Road survey. No woodpecker signs.

No. 210, 14 November 1990, 10:45-12:00. Saplings to midaged pines. Some clearcut. Some hardwoods. Road survey. No woodpecker signs.

No. 211, 10 November 1990, 8:00-10:15. Midaged pines. Other parts with young pines. Foot and road surveys. No woodpecker signs.

No. 212, 7 November 1990, 8:30-9:40. Young to midaged pines. A few residual pines. Foot and road surveys. No woodpecker signs.

No. 213, 10 November 1990, 9:10-11:45. Midaged pines. Some young pines. Foot and road surveys. No woodpecker signs.

No. 214, 14 November 1990, 12:30-13:45. From saplings to midaged pines. Some thick hardwoods and some clearcut. Foot and road surveys. No woodpecker signs.

No. 215, 1 November 1990, 13:30-15:30. Some medium to tall hardwoods. Other areas clearcut. A few areas with pine saplings. Foot and road surveys. No woodpecker signs.

No. 216, 14 November 1990, 9:00-9:35. Variety of saplings to midaged pines. Some hardwoods and some clearcut. Road survey. No woodpecker signs.

No. 217, 24 January 1991, 12:45-13:20. Regenerated pines and some midaged pines. Road survey. No woodpecker signs.

No. 218, 24 January 1991, 11:00-11:40. Some midaged pines. Recent fire. Some clearcut with regeneration. Road survey. No woodpecker signs.

No. 226, 24 January 1991, 10:00-11:00. Some midaged pines. Some clearcut. Road survey. No woodpecker signs.

No. 227, 2 November 1990, 8:15-10:20. Low midstory, with midaged pines. Few mature pines. Some areas with seedlings. Foot and road surveys. No woodpecker signs.

No. 228, 2 November 1990, 10:20-12:10. Midaged pines. Few mature pines. Some hardwood areas and others with pine seedlings. Foot and road surveys. No woodpecker signs.

No. 229, covered in text.

No. 230, 10 November 1990, 13:00-14:05. Midaged pines. Other areas also have younger pines. Some with pine seedlings. Road survey. No woodpecker signs.

No. 231, 10 November 1990, 12:35-13:30. Young to midaged pines. Some pine seedlings. Not good habitat for these woodpeckers. Road survey. No woodpecker signs.

No. 232, 24 January 1991, 9:15-10:00. Some clearcut areas with regenerating pines. Some midaged pines. Road survey. No woodpecker signs.

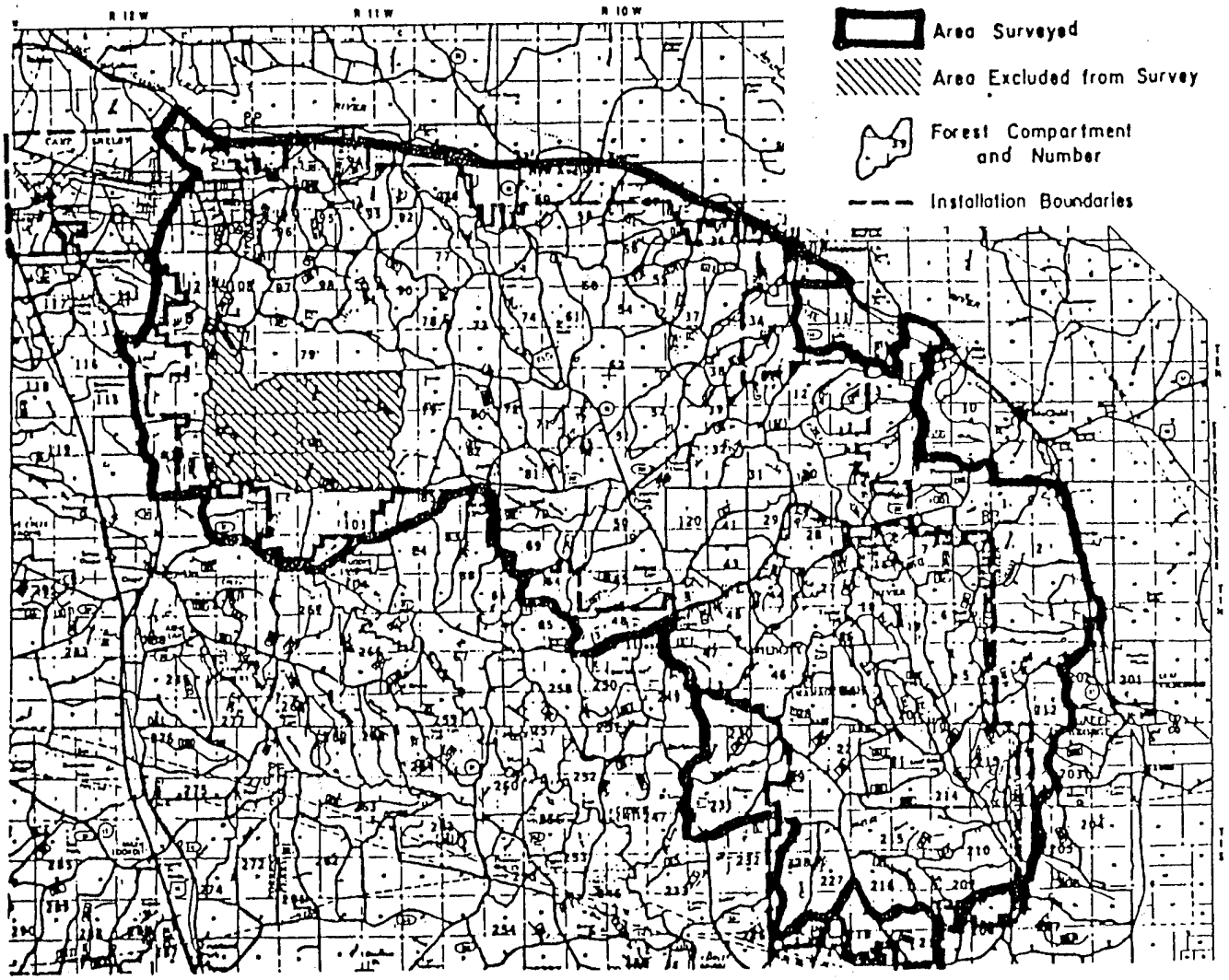


Figure 1. Map showing area covered by aerial and ground surveys. Forest compartments and compartment numbers indicated.

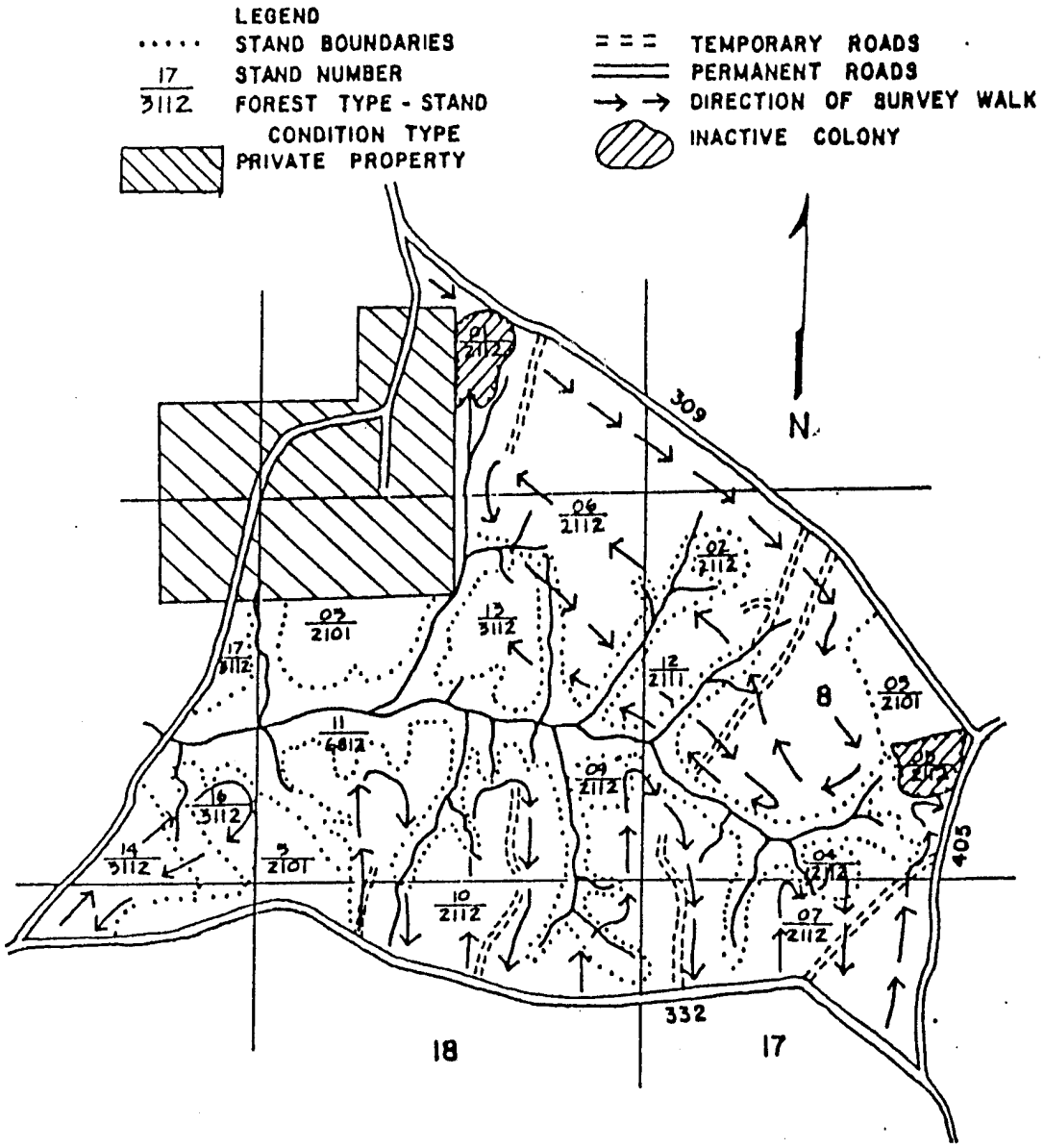


Figure 2. Map indicating configuration of compartment 229. Lines with arrows indicate the transects walked by seven observers. The general location of an inactive red-cockaded woodpecker colony is indicated. In most cases, observers did not walk in lowland areas directly adjacent to the stream, since the habitat directly along most of the creek was unsuitable for red-cockaded woodpeckers.

Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix O

Analysis of Timber Supply following Proposed Action

Appendix O
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1. Black Creek Ranger District Timber Sales Totals

The following tables depict volume and value of timber sold for the given fiscal years on the Black Creek Ranger District. Table II shows the volumes purchased by mills within the Camp Shelby economic region. It should be noted that the timber sold in Table I is logged by contractors within the five county region.

TABLE I

Black Creek Ranger District Timber Sale Totals
Fiscal Years 1986-1990

Year (By Quarter)		Volume (MBF)	Value ($)
1986	Dec	11,030.42	1,073,293.39
	Mar	4,319.44	395,173.60
	Jun	9,242.48	964,049.79
	Sep	11,974.33	1,411,310.17
	TOTAL	36,566.67	3,843,826.95
1987	Dec	4,834.10	471,117.56
	Mar	7,579.25	778,087.28
	Jun	4,664.85	510,405.65
	Sep	9,998.86	1,408,663.68
	TOTAL	27,077.06	3,168,274.17
1988	Dec	7,388.07	739,249.61
	Mar	7,417.47	593,302.20
	Jun	5,424.72	641,423.63
	Sep	12,038.35	1,358,063.01
	TOTAL	32,268.61	3,332,038.45
1989	Dec	4,316.67	629,241.59
	Mar	7,246.39	789,828.93
	Jun	4,142.76	641,423.63
	Sep	13,859.90	2,199,164.72
	TOTAL	29,565.72	3,382,531.46
1990	Dec	10,507.85	1,309,738.59
	Mar	3,120.39	278,433.48
	Jun	4,847.21	727,883.04
	Sep	197.21	4,465.67
	TOTAL	18,672.66	2,320,520.78
1986-1990			
	TOTAL	144,150.72	16,047,191.81

TABLE II

Black Creek Ranger District National Forest Timber Purchases by Facilities Within the Five-County Economic Region Fiscal Years 1986-1990

Year (By Quarter)		Volume (MBF)	Value ($)
1986	Dec	11,030.42	1,073,293.39
	Mar	10.18	1,260.30
	Jun	6,379.55	701,017.79
	Sep	3,156.29	402,514.42
	TOTAL	20,576.44	2,178,085.90
1987	Dec	4,834.10	471,117.56
	Mar	6,386.67	636,829.63
	Jun	39.23	445.03
	Sep	7,200.22	1,161,885.14
	TOTAL	18,460.22	2,270,277.36
1988	Dec	3,523.33	296,066.18
	Mar	4,628.22	345,975.73
	Jun	5,424.72	641,423.63
	Sep	4,465.09	580,735.92
	TOTAL	18,041.36	1,864,201.46
1989	Dec	4,316.67	629,241.59
	Mar	4,660.77	424,499.36
	Jun	424.99	320,268.18
	Sep	9,832.39	1,512,643.15
	TOTAL	19,234.82	2,886,652.28
1990	Dec	2,208.12	258,066.06
	Mar	1,117.85	9,055.00
	Jun	4,847.21	727,883.04
	Sep	127.85	1,847.67
	TOTAL	8,301.03	996,851.77
1986-1990			
	TOTAL	84,613.87	10,196,068.77

2. Knutson-Vandenberg Act

The Knutson-Vandenberg Act (KV) of June 9, 1930 (46 Stat. 527; 16 U.S.C. 576-576b), as amended by the National Forest Management Act of October 22, 1976 (P.L. 94-588) (FSM 1011), is the authority for requiring purchasers of National Forest timber to make deposits to finance sale area improvement (SAI) activities, such as site preparation and planting, needed to protect and improve the future productivity of the renewable resources of forest lands on timber sale areas. KV fund-supported activities can take place only on tracts of land from which timber sales with approved KV plans have been made.

The objective of the Knutson-Vandenberg Act is to re-establish, protect, and improve the production of the renewable resources on harvested timber sale areas through the collection and efficient use of KV funds. A minimum of $.50 per MBF must be deposited to the U.S. Treasury. All other timber sale receipts are eligible for retention in the KV fund. Activities which can be supported by KV funds include sale area improvement operations, maintenance and construction, reforestation, range and wildlife and fish habitat management. Other examples of KV fund activities are provided below. Payment of indirect costs (overhead, program management, and support services) from KV funds can also be done as authorized by the Controller General Decision B-67619, dated December 3, 1947.

KV funds are pooled by proclaimed National Forest. Balances are reviewed annually for adequacy and any projected surplus is returned to the Treasury. In recent years Congress has set a cap on the amount of KV funds which can be expended by the U.S. Forest Service. Based on planned expenditures, this cap is then apportioned to each Regional Office for use in budgeting KV funds to each administrative National Forest in the region.

The policy of the KV Act is:

1. KV activities shall be consistent with objectives and direction established in Forest Plans, identified in the project(s) National Environmental Policy Act of 1969 (NEPA) documentation and included on approved Sale Area Improvement (SAI) Plans.
2. SAI activities shall only be carried out on lands with full National Forest status and on lands administered in accordance with the laws, rules, and regulations applicable to National Forest Lands (FSM 2401).

EXAMPLES OF APPROPRIATE K-V PROJECTS

* plant, seed, or fertilize preferred vegetation to enhance wildlife forage or cover
* construct nest boxes or tree cavities, guzzlers, and water catchments
* thin trees to enhance growth
* prescribed burn to enhance wildlife habitat and range ecosystems
* treat slash or woody debris to enhance seedling plantability, survival or growth
* protect T&E species habitat
* improve fish habitat
* install gates, signs, and traffic control barriers
* treat noxious weeds
* replace barrier culverts
* reconstruct game/range improvements
* control undesirable vegetation
* conduct administrative studies
* plant riparian vegetation
* place checkdams in gullies
* direct seeding including collection or purchase of tree seed
* respread top soil
* incorporate organic matter in soils to maintain fertility
* pull back side cast from old roads to reduce landslide potential within sale area
* cleanup existing landslide debris
* maintain improvements existing at time of sale constructed by KV
* remove barriers to fish passage and stabilize stream banks
* enhance vistas or highlight "character trees" by thinning, pruning or planting seedlings
* prepare sites for planting, seeding or natural regeneration
* plant tree seedlings, including seedling production
* control animal damage to seedlings
* manipulate vegetation to improve diversity
* control insect damage to seedlings
* enhance soil productivity (physical or chemical)
* restore barriers to livestock
* construct waterbars and/or close roads
* set up free firewood gathering areas
* rip or till compacted soils
* stabilize erosion
* provide interpretive signing
* control stream temperature and provide cover with large woody debris
* increase filter strip effectiveness with woody obstructions using logging slash
* control public, wildlife, and livestock use that threatens plantations or other resources
* obliterate and restore productivity on unneeded roads and travelways not used by purchaser
* prune trees to improve the future product recovery and value
* landscape gullies that threaten loss of long-term site productivity

* improve visual quality along roads and trails
* use burning and other techniques to enhance wild berry production
* protect cultural resources discovered during timber harvesting
* establish dispersed camping sites within sale area boundary
* relocate trails within sale area boundary, vistas, points of interest only when not purchasers responsibility

3. Analysis of Unscheduled Timber Removal

In the EIS, documentation is shown in sections 3.2.2.3, 3.5.4 and 3.5.9.2 dealing with the effects caused by the implementation of alternatives 1-6. The concern of the timber resource section deals primarily with alternatives 1 and 2. In alternative 1 an estimated 79 MMBF of timber will be removed from 17,341 acres and alternative 2 estimates 78 MMBF will be removed from 14,431 acres. Both alternatives would have a negative effect on local landowners, industry and Forest Service normal operating procedures if implemented during a short time frame of 1-2 years.

The affects to industry are well documented. The immediate affects to the Chickasawhay, Black Creek and Biloxi ranger districts would include the following:

1. Removal of all volume (79 MMBF) within a 1-2 year time frame would saturate the local timber markets and result in criticism and income loss to local landowners due to reduced stumpage values.

2. The ranger districts regular timber sales program would be eliminated during this time period which would cause the following impacts.

a. No timber sale preparation funds would be available, resulting in cutbacks in office staff and overhead that comes from timber sale funds.

b. In subsequent years KV programs would virtually be eliminated. 55-60% of the De Soto districts budget is KV. This would further reduce staff levels and district targets could not be met.

c. After the harvest (1-2 years) districts would suddenly resume their regular program schedule and due to forced staff reductions could not effectively administer the program that quickly.

d. Wildlife and reforestation programs would be affected. Endangered species work, i.e. Gopher Tortoise and red-cockaded woodpecker (RCW), could not be accomplished.

e. Normal district road maintenance work would not be accomplished during the two year cutting period.

3. Removal of the timber over a three year period would cause a similar affect but to a lesser degree.

a. Minimum timber program would be carried on by each district as follows:

Camp Shelby	26 MMBF
Chickasawhay	20
Black Creek	12
Biloxi	12
Total	70 MMBF

b. Approximately 60% of the present sale prep fund would be available.

c. 25% of road maintenance would be eliminated.

d. 50-60% of KV program would be eliminated.

e. Clerical staff could be maintained to assist with sales program.

4. Removal of timber over a five year period would provide the following schedule of work with no substantial impacts on any program.(77% of normal)

Camp Shelby	16 MMBF
Chickasawhay	20
Black Creek	17
Biloxi	17
Total	70 MMBF

Recommendations and Conclusion

Considering the above impacts we recommend section 3.2.2.3 provide for an average annual cut of no more than 16-20 MMBF if alternative 1 or 2 is selected. This will allow for the annual program of work on the affected Ranger Districts to continue at an acceptable level and provide for a continuous supply of timber without saturating the local economy.

4. Project Area Timber Volume-Value Summary

The following table shows the estimated volume and value to be obtained from each area to be treated for use in tank training depending upon which alternative is selected. The relationship of this volume to that obtained with regular Forest Service management is shown for the first period and for four periods (40 years).

Alternative 1 = PTA 1,2,3 plus Corridors A,B,C,D,F,G.
Alternative 2 = PTA 1,2,4 plus Corridors A,B,C,D,E.
Alternative 3A = PTA 3,4,5 plus Corridors D,E,F,H.
Alternative 3B = PTA 3,4,5,6 plus Corridors D,E,F,H,I,J,K,L,M.

Table III
Project Area Timber Volume and Value Summary

	VOLUME MMBF			VALUE M$			REGULAR FS MANAGEMENT			
							FIRST PERIOD		THRU 4 PERIODS	
AREA	THINNED	CLEARED	TOTAL	THINNED	CLEARED	TOTAL	VOLUME	VALUE	VOLUME	VALUE
PTA 1	1.304	22.328	23.632	69	3237	3306	13.235	1800	61.340	9076
PTA 2	2.039	44.388	46.427	98	6311	6409	19.837	2574	96.755	13814
PTA 3	0.105	1.697	1.802	7	247	254	1.199	160	10.751	1128
PTA 4	1.750	0.488	2.238	48	20	68	2.956	231	17.423	1689
PTA 5	0	9.775	9.775	0	1401	1401	3.299	463	17.854	2537
PTA 6	2.024	2.349	4.373	117	329	446	9.730	1371	49.820	7704
Corr Set Alt 1	*	28.444	28.444	0	3385	3385	8.635	912	47.222	6457
Corr Set Alt 2	*	24.606	24.606	0	3098	3098	7.758	879	42.380	5635
Corr Set Alt 3A	*	5.882	5.882	0	768	768	2.395	332	15.088	2228
Corr Set Alt 3B	*	10.211	10.211	0	1275	1275	3.398	482	23.588	3354
Prim MPRC-H	0	4.159	4.159	0	183	183	2.653	102	23.455	2272
Alt MPRC-H	-	10.155	8.12	-	1622	1622	3.396	528	17.366	2738

MMBF = Million board feet
M$ = Thousand Dollars
* Minor thin acres in RCW buffers included with cleared

5. Timber Yield Tables

Introduction

Impacts on forestry were determined by comparing the estimated timber yields from the development of training areas, maneuver corridors and the MPRC ranges with the estimated yields which might be expected over a 40 year period under existing Forest Service timber management practices.

Yields were determined using the Forest Service computer program "Yield" which was derived from the TVA's "Wood Yield" program, developed and modified by Todd E. Hepp, TVA Forest Biometrician Analyst. Input data came from the Forest Service database CISC II, continuous inventory of stand condition. The types of volume adjustments made in the National Forest in Mississippi Land & Resource Management Plan (LRMP) were also applied to the computer generated volume to arrive at final per acre yields by species and ten-year age class for four, ten-year periods (cutting cycle). The outputs for the two MPRC alternatives were reduced 20% to account for timbered areas which would be left between lanes and around the perimeter.

Yields were originally planned to be stratified by six areas: South of McClain Road (FS 385 - Leaf River Wildlife Management Area); Areas immediately adjacent to the permit area; Area between FS 385 and the Beaumont Road (FS 303); Area between FS 303 and Mississippi highway 29; Area west of highway 29 and north of Paret Road; and Area west of 29 and south of Paret Road. Yields are age-basal area dependent. Analysis of the actual basal areas for the six areas indicated only two groupings were needed. The area south of the McClain Road was combined with areas outside and adjacent to the permit area. All the other areas were placed in the other group.

Thinning yields were based on National Forests in Mississippi LRMP thinning guidelines for normal management. The thinning for the concealment areas within the proposed training areas was based on leaving approximately thirty feet between trees (61 trees/acre). Regeneration acres for normal management were allocated between the 4 periods using LRMP guidelines with a goal of balancing the regeneration between periods and not carrying any stands beyond 100 years of age. Training area development plans call for only cutting pine timber from the pine stands. The hardwood is to be left for concealment and wildlife values. Therefore, only pine timber yields were calculated.

The results of the "Yield" program for per acre yields were entered on a Lotus 1-2-3 spreadsheet along with acres which had been determined through GRASS analysis. Dollar values were assigned for pulpwood and sawtimber based on the Black Creek Ranger District 1990 average stumpage price for supervisor's office size timber sales (over $10,000). These were $202.85 per MBF for sawtimber and $16.55 per CCF for pulpwood size timber.

A concept for training area layout was developed with National Guard personnel incorporating the several battle scenarios used in describing the alternatives. The actual layout would be dependent upon the outcome of the site-specific environmental analysis. Endangered species locations were utilized in locating "no action" areas which were tied to adjacent wetlands or poor soil structure areas. Although the locations for the thinned, cleared, and no action areas aren't site-specific, the proportionate acreages are probably close enough for analysis purposes.

The "Returned Tank Areas" are those training areas currently authorized for tank maneuvering which would no longer be used for tank training under the various alternatives. The yields projected are those to be expected when the areas are put under normal National Forest management as a result of returning to the managed land base.

The "New Tank Areas" are those areas within a given alternative which are not currently authorized for tank maneuver.

The corridors for each alternative may contain small areas classed as thinning. These are areas within Red-cockaded Woodpecker (RCW) buffer zones which could be thinned if they meet the thinning criteria for RCW foraging areas. The thinning areas were not set up separate from the cleared area in the volume determinations because of the small areas involved. These show as the intermediate cut areas in the following corridor yield tables.

In the yield tables that follow, the acres under regular management which were given final harvest cuts in the first period were added to the 1990 beginning age class (BAC) acres for thinning (intermediate cut) in the third period. Shortleaf Pine was assumed to be regenerated to Loblolly Pine following the final harvest cut. Thus Shortleaf Pine acres given a final harvest cut in the first period appear as Loblolly pine acres under intermediate cut in the third period. The BAC column refers to the decade of stand establishment. Intermediate final harvest refers to a final harvest preceded by an intermediate cut.

Proposed Training Areas

PTA 1 CLEARED

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL
Longleaf	60	1920 INT	0.2	0.5		0	0				0
		FINAL	9.74	1.6	60	584.4	96	12.34	1.2		0
		INT FINAL				0	0	11.44	0.6		0
	1435	1930 INT	0.2	0.5		0	0	1.26			0
		FINAL	8.56	2.16	1435	12283.6	3099.6	12.65	2.1		0
		INT FINAL				0	0	12.1	1.1		0
	134	1940 INT	0.1	0.5		0	0	1.15	0.6		0
		FINAL	6.41	3.68	134	858.94	493.12	10.99	3.12		0
		INT FINAL				0	0	10.2	1		0
	11	1950 INT	0.1	1		0	0	0.73	2		0
		FINAL	3.23	6.16	11	35.53	67.76				0
		INT FINAL				0	0				0
		1960 INT		2		0	0		1		0
		FINAL	0.9	9.1		0	0				0
		INT FINAL				0	0				0
	131	1970 INT		3.11		0	0	0.32	2		0
		FINAL		5.84	131	0	765.04				0
	183	1980 INT				0	0		2		0
		FINAL				0	0				0
	77	1990 INT				0	0				0
		2000 INT				0	0				0
		2010 INT				0	0				0
species											
Loblolly	15	1930 INT	0.2	0.4		0	0				0
		FINAL	7.85	2.6	15	117.75	39	10.48	2.1		0
		INT FINAL				0	0				0
	6	1940 INT	0.2	0.4		0	0	1.28	1		0
		FINAL	9.45	2.8	7	66.15	19.6	12.45	2.6		0
		INT FINAL				0	0				0
		1950 INT	0.2	2.1		0	0	1.88	1		0
		FINAL	3.88	9.36		0	0	7.84	7.92		0
		INT FINAL				0	0	7.22	7.36		0
		1960 INT	0.5	1		0	0	1.2	1.48		0
		FINAL	1.78	11.28		0	0				0
		INT FINAL				0	0				0
		1970 INT		2.48		0	0	0.79	1.36		0
		FINAL		12.08		0	0				0
		INT FINAL				0	0				0
	25	1980 INT				0	0		2		0
		FINAL				0	0				0
		1990 INT				0	0				0
		2000 INT				0	0				0
		2010 INT				0	0				0
species											
Slash	224	1920 FINAL	9.44	4		0	0				0
		1930 FINAL	4.8	6.75	224	1075.2	1512	5.52	7.8		0
	16	1940 INT	0.2	0.5		0	0	0.35	2.16		0
		FINAL	9.59	4.4	16	153.44	70.4	11.64	4.4		0
		INT FINAL				0	0				0
		1950 INT	0.2	0.5		0	0	0.27	1.92		0
		FINAL	3.23	7.6		0	0	4.94	9.1		0
		INT FINAL				0	0				0
	11	1960 INT		1.76		0	0	0.26	1.6		0
		FINAL	2.32	7.92	11	25.52	87.12	4.24	6.64		0
		INT FINAL				0	0	5.45	8		0
	261	1970 INT		5		0	0		2.56		0
		FINAL		11.52	261	0	3006.72				0
		INT FINAL				0	0				0
	51	1980 INT				0	0		3.04		0
		FINAL				0	0				0
		INT FINAL				0	0				0
		1990 INT				0	0				0
		2000 INT				0	0				0
		2010 INT				0	0				0
species											
Shortleaf		1920 INT	0.2	0.5		0	0				0
		FINAL	9.66	4.4		0	0	12.61	5.12		0
		INT FINAL				0	0				0
		1930 INT	0.2	0.5		0	0	1.03	2.4		0
		FINAL	10	4.88		0	0	13.07	5.52		0
		INT FINAL				0	0				0
		1940 INT	0.2	0.5		0	0				0
		FINAL	6.91	5.12		0	0	10.05	5.28		0
		INT FINAL				0	0				0
		1950 INT	0.1	0.5		0	0	1.15	2		0
		FINAL	8.2	4		0	0	11.55	4.4		0
		INT FINAL				0	0				0
		2000 INT				0	0				0
		2010 INT				0	0				0
TOTAL						15200.53	9256.36				0
TOTAL MBF							22327.93				
TOTAL VALUE						3236620					0
GRAND TOTAL MBF											
GRAND TOTAL VALUE											

PTA 1 CLEARED

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	60	1920 INT				0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.86	0.5		0	0	15.66	0.5		0	0
	1435	1930 INT	1.4	0		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.58	1.1		0	0	14.7	0.5		0	0
	134	1940 INT	1.15	0		0	0	1.15			0	0
		FINAL				0	0				0	0
		INT FINAL	12.45	1		0	0	14.04	0.6		0	0
	11	1950 INT	1.15			0	0	1.15			0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	12.93	2.24		0	0
		1960 INT	1.18	2.8		0	0	2.5			0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1.2		0	0
	131	1970 INT	1.67	2.64		0	0	2.95	2.4		0	0
		FINAL				0	0				0	0
	183	1980 INT	0.26	2		0	0	2.02	2		0	0
		FINAL				0	0				0	0
	77	1990 INT		2		0	0	0.26	2		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
species												
Loblolly	15	1930 INT	1.16	1		0	0	1.51	0.5		0	0
		FINAL	12.97	2.8		0	0				0	0
		INT FINAL				0	0	12.17	2.86		0	0
	6	1940 INT	1.78	1		0	0	1.68			0	0
		FINAL	15.57	2		0	0				0	0
		INT FINAL	11.3	4.48		0	0	12.07	3.48		0	0
		1950 INT	1.96	1		0	0	1.75			0	0
		FINAL				0	0				0	0
		INT FINAL	10.84	5.2		0	0	11.86	4.08		0	0
		1960 INT	2.05	1.44		0	0	2.02	0.5		0	0
		FINAL				0	0				0	0
		INT FINAL	9.62	5.88		0	0	11.14	4.56		0	0
		1970 INT	2.24	1.6		0	0	2.18			0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.26	4.96		0	0
	25	1980 INT	1.2	3.76		0	0	1.81	1.84		0	0
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2		0	0	1.2	3.76		0	0
		2010 INT				0	0		2		0	0
species												
Slash	224	1920 FINAL				0	0				0	0
		1930 FINAL	6.06	8.7		0	0				0	0
	16	1940 INT				0	0				0	0
		FINAL	13.4	6.2		0	0				0	0
		INT FINAL	13.21	3		0	0	14.31	4		0	0
		1950 INT				0	0				0	0
		FINAL	6.47	10.6		0	0				0	0
		INT FINAL	6.13	9.15		0	0	7.42	10.05		0	0
	11	1960 INT				0	0				0	0
		FINAL	5.99	8.14		0	0				0	0
		INT FINAL	6.38	9.15		0	0	8.13	10.2		0	0
	261	1970 INT				0	0				0	0
		FINAL	6.64	7.38		0	0				0	0
		INT FINAL	4.38	9.5		0	0	6.04	8.45		0	0
	51	1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
		1990 INT		3.04		0	0	0.3	2.56		0	0
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	0
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	16.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
		1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
		1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						0	0				0	0
TOTAL MBF							0					0
TOTAL VALUE						0					0	
GRAND TOTAL MBF											22327.93	
GRAND TOTAL VALUE											3236620	

PTA 1 THINNED

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	MBF	CCF
Longleaf	126	1920 INT	0.2	0.5	126	25.2	63				0	0		
		FINAL	9.74	1.6		0	0	12.34	1.2		0	0		
		INT FINAL				0	0	11.44	0.6		0	0	13.86	0.5
	760	1930 INT	0.2	0.5	760	152	380	1.26			0	0	1.4	0
		FINAL	8.56	2.16		0	0	12.65	2.1		0	0		
		INT FINAL				0	0	12.1	1.1		0	0	13.58	1.1
	138	1940 INT	0.1	0.5	138	13.8	69	1.15	0.6		0	0	1.15	0
		FINAL	6.41	3.68		0	0	10.99	3.12		0	0		
		INT FINAL				0	0	10.2	1		0	0	12.45	1
	17	1950 INT	0.1	1	17	1.7	17	0.73	2		0	0	1.15	
		FINAL	3.23	6.16		0	0				0	0		
		INT FINAL				0	0				0	0		
	53	1960 INT		2	53	0	106		1		0	0	1.16	2.8
		FINAL	0.9	9.1		0	0				0	0		
		INT FINAL				0	0				0	0		
	38	1970 INT		3.11	38	0	118.18	0.32	2		0	0	1.67	2.64
		FINAL		5.84		0	0				0	0		
	199	1980 INT				0	0		2		0	0	0.26	2
		FINAL				0	0				0	0		
	90	1990 INT				0	0				0	0		2
		2000 INT				0	0				0	0		2
		2010 INT				0	0				0	0		
species														
Loblolly		1930 INT	0.2	0.4		0	0				0	0	1.16	1
		FINAL	7.85	2.6		0	0	10.48	2.1		0	0	12.97	2.8
		INT FINAL				0	0				0	0		
	23	1940 INT	0.2	0.4	23	4.6	9.2	1.28	1		0	0	1.78	1
		FINAL	9.45	2.8		0	0	12.45	2.6		0	0	15.57	2
		INT FINAL				0	0				0	0	11.3	4.48
		1950 INT	0.2	2.1		0	0	1.88	1		0	0	1.96	1
		FINAL	3.88	9.36		0	0	7.84	7.92		0	0		
		INT FINAL				0	0	7.22	7.36		0	0	10.64	5.2
		1960 INT	0.5	1		0	0	1.2	1.48		0	0	2.05	1.44
		FINAL	1.78	11.28		0	0				0	0		
		INT FINAL				0	0				0	0	9.62	5.88
		1970 INT		2.48		0	0	0.79	1.36		0	0	2.24	1.6
		FINAL		12.08		0	0				0	0		
		INT FINAL				0	0				0	0		
		1980 INT				0	0		2		0	0	1.2	3.76
		FINAL				0	0				0	0		
		1990 INT				0	0				0	0		2
		2000 INT				0	0				0	0		2
		2010 INT				0	0				0	0		
species														
Slash		1920 INT	0.2	0.5		0	0				0	0		
	75	1930 INT	0.2	0.5	75	15	37.5	5.52	7.8		0	0	6.06	8.7
	24	1940 INT	0.2	0.5	24	4.8	12	0.35	2.16		0	0		
		FINAL	9.59	4.4		0	0	11.64	4.4		0	0	13.4	6.2
		INT FINAL				0	0				0	0	13.21	3
	33	1950 INT	0.2	0.5	33	6.6	16.5	0.27	1.92		0	0		
		FINAL	3.23	7.6		0	0	4.94	9.1		0	0	6.47	10.6
		INT FINAL				0	0				0	0	6.13	9.15
	37	1960 INT		1.76	37	0	65.12	0.26	1.6		0	0		
		FINAL	2.32	7.92		0	0	4.24	6.64		0	0	5.99	8.14
		INT FINAL				0	0	5.45	8		0	0	6.38	9.15
	102	1970 INT		5	102	0	510		2.56		0	0		
		FINAL		11.52		0	0				0	0	6.64	7.38
		INT FINAL				0	0				0	0	4.38	9.5
	7	1980 INT				0	0		3.04		0	0	0.3	2.56
		FINAL				0	0				0	0		
		INT FINAL				0	0				0	0		
	2	1990 INT				0	0				0	0		3.04
		2000 INT				0	0				0	0		3.04
		2010 INT				0	0				0	0		
species														
Shortleaf		1920 INT	0.2	0.5		0	0				0	0	0.93	2.4
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0	15.48	6.08
		INT FINAL				0	0				0	0		
		1930 INT	0.2	0.5		0	0	1.03	2.4		0	0	1.71	1
		FINAL	10	4.88		0	0	13.07	5.52		0	0	16.03	6.32
		INT FINAL				0	0				0	0	15.22	3.52
		1940 INT	0.2	0.5		0	0				0	0	2.06	2
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0	13.05	5.92
		INT FINAL				0	0				0	0		
		1950 INT	0.1	0.5		0	0	1.15	2		0	0	1.62	2
		FINAL	8.2	4		0	0	11.55	4.4		0	0		
		INT FINAL				0	0				0	0	13.1	2.8
		2000 INT				0	0				0	0		2
		2010 INT				0	0				0	0		
TOTAL						223.7	1403.5				0	0		
TOTAL MBF							1304.395					0		
TOTAL VALUE						68605.47					0			
GRAND TOTAL MBF														
GRAND TOTAL VALUE														

PTA 1 THINNED

species	BAC ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	126	1920	INT				0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	13.86	0.5		0	0	15.66	0.5		0	0
	760	1930	INT	1.4	0		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	13.58	1.1		0	0	14.7	0.5		0	0
	138	1940	INT	1.15	0		0	0	1.15			0	0
			FINAL				0	0				0	0
			INT FINAL	12.45	1		0	0	14.04	0.6		0	0
	17	1950	INT	1.15			0	0	1.15			0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	12.93	2.24		0	0
	53	1960	INT	1.18	2.8		0	0	2.5			0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1.2		0	0
	38	1970	INT	1.67	2.64		0	0	2.95	2.4		0	0
			FINAL				0	0				0	0
	199	1980	INT	0.26	2		0	0	2.02	2		0	0
			FINAL				0	0				0	0
	90	1990	INT		2		0	0	0.26	2		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
species													
Loblolly		1930	INT	1.16	1		0	0	1.51	0.5		0	0
			FINAL	12.97	2.8		0	0				0	0
			INT FINAL				0	0	12.17	2.86		0	0
	23	1940	INT	1.76	1		0	0	1.68			0	0
			FINAL	15.57	2		0	0				0	0
			INT FINAL	11.3	4.48		0	0	12.07	3.48		0	0
		1950	INT	1.96	1		0	0	1.75			0	0
			FINAL				0	0				0	0
			INT FINAL	10.84	5.2		0	0	11.86	4.08		0	0
		1960	INT	2.05	1.44		0	0	2.02	0.5		0	0
			FINAL				0	0				0	0
			INT FINAL	9.62	5.88		0	0	11.14	4.56		0	0
		1970	INT	2.24	1.6		0	0	2.16			0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.26	4.96		0	0
		1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2		0	0	1.2	3.76		0	0
		2010	INT				0	0		2		0	0
species													
Slash		1920	INT				0	0				0	0
	75	1930	INT	6.06	8.7		0	0				0	0
	24	1940	INT				0	0				0	0
			FINAL	13.4	6.2		0	0				0	0
			INT FINAL	13.21	3		0	0	14.31	4		0	0
	33	1950	INT				0	0				0	0
			FINAL	8.47	10.6		0	0				0	0
			INT FINAL	6.13	9.15		0	0	7.42	10.05		0	0
	37	1960	INT				0	0				0	0
			FINAL	5.99	8.14		0	0				0	0
			INT FINAL	6.38	9.15		0	0	8.13	10.2		0	0
	102	1970	INT				0	0				0	0
			FINAL	6.64	7.38		0	0				0	0
			INT FINAL	4.38	9.5		0	0	6.04	8.45		0	0
	7	1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
	2	1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04		0	0	0.3	2.56		0	0
		2010	INT				0	0		3.04		0	0
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
		1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							0	0				0	0
TOTAL MBF								0					0
TOTAL VALUE							0					0	
GRAND TOTAL MBF												1304.395	
GRAND TOTAL VALUE												66605.47	

PTA 1 REGULAR MANAGEMENT

species	BAC ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	186	1920	INT	0.5	1		0	0				0	0
			FINAL	9.74	1.6	186	1811.64	297.6	12.34	1.2		0	0
			INT FINAL				0	0	11.44	0.8		0	0
	2195	1930	INT	0.5	1	1900	950	1900	1.26		1150	1449	0
			FINAL	8.56	2.16	295	2525.2	637.2	12.65	2.1		0	0
			INT FINAL				0	0	12.1	1.1	750	9075	825
	272	1940	INT	0.3	1	272	81.6	272	1.15	0.6	272	312.8	163.2
			FINAL	6.41	3.68		0	0	10.99	3.12		0	0
			INT FINAL				0	0	10.2	1		0	0
	28	1950	INT	0.4	1	28	11.2	28	0.73	2	28	20.44	56
			FINAL	3.23	6.16		0	0				0	0
			INT FINAL				0	0				0	0
	53	1960	INT		1.1	53	0	58.3		1	53	0	53
			FINAL	0.9	9.1		0	0				0	0
			INT FINAL				0	0				0	0
	169	1970	INT		2	169	0	338	0.32	2	169	54.08	338
			FINAL		5.84		0	0				0	0
	382	1980	INT				0	0		2	380	0	760
			FINAL				0	0				0	0
	252	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly	15	1930	INT				0	0				0	0
			FINAL	7.85	2.6	15	117.75	39	10.48	2.1		0	0
			INT FINAL				0	0				0	0
	29	1940	INT				0	0	1.28	1		0	0
			FINAL	9.45	2.8		0	0	12.45	2.6	29	361.05	75.4
			INT FINAL				0	0				0	0
		1950	INT		2.1		0	0	1.88	1		0	0
			FINAL	3.88	9.36		0	0	7.84	7.92		0	0
			INT FINAL				0	0	7.22	7.36		0	0
		1960	INT	0.5	1		0	0	1.2	1.48		0	0
			FINAL	1.78	11.28		0	0				0	0
			INT FINAL				0	0				0	0
		1970	INT		2.48		0	0	0.79	1.36		0	0
			FINAL		12.08		0	0				0	0
			INT FINAL				0	0				0	0
	25	1980	INT				0	0		2	25	0	50
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash	224	1920	FINAL	9.44	4	224	2114.56	896				0	0
	75	1930	FINAL	4.8	6.75	75	360	506.25	5.52	7.8		0	0
	40	1940	INT				0	0	0.35	2.16		0	0
			FINAL	9.59	4.4	40	383.6	176	11.64	4.4		0	0
			INT FINAL				0	0				0	0
	33	1950	INT				0	0	0.27	1.92		0	0
			FINAL	3.23	7.6		0	0	4.94	9.1	33	163.02	300.3
			INT FINAL				0	0				0	0
	48	1960	INT		1.76	48	0	84.48	0.26	1.6	48	12.48	76.8
			FINAL	2.32	7.92		0	0	4.24	6.64		0	0
			INT FINAL				0	0	5.45	8		0	0
	363	1970	INT		3.04	363	0	1103.52		2.56	363	0	929.28
			FINAL		11.52		0	0				0	0
			INT FINAL				0	0				0	0
	58	1980	INT				0	0		3.04	58	0	176.32
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
	2	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf		1920	INT				0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
		1930	INT				0	0	1.03	2.4		0	0
			FINAL	10	4.88		0	0	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
		1950	INT				0	0	1.15	2		0	0
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							8355.55	6336.35				11447.87	3803.3
TOTAL MBF								13234.54					14376.41
TOTAL VALUE							1799790					2385145	
GRAND TOTAL MBF													
GRAND TOTAL VALUE													

PTA 1 REGULAR MANAGEMENT

species	BAC ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	186	1920	INT				0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	13.86	0.5		0	0	15.66	0.5		0	0
	2195	1930	INT	1.4	0	400	560	0				0	0
			FINAL				0	0				0	0
			INT FINAL	13.58	1.1	750	10185	825	14.7	0.5	400	5880	200
	272	1940	INT	1.15	0	272	312.8	0	1.15		200	230	0
			FINAL				0	0				0	0
			INT FINAL	12.45	1		0	0	14.04	0.6	72	1010.88	43.2
	28	1950	INT	1.15		28	32.2	0	1.15		28	32.2	0
			FINAL				0	0				0	0
			INT FINAL				0	0	12.93	2.24		0	0
	53	1960	INT	1.18	2.8	53	62.54	148.4	2.5		47	117.5	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1.2		0	0
	169	1970	INT	1.67	2.64	169	282.23	446.16	2.95	2.4	169	498.55	405.6
			FINAL				0	0				0	0
	382	1980	INT	0.26	2	380	98.8	760	2.02	2	380	767.6	760
			FINAL				0	0				0	0
	252	1990	INT		2	252	0	504	0.26	2	252	65.52	504
		2000	INT		2	481	0	962	0.26	2	481	125.06	962
		2010	INT				0	0		2	750	0	1500
species													
Loblolly	15	1930	INT	1.16	1		0	0	1.51	0.5		0	0
			FINAL	12.97	2.8		0	0				0	0
			INT FINAL				0	0	12.17	2.86		0	0
	29	1940	INT	1.78	1		0	0	1.68			0	0
			FINAL	15.57	2		0	0				0	0
			INT FINAL	11.3	4.48		0	0	12.07	3.48		0	0
		1950	INT	1.96	1		0	0	1.75			0	0
			FINAL				0	0				0	0
			INT FINAL	10.84	5.2		0	0	11.86	4.08		0	0
		1960	INT	2.05	1.44		0	0	2.02	0.5		0	0
			FINAL				0	0				0	0
			INT FINAL	9.62	5.88		0	0	11.14	4.56		0	0
		1970	INT	2.24	1.6		0	0	2.16			0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.26	4.96		0	0
	25	1980	INT	1.2	3.76	25	30	94	1.81	1.84	25	45.25	46
			FINAL				0	0				0	0
		1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2	15	0	30	1.2	3.76	15	18	56.4
		2010	INT				0	0		2	29	0	58
species													
Slash	224	1920	FINAL				0	0				0	0
	75	1930	FINAL	6.06	8.7		0	0				0	0
	40	1940	INT				0	0				0	0
			FINAL	13.4	6.2		0	0				0	0
			INT FINAL	13.21	3		0	0	14.31	4		0	0
	33	1950	INT				0	0				0	0
			FINAL	6.47	10.6		0	0				0	0
			INT FINAL	6.13	9.15		0	0	7.42	10.05		0	0
	48	1960	INT				0	0				0	0
			FINAL	5.99	8.14		0	0				0	0
			INT FINAL	6.38	9.15	48	306.24	439.2	8.13	10.2		0	0
	363	1970	INT				0	0				0	0
			FINAL	6.64	7.38		0	0				0	0
			INT FINAL	4.38	9.5		0	0	6.04	8.45	363	2192.52	3067.35
	58	1980	INT	0.3	2.56	58	17.4	148.48				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
	2	1990	INT		3.04	2	0	6.08	0.3	2.56	2	0.6	5.12
		2000	INT		3.04	339	0	1030.56	0.3	2.56	339	101.7	867.84
		2010	INT				0	0		3.04	33	0	100.32
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
		1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							11887.21	5393.88				11085.38	8575.83
TOTAL MBF								16040.5					17688.77
TOTAL VALUE							2500589					2390599	
GRAND TOTAL MBF												61340.22	
GRAND TOTAL VALUE												9076124	

PTA 2 CLEARED

species	BAC ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	191	1920	INT	0.2	0.5		0	0				0	0
			FINAL	9.74	1.6	191	1860.34	305.6	12.34	1.2		0	0
			INT FINAL				0	0	11.44	0.6		0	0
	2210	1930	INT	0.2	0.5		0	0	1.26			0	0
			FINAL	8.56	2.16	2210	18917.6	4773.6	12.65	2.1		0	0
			INT FINAL				0	0	12.1	1.1		0	0
	674	1940	INT	0.1	0.5		0	0	1.15	0.6		0	0
			FINAL	6.41	3.68	674	4320.34	2480.32	10.99	3.12		0	0
			INT FINAL				0	0	10.2	1		0	0
	123	1950	INT	0.1	1		0	0	0.73	2		0	0
			FINAL	3.23	6.16	123	397.29	757.68				0	0
			INT FINAL				0	0				0	0
	6	1960	INT		2		0	0		1		0	0
			FINAL	0.9	9.1	6	5.4	54.6				0	0
			INT FINAL				0	0				0	0
	33	1970	INT		3.11		0	0	0.32	2		0	0
			FINAL		5.84	33	0	192.72				0	0
	319	1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
	208	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly	60	1930	INT	0.2	0.4		0	0				0	0
			FINAL	7.85	2.6	60	471	156	10.48	2.1		0	0
			INT FINAL				0	0				0	0
	51	1940	INT	0.2	0.4		0	0	1.28	1		0	0
			FINAL	9.45	2.8	51	481.95	142.8	12.45	2.6		0	0
			INT FINAL				0	0				0	0
	57	1950	INT	0.2	2.1		0	0	1.88	1		0	0
			FINAL	3.88	9.36	57	221.16	533.52	7.84	7.92		0	0
			INT FINAL				0	0	7.22	7.36		0	0
		1960	INT	0.5	1		0	0	1.2	1.48		0	0
			FINAL	1.78	11.28		0	0				0	0
			INT FINAL				0	0				0	0
	74	1970	INT		2.48		0	0	0.79	1.36		0	0
			FINAL		12.08	74	0	893.92				0	0
			INT FINAL				0	0				0	0
	140	1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash		1920	FINAL	9.44	4		0	0				0	0
	266	1930	FINAL	4.8	6.75	266	1276.8	1795.5	5.52	7.8		0	0
		1940	INT	0.2	0.5		0	0	0.35	2.16		0	0
			FINAL	9.59	4.4		0	0	11.64	4.4		0	0
			INT FINAL				0	0				0	0
	79	1950	INT	0.2	0.5		0	0	0.27	1.92		0	0
			FINAL	3.23	7.6	79	255.17	600.4	4.94	9.1		0	0
			INT FINAL				0	0				0	0
	84	1960	INT		1.76		0	0	0.28	1.6		0	0
			FINAL	2.32	7.92	84	194.88	665.28	4.24	6.64		0	0
			INT FINAL				0	0	5.45	8		0	0
	467	1970	INT		5		0	0		2.56		0	0
			FINAL		11.52	467	0	5379.84				0	0
			INT FINAL				0	0				0	0
	44	1980	INT				0	0		3.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf		1920	INT	0.2	0.5		0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
	89	1930	INT	0.2	0.5		0	0	1.03	2.4		0	0
			FINAL	10	4.88	89	890	434.32	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.2	0.5		0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
	30	1950	INT	0.1	0.5		0	0	1.15	2		0	0
			FINAL	8.2	4	30	246	120	11.55	4.4		0	0
			INT FINAL				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							29537.93	19286.1				0	0
TOTAL MBF								44388.23					0
TOTAL VALUE							6310954					0	
GRAND TOTAL MBF													
GRAND TOTAL VALUE													

PTA 2 CLEARED

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	191	1920 INT				0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.86	0.5		0	0	15.66	0.5		0	0
	2210	1930 INT	1.4	0		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.58	1.1		0	0	14.7	0.5		0	0
	674	1940 INT	1.15	0		0	0	1.15			0	0
		FINAL				0	0				0	0
		INT FINAL	12.45	1		0	0	14.04	0.8		0	0
	123	1950 INT	1.15			0	0	1.15			0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	12.93	2.24		0	0
	6	1960 INT	1.16	2.8		0	0	2.5			0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1.2		0	0
	33	1970 INT	1.67	2.64		0	0	2.95	2.4		0	0
		FINAL				0	0				0	0
	319	1980 INT	0.26	2		0	0	2.02	2		0	0
		FINAL				0	0				0	0
	206	1990 INT		2		0	0	0.26	2		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
species												
Loblolly	60	1930 INT	1.16	1		0	0	1.51	0.5		0	0
		FINAL	12.97	2.8		0	0				0	0
		INT FINAL				0	0	12.17	2.86		0	0
	51	1940 INT	1.78	1		0	0	1.68			0	0
		FINAL	15.57	2		0	0				0	0
		INT FINAL	11.3	4.48		0	0	12.07	3.48		0	0
	57	1950 INT	1.96	1		0	0	1.75			0	0
		FINAL				0	0				0	0
		INT FINAL	10.84	5.2		0	0	11.86	4.08		0	0
		1960 INT	2.05	1.44		0	0	2.02	0.5		0	0
		FINAL				0	0				0	0
		INT FINAL	9.62	5.88		0	0	11.14	4.56		0	0
	74	1970 INT	2.24	1.6		0	0	2.16			0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.26	4.96		0	0
	140	1980 INT	1.2	3.76		0	0	1.81	1.84		0	0
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2		0	0	1.2	3.76		0	0
		2010 INT				0	0		2		0	0
species												
Slash		1920 FINAL				0	0				0	0
	266	1930 FINAL	6.06	8.7		0	0				0	0
		1940 INT				0	0				0	0
		FINAL	13.4	6.2		0	0				0	0
		INT FINAL	13.21	3		0	0	14.31	4		0	0
	79	1950 INT				0	0				0	0
		FINAL	6.47	10.6		0	0				0	0
		INT FINAL	6.13	9.15		0	0	7.42	10.05		0	0
	84	1960 INT				0	0				0	0
		FINAL	5.99	8.14		0	0				0	0
		INT FINAL	6.38	9.15		0	0	8.13	10.2		0	0
	467	1970 INT				0	0				0	0
		FINAL	6.64	7.38		0	0				0	0
		INT FINAL	4.38	9.5		0	0	6.04	8.45		0	0
	44	1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
		1990 INT		3.04		0	0	0.3	2.56		0	0
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	0
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
	89	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	30	1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						0	0				0	0
TOTAL MBF							0					0
TOTAL VALUE						0					0	
GRAND TOTAL MBF											44388.23	
GRAND TOTAL VALUE											6310954	

PTA 2 THINNED

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	266	1920 INT	0.2	0.5	266	53.2	133				0	0
		FINAL	9.74	1.8		0	0	12.34	1.2		0	0
		INT FINAL				0	0	11.44	0.6		0	0
	559	1930 INT	0.2	0.5	559	111.8	279.5	1.26			0	0
		FINAL	8.56	2.16		0	0	12.65	2.1		0	0
		INT FINAL				0	0	12.1	1.1		0	0
	336	1940 INT	0.1	0.5	336	33.6	168	1.15	0.6		0	0
		FINAL	6.41	3.68		0	0	10.99	3.12		0	0
		INT FINAL				0	0	10.2	1		0	0
		1950 INT	0.1	1		0	0	0.73	2		0	0
		FINAL	3.23	6.16		0	0				0	0
		INT FINAL				0	0				0	0
		1960 INT		2		0	0		1		0	0
		FINAL	0.9	9.1		0	0				0	0
		INT FINAL				0	0				0	0
	25	1970 INT		3.11	25	0	77.75	0.32	2		0	0
		FINAL		5.84		0	0				0	0
	212	1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
	101	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly	40	1930 INT	0.2	0.4	40	8	16				0	0
		FINAL	7.85	2.6		0	0	10.48	2.1		0	0
		INT FINAL				0	0				0	0
		1940 INT	0.2	0.4		0	0	1.28	1		0	0
		FINAL	9.45	2.8		0	0	12.45	2.6		0	0
		INT FINAL				0	0				0	0
		1950 INT	0.2	2.1		0	0	1.88	1		0	0
		FINAL	3.88	9.36		0	0	7.84	7.92		0	0
		INT FINAL				0	0	7.22	7.36		0	0
	157	1960 INT	0.5	1	157	78.5	157	1.2	1.48		0	0
		FINAL	1.78	11.28		0	0				0	0
		INT FINAL				0	0				0	0
	32	1970 INT		2.48	32	0	79.36	0.79	1.36		0	0
		FINAL		12.08		0	0				0	0
		INT FINAL				0	0				0	0
	56	1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash		1920 INT	0.2	0.5		0	0				0	0
	5	1930 INT	0.2	0.5	5	1	2.5	5.52	7.8		0	0
	8	1940 INT	0.2	0.5	8	1.6	4	0.35	2.16		0	0
		FINAL	9.59	4.4		0	0	11.64	4.4		0	0
		INT FINAL				0	0				0	0
	50	1950 INT	0.2	0.5	50	10	25	0.27	1.92		0	0
		FINAL	3.23	7.6		0	0	4.94	9.1		0	0
		INT FINAL				0	0				0	0
	38	1960 INT		1.76	38	0	66.88	0.28	1.6		0	0
		FINAL	2.32	7.92		0	0	4.24	6.64		0	0
		INT FINAL				0	0	5.45	8		0	0
	250	1970 INT		5	250	0	1250		2.56		0	0
		FINAL		11.52		0	0				0	0
		INT FINAL				0	0				0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT	0.2	0.5		0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	4	1930 INT	0.2	0.5	4	0.8	2	1.03	2.4		0	0
		FINAL	10	4.88		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT	0.2	0.5		0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT	0.1	0.5		0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						296.5	2260.99				0	0
TOTAL MBF							2039.462					0
TOTAL VALUE						97970.11					0	

GRAND TOTAL MBF
GRAND TOTAL VALUE

PTA 2 THINNED

species	BAC ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	266	1920	INT				0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	13.86	0.5		0	0	15.66	0.5		0	0
	559	1930	INT	1.4	0		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	13.58	1.1		0	0	14.7	0.5		0	0
	336	1940	INT	1.15	0		0	0	1.15			0	0
			FINAL				0	0				0	0
			INT FINAL	12.45	1		0	0	14.04	0.6		0	0
		1950	INT	1.15			0	0	1.15			0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	12.93	2.24		0	0
		1960	INT	1.18	2.8		0	0	2.5			0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1.2		0	0
	25	1970	INT	1.67	2.64		0	0	2.95	2.4		0	0
			FINAL				0	0				0	0
	212	1980	INT	0.26	2		0	0	2.02	2		0	0
			FINAL				0	0				0	0
	101	1990	INT		2		0	0	0.26	2		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
species													
Loblolly	40	1930	INT	1.16	1		0	0	1.51	0.5		0	0
			FINAL	12.97	2.8		0	0				0	0
			INT FINAL				0	0	12.17	2.86		0	0
		1940	INT	1.78	1		0	0	1.68			0	0
			FINAL	15.57	2		0	0				0	0
			INT FINAL	11.3	4.48		0	0	12.07	3.48		0	0
		1950	INT	1.96	1		0	0	1.75			0	0
			FINAL				0	0				0	0
			INT FINAL	10.84	5.2		0	0	11.86	4.08		0	0
	157	1960	INT	2.05	1.44		0	0	2.02	0.5		0	0
			FINAL				0	0				0	0
			INT FINAL	9.62	5.88		0	0	11.14	4.56		0	0
	32	1970	INT	2.24	1.6		0	0	2.16			0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.26	4.96		0	0
	58	1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2		0	0	1.2	3.76		0	0
		2010	INT				0	0		2		0	0
species													
Slash		1920	INT				0	0				0	0
	5	1930	INT	6.06	8.7		0	0				0	0
	8	1940	INT				0	0				0	0
			FINAL	13.4	6.2		0	0				0	0
			INT FINAL	13.21	3		0	0	14.31	4		0	0
	50	1950	INT				0	0				0	0
			FINAL	6.47	10.6		0	0				0	0
			INT FINAL	6.13	9.15		0	0	7.42	10.05		0	0
	38	1960	INT				0	0				0	0
			FINAL	5.99	8.14		0	0				0	0
			INT FINAL	6.38	9.15		0	0	8.13	10.2		0	0
	250	1970	INT				0	0				0	0
			FINAL	6.64	7.38		0	0				0	0
			INT FINAL	4.38	9.5		0	0	6.04	8.45		0	0
		1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
		1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04		0	0	0.3	2.56		0	0
		2010	INT				0	0		3.04		0	0
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
	4	1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							0	0				0	0
TOTAL MBF								0					0
TOTAL VALUE							0					0	
GRAND TOTAL MBF												2039.462	
GRAND TOTAL VALUE												97970.11	

PTA 2 REGULAR MANAGEMENT

			PERIOD 1 (1990)					PERIOD 2 (2000)				
species	BAC ACRES	BAC TYPE	MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	457	1920 INT	0.5	1		0	0				0	0
		FINAL	9.74	1.6	457	4451.18	731.2	12.34	1.2		0	0
		INT FINAL				0	0	11.44	0.6		0	0
	2769	1930 INT	0.5	1	2405	1202.5	2405	1.26		1483	1868.58	0
		FINAL	8.56	2.16	364	3115.84	786.24	12.65	2.1		0	0
		INT FINAL				0	0	12.1	1.1	922	11156.2	1014.2
	1010	1940 INT	0.3	1	1010	303	1010	1.15	0.6	1010	1161.5	606
		FINAL	6.41	3.68		0	0	10.99	3.12		0	0
		INT FINAL				0	0	10.2	1		0	0
	123	1950 INT	0.4	1	123	49.2	123	0.73	2	123	89.79	246
		FINAL	3.23	6.16		0	0				0	0
		INT FINAL				0	0				0	0
	6	1960 INT		1.1	6	0	6.6		1	6	0	6
		FINAL	0.9	9.1		0	0				0	0
		INT FINAL				0	0				0	0
	58	1970 INT		2	58	0	116	0.32	2	58	18.56	116
		FINAL		5.84		0	0				0	0
	531	1980 INT				0	0		2	531	0	1062
		FINAL				0	0				0	0
	307	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly	100	1930 INT				0	0				0	0
		FINAL	7.85	2.6	100	785	260	10.48	2.1		0	0
		INT FINAL				0	0				0	0
	51	1940 INT				0	0	1.28	1		0	0
		FINAL	9.45	2.8	51	481.95	142.8	12.45	2.6		0	0
		INT FINAL				0	0				0	0
	57	1950 INT		2.1	57	0	119.7	1.88	1		0	0
		FINAL	3.88	9.36		0	0	7.84	7.92		0	0
		INT FINAL				0	0	7.22	7.36	57	411.54	419.52
	157	1960 INT	0.5	1	157	78.5	157	1.2	1.48	157	188.4	232.36
		FINAL	1.78	11.28		0	0				0	0
		INT FINAL				0	0				0	0
	106	1970 INT		2.48	106	0	262.88	0.79	1.36	106	83.74	144.16
		FINAL		12.08		0	0				0	0
		INT FINAL				0	0				0	0
	196	1980 INT				0	0		2	196	0	392
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash		1920 FINAL	9.44	4		0	0				0	0
	271	1930 FINAL	4.8	6.75	271	1300.8	1829.25	5.52	7.8		0	0
	8	1940 INT				0	0	0.35	2.16		0	0
		FINAL	9.59	4.4	8	76.72	35.2	11.64	4.4		0	0
		INT FINAL				0	0				0	0
	129	1950 INT				0	0	0.27	1.92		0	0
		FINAL	3.23	7.6		0	0	4.94	9.1	129	637.26	1173.9
		INT FINAL				0	0				0	0
	122	1960 INT		1.76	122	0	214.72	0.26	1.6		0	0
		FINAL	2.32	7.92		0	0	4.24	6.64		0	0
		INT FINAL				0	0	5.45	8	122	664.9	976
	717	1970 INT		3.04	717	0	2179.68		2.56	717	0	1835.52
		FINAL		11.52		0	0				0	0
		INT FINAL				0	0				0	0
	44	1980 INT				0	0		3.04	44	0	133.76
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.86	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	93	1930 INT				0	0	1.03	2.4	93	95.79	223.2
		FINAL	10	4.88		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
	30	1950 INT				0	0	1.15	2	30	34.5	60
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						11844.69	10379.27				16410.76	8640.52
TOTAL MBF							19836.73					23064.04
TOTAL VALUE						2574472					3471925	

GRAND TOTAL MBF
GRAND TOTAL VALUE

PTA 2 REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	457	1920 INT				0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.86	0.5		0	0	15.66	0.5		0	0
	2769	1930 INT	1.4	0	833	1166.2	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.58	1.1	650	8827	715	14.7	0.5	833	12245.1	416.5
	1010	1940 INT	1.15	0	1010	1161.5	0	1.15		900	1035	0
		FINAL				0	0				0	0
		INT FINAL	12.45	1		0	0	14.04	0.6	110	1544.4	66
	123	1950 INT	1.15		123	141.45	0	1.15		123	141.45	0
		FINAL				0	0				0	0
		INT FINAL				0	0	12.93	2.24		0	0
	6	1960 INT	1.18	2.8	6	7.08	16.8	2.5		6	15	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1.2		0	0
	58	1970 INT	1.67	2.64	58	96.86	153.12	2.95	2.4	58	171.1	139.2
		FINAL				0	0				0	0
	531	1980 INT	0.26	2	531	138.06	1062	2.02	2	531	1072.62	1062
		FINAL				0	0				0	0
	307	1990 INT		2	307	0	614	0.26	2	307	79.82	614
		2000 INT		2	821	0	1642	0.26	2	821	213.46	1642
		2010 INT				0	0		2	922	0	1844
species												
Loblolly	100	1930 INT	1.16	1		0	0	1.51	0.5		0	0
		FINAL	12.97	2.8		0	0				0	0
		INT FINAL				0	0	12.17	2.86		0	0
	51	1940 INT	1.78	1		0	0	1.68			0	0
		FINAL	15.57	2		0	0				0	0
		INT FINAL	11.3	4.48		0	0	12.07	3.48		0	0
	57	1950 INT	1.96	1		0	0	1.75			0	0
		FINAL				0	0				0	0
		INT FINAL	10.84	5.2		0	0	11.86	4.08		0	0
	157	1960 INT	2.05	1.44	157	321.85	226.08	2.02	0.5		0	0
		FINAL				0	0				0	0
		INT FINAL	9.62	5.88		0	0	11.14	4.56	157	1748.98	715.92
	106	1970 INT	2.24	1.6	106	237.44	169.6	2.16		106	228.96	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.26	4.96		0	0
	196	1980 INT	1.2	3.76	196	235.2	736.96	1.81	1.84	196	354.76	360.64
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2	151	0	302	1.2	3.76	151	181.2	567.76
		2010 INT				0	0		2	57	0	114
species												
Slash		1920 FINAL				0	0				0	0
	271	1930 FINAL	6.06	8.7		0	0				0	0
	8	1940 INT				0	0				0	0
		FINAL	13.4	6.2		0	0				0	0
		INT FINAL	13.21	3		0	0	14.31	4		0	0
	129	1950 INT				0	0				0	0
		FINAL	6.47	10.6		0	0				0	0
		INT FINAL	6.13	9.15		0	0	7.42	10.05		0	0
	122	1960 INT				0	0				0	0
		FINAL	5.99	8.14		0	0				0	0
		INT FINAL	6.38	9.15		0	0	8.13	10.2		0	0
	717	1970 INT				0	0				0	0
		FINAL	6.64	7.38		0	0				0	0
		INT FINAL	4.38	9.5	517	2264.46	4911.5	6.04	8.45	200	1208	1690
	44	1980 INT	0.3	2.56	44	13.2	112.64				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
		1990 INT		3.04		0	0	0.3	2.56		0	0
		2000 INT		3.04	275	0	836	0.3	2.56	275	82.5	704
		2010 INT				0	0		3.04	249	0	756.96
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
	93	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52	93	1415.46	327.36	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	30	1950 INT	1.62	2	30	48.6	60	1.66	1	30	49.8	30
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						16074.36	11885.06				20372.15	10722.98
TOTAL MBF							25225.86					28628.84
TOTAL VALUE						3457382					4309956	
GRAND TOTAL MBF											96755.47	
GRAND TOTAL VALUE											13813735	

PTA 3 CLEARED

species	BAC ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf		1920	INT	0.1	0.4		0	0	0.36	1		0	0
			FINAL	8.79	1		0	0	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5		0	0
	89	1930	INT	0.2	0.5		0	0	1.21	1.5		0	0
			FINAL	8.14	2.32	89	724.46	206.48	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1		0	0
		1940	INT	0.1	0.5		0	0	1.89	2.04		0	0
			FINAL	7.8	3.32		0	0	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
	21	1950	INT	0.1	0.4		0	0	0.58	2.32		0	0
			FINAL	2.49	5.48	21	52.29	115.08	7.2	4.6		0	0
			INT FINAL				0	0				0	0
		1960	INT		2		0	0	0.5	5.6		0	0
			FINAL	0.9	9.75		0	0				0	0
			INT FINAL				0	0				0	0
		1970	INT		2		0	0	0.38	2		0	0
			FINAL		5.84		0	0				0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
	*760	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly		1910	FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920	INT	0.1	0.4		0	0	0.89	1.5		0	0
			FINAL	9.02	3.84		0	0	10.96	3.68		0	0
			INT FINAL				0	0				0	0
		1930	INT	0.1	0.4		0	0				0	0
			FINAL	7.85	2.8		0	0	10.54	2.32		0	0
			INT FINAL				0	0				0	0
	54	1940	INT	0.4	1		0	0	1.93	2		0	0
			FINAL	6.83	6.72	54	368.82	362.88	10.35	5.84		0	0
			INT FINAL				0	0				0	0
	3	1950	INT	0.1	0.4		0	0				0	0
			FINAL	4.84	4.44	3	14.52	13.32	8.22	3.64		0	0
			INT FINAL				0	0				0	0
		1960	INT	0.2	1		0	0	1.25	1.84		0	0
			FINAL	2.38	10.04		0	0	8.99	10.32		0	0
			INT FINAL				0	0				0	0
		1970	INT		2.64		0	0	0.8	2.56		0	0
			FINAL		12.16		0	0				0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
	*11	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash		1920	FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930	INT	0.2	0.5		0	0				0	0
			FINAL	9.14	2		0	0	10.18	2.2		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.1	0.4		0	0	0.5	1.2		0	0
			FINAL	5.55	5.84		0	0	6.44	6.8		0	0
			INT FINAL				0	0				0	0
		1950	INT	0.1	0.4		0	0	0.34	2.48		0	0
			FINAL	2.13	6.48		0	0	4.02	7.56		0	0
			INT FINAL				0	0				0	0
		1960	INT		1.52		0	0	0.26	1.6		0	0
			FINAL	2.64	6.96		0	0	5.69	8.16		0	0
			INT FINAL				0	0	5.87	6.4		0	0
		1970	INT		5		0	0		2.4		0	0
			FINAL		10.24		0	0				0	0
			INT FINAL				0	0	3.78	7.04		0	0
		1980	INT				0	0		3.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
	*159	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf		1920	INT	0.1	0.4		0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
		1930	INT	0.1	0.4		0	0	1.03	2.4		0	0
			FINAL	10	4.88		0	0	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.1	0.4		0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
		1950	INT	0.1	0.4		0	0	1.15	2		0	0
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							1160.09	697.76				0	0
TOTAL MBF								1697					0
TOTAL VALUE							246872.2					0	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*OPEN LAND

PTA 3 CLEARED

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf		1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	89	1930 INT	2.59	1		0	0	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
		1940 INT	2.54	1		0	0	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
	21	1950 INT	2.5	2.28		0	0	2.54	0.96		0	0
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
		1960 INT	1.18	3.36		0	0	2.5	1		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
		1970 INT	1.57	2.8		0	0	2.83	2.56		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
		1980 INT	0.26	2		0	0	2.02	2		0	0
		FINAL				0	0				0	0
	*760	1990 INT		2		0	0	0.26	2		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
species												
Loblolly		1910 FINAL	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
		1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	54	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	3	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.76	2.44		0	0				0	0
		INT FINAL				0	0	11.42	3.6		0	0
		1960 INT	2.04	1.44		0	0	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970 INT	2.16	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
		1980 INT	1.2	3.76		0	0	1.81	1.84		0	0
		FINAL				0	0				0	0
	*11	1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2		0	0	1.2	3.76		0	0
		2010 INT				0	0		2		0	0
species												
Slash		1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
		1970 INT	0.5	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	*159	1990 INT		3.04		0	0	0.3	2.56		0	0
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	0
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.76		0	0
		1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
		1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						0	0				0	0
TOTAL MBF							0					0
TOTAL VALUE						0					0	
GRAND TOTAL MBF											1697.365	
GRAND TOTAL VALUE											246872.2	

*OPEN LAND

PTA 3 THINNED

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf		1920 INT	0.1	0.4		0	0	0.36	1		0	0
		FINAL	8.79	1		0	0	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
	38	1930 INT	0.2	0.5	36	7.2	18	1.21	1.5		0	0
		FINAL	8.14	2.32		0	0	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	20	1940 INT	0.1	0.5	20	2	10	1.89	2.04		0	0
		FINAL	7.8	3.32		0	0	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
		1950 INT	0.1	0.4		0	0	0.58	2.32		0	0
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	3	1960 INT		2	3	0	6	0.5	5.6		0	0
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
		1970 INT		2		0	0	0.38	2		0	0
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
		1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
	*303	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 INT	0.1	0.4		0	0	10.08	2.12		0	0
		1920 INT	0.1	0.4		0	0	0.89	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
		1930 INT	0.1	0.4		0	0				0	0
		FINAL	7.85	2.8		0	0	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	2	1940 INT	0.4	1	2	0.8	2	1.93	2		0	0
		FINAL	6.83	6.72		0	0	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	165	1950 INT	0.1	0.4	165	16.5	66				0	0
		FINAL	4.84	4.44		0	0	8.22	3.84		0	0
		INT FINAL				0	0				0	0
		1960 INT	0.2	1		0	0	1.25	1.84		0	0
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	11	1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
	1	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash		1920 INT	0.1	0.4		0	0	10.27	4.2		0	0
		1930 INT	0.2	0.5		0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
		1940 INT	0.1	0.4		0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8		0	0
		INT FINAL				0	0				0	0
		1950 INT	0.1	0.4		0	0	0.34	2.48		0	0
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.52		0	0	0.26	1.6		0	0
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
		1970 INT		5		0	0		2.4		0	0
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.78	7.04		0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT	0.1	0.4		0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
		1930 INT	0.1	0.4		0	0	1.03	2.4		0	0
		FINAL	10	4.88		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT	0.1	0.4		0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT	0.1	0.4		0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						26.5	102				0	0
TOTAL MBF							105					0
TOTAL VALUE						7063.625					0	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*OPEN LAND

PTA 3 THINNED

species	BAC ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf		1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	38	1930	INT	2.59	1		0	0	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	20	1940	INT	2.54	1		0	0	2.59			0	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
		1950	INT	2.5	2.28		0	0	2.54	0.96		0	0
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	3	1960	INT	1.18	3.36		0	0	2.5	1		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
		1970	INT	1.57	2.8		0	0	2.83	2.56		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
		1980	INT	0.26	2		0	0	2.02	2		0	0
			FINAL				0	0				0	0
	*303	1990	INT		2		0	0	0.26	2		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
species													
Loblolly		1910	INT	12.03	2.04		0	0				0	0
		1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
		1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.18	3.36		0	0
	2	1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	165	1950	INT	2.09	2		0	0	1.79	1		0	0
			FINAL	11.78	2.44		0	0				0	0
			INT FINAL				0	0	11.42	3.6		0	0
		1960	INT	2.04	1.44		0	0	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970	INT	2.18	2.24		0	0	2.16	1.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
	11	1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
	1	1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2		0	0	1.2	3.76		0	0
		2010	INT				0	0		2		0	0
species													
Slash		1920	INT	11.02	4.4		0	0	11.7	4.6		0	0
		1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
		1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960	INT	0.35	1.76		0	0	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
		1970	INT	0.5	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
		1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04		0	0	0.3	2.56		0	0
		2010	INT				0	0		3.04		0	0
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
		1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							0	0				0	0
TOTAL MBF								0					0
TOTAL VALUE							0					0	
GRAND TOTAL MBF												105.04	
GRAND TOTAL VALUE												7063.625	

*OPEN LAND

PTA 3 REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf		1920 INT	0.3	0.5		0	0	0.36	1		0	0
		FINAL	6.79	1		0	0	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
	127	1930 INT	0.5	1	90	45	90	1.21	1.5	90	108.9	135
		FINAL	8.14	2.32	37	301.18	85.84	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	20	1940 INT	0.5	2	20	10	40	1.89	2.04	20	37.8	40.8
		FINAL	7.8	3.32		0	0	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	21	1950 INT				0	0	0.58	2.32	21	12.18	48.72
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	3	1960 INT		1.92	3	0	5.76	0.5	5.6	3	1.5	16.8
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
		1970 INT		3.2		0	0	0.38	2		0	0
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
		1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
	*1063	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
		1930 INT				0	0				0	0
		FINAL	7.85	2.8		0	0	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	56	1940 INT				0	0	1.93	2		0	0
		FINAL	6.83	6.72	56	382.48	376.32	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	168	1950 INT				0	0				0	0
		FINAL	4.84	4.44		0	0	8.22	3.64	90	739.8	327.6
		INT FINAL				0	0				0	0
		1960 INT	0.2	1		0	0	1.25	1.84		0	0
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	12	1980 INT				0	0		2	11	0	22
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash		1920 FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930 INT				0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.52		0	0	0.26	1.6		0	0
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
		1970 INT		1.84		0	0		2.4		0	0
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.76	7.04		0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	159*	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
		1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						738.66	597.92				900.18	590.92
TOTAL MBF							1199					1355
TOTAL VALUE						159732.8					192381.2	

GRAND TOTAL MBF
GRAND TOTAL VALUE

* OPEN LAND TO BE PLANTED

PTA 3 REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf		1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	127	1930 INT	2.59	1	70	181.3	70	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5	20	280.8	10	14.7	0.5	70	1029	35
	20	1940 INT	2.54	1	20	50.8	20	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04	20	280.8	20.8
	21	1950 INT	2.5	2.28	21	52.5	47.88	2.54	0.96	21	53.34	20.16
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	3	1960 INT	1.18	3.36	3	3.54	10.08	2.5	1	3	7.5	3
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
		1970 INT	1.57	2.8		0	0	2.83	2.56		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
		1980 INT	0.26	2		0	0	2.02	2		0	0
		FINAL				0	0				0	0
	*1063	1990 INT		2	1063	0	2126	0.26	2	1063	276.38	2126
		2000 INT		2	37	0	74	0.26	2	37	9.62	74
		2010 INT				0	0		2		0	0
species												
Loblolly		1910 FINAL	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.48	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
		1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	56	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.18	2.3		0	0
	168	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.78	2.44	78	918.84	190.32				0	0
		INT FINAL				0	0	11.42	3.6		0	0
		1960 INT	2.04	1.44		0	0	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970 INT	2.18	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	12	1980 INT	1.2	3.76	11	13.2	41.36	1.81	1.84	11	19.91	20.24
		FINAL				0	0				0	0
		1990 INT		2	12	0	24	1.2	3.76	12	14.4	45.12
		2000 INT		2	56	0	112	1.2	3.76	56	67.2	210.56
		2010 INT				0	0		2	90	0	180
species												
Slash		1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
		1970 INT	0.5	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	159*	1990 INT		3.04	159	0	483.36	0.3	2.56	159	47.7	407.04
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	0
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
		1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
		1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						1500.98	3209				1805.85	3141.92
TOTAL MBF							3972					4225
TOTAL VALUE						357582.7					418315.4	
GRAND TOTAL MBF											10751.29	
GRAND TOTAL VALUE											1128012	

* OPEN LAND TO BE PLANTED

PTA 4 CLEARED

species	BAC ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf		1920	INT	0.1	0.4		0	0	0.36	1		0	0
			FINAL	8.79	1		0	0	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5		0	0
		1930	INT	0.2	0.5		0	0	1.21	1.5		0	0
			FINAL	8.14	2.32		0	0	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1		0	0
		1940	INT	0.1	0.5		0	0	1.89	2.04		0	0
			FINAL	7.8	3.32		0	0	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
		1950	INT	0.1	0.4		0	0	0.58	2.32		0	0
			FINAL	2.49	5.48		0	0	7.2	4.6		0	0
			INT FINAL				0	0				0	0
	58	1960	INT		2		0	0	0.5	5.6		0	0
			FINAL	0.9	9.75	58	52.2	565.5				0	0
			INT FINAL				0	0				0	0
		1970	INT		2		0	0	0.38	2		0	0
			FINAL		5.84		0	0				0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly		1910	FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920	INT	0.1	0.4		0	0	0.89	1.5		0	0
			FINAL	9.02	3.84		0	0	10.96	3.68		0	0
			INT FINAL				0	0				0	0
		1930	INT	0.1	0.4		0	0				0	0
			FINAL	7.85	2.8		0	0	10.54	2.32		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.4	1		0	0	1.93	2		0	0
			FINAL	6.83	6.72		0	0	10.35	5.84		0	0
			INT FINAL				0	0				0	0
		1950	INT	0.1	0.4		0	0				0	0
			FINAL	4.84	4.44		0	0	8.22	3.64		0	0
			INT FINAL				0	0				0	0
		1960	INT	0.2	1		0	0	1.25	1.84		0	0
			FINAL	2.38	10.04		0	0	6.99	10.32		0	0
			INT FINAL				0	0				0	0
		1970	INT		2.64		0	0	0.8	2.56		0	0
			FINAL		12.16		0	0				0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash		1920	FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930	INT	0.2	0.5		0	0				0	0
			FINAL	9.14	2		0	0	10.18	2.2		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.1	0.4		0	0	0.5	1.2		0	0
			FINAL	5.55	5.84		0	0	6.44	6.8		0	0
			INT FINAL				0	0				0	0
		1950	INT	0.1	0.4		0	0	0.34	2.48		0	0
			FINAL	2.13	6.48		0	0	4.02	7.56		0	0
			INT FINAL				0	0				0	0
		1960	INT		1.52		0	0	0.26	1.6		0	0
			FINAL	2.64	6.96		0	0	5.69	8.16		0	0
			INT FINAL				0	0	5.87	6.4		0	0
		1970	INT		5		0	0		2.4		0	0
			FINAL		10.24		0	0				0	0
			INT FINAL				0	0	3.78	7.04		0	0
		1980	INT				0	0		3.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
	*1	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf		1920	INT	0.1	0.4		0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
		1930	INT	0.1	0.4		0	0	1.03	2.4		0	0
			FINAL	10	4.88		0	0	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.1	0.4		0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
		1950	INT	0.1	0.4		0	0	1.15	2		0	0
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							52.2	565.5				0	0
TOTAL MBF								488					0
TOTAL VALUE							19947.8					0	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*OPEN LAND

PTA 4 CLEARED

species	BAC ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
longleaf		1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
		1930	INT	2.59	1		0	0	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
		1940	INT	2.54	1		0	0	2.59			0	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
		1950	INT	2.5	2.28		0	0	2.54	0.96		0	0
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	58	1960	INT	1.18	3.36		0	0	2.5	1		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
		1970	INT	1.57	2.8		0	0	2.83	2.56		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
		1980	INT	0.26	2		0	0	2.02	2		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	0.26	2		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
species													
loblolly		1910	FINAL	12.03	2.04		0	0				0	0
		1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
		1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.18	3.36		0	0
		1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
		1950	INT	2.09	2		0	0	1.79	1		0	0
			FINAL	11.78	2.44		0	0				0	0
			INT FINAL				0	0	11.42	3.6		0	0
		1960	INT	2.04	1.44		0	0	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970	INT	2.18	2.24		0	0	2.16	1.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
		1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2		0	0	1.2	3.76		0	0
		2010	INT				0	0		2		0	0
species													
slash		1920	FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
		1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960	INT	0.35	1.76		0	0	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
		1970	INT	0.5	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
	*1	1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04		0	0	0.3	2.56		0	0
		2010	INT				0	0		3.04		0	0
species													
shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
		1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							0	0				0	0
TOTAL MBF								0					0
TOTAL VALUE							0					0	
GRAND TOTAL MBF												487.635	
GRAND TOTAL VALUE												19947.8	

*OPEN LAND

PTA 4 THINNED

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf		1920 INT	0.1	0.4		0	0	0.36	1		0	0
		FINAL	8.79	1		0	0	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
	4	1930 INT	0.2	0.5	4	0.8	2	1.21	1.5		0	0
		FINAL	8.14	2.32		0	0	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	209	1940 INT	0.1	0.5	209	20.9	104.5	1.89	2.04		0	0
		FINAL	7.8	3.32		0	0	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
		1950 INT	0.1	0.4		0	0	0.58	2.32		0	0
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	461	1960 INT		2	461	0	922	0.5	5.6		0	0
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
	93	1970 INT		2	93	0	186	0.38	2		0	0
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
		1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 INT	0.1	0.4		0	0	10.08	2.12		0	0
		1920 INT	0.1	0.4		0	0	0.69	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
		1930 INT	0.1	0.4		0	0				0	0
		FINAL	7.85	2.8		0	0	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	81	1940 INT	0.4	1	81	32.4	81	1.93	2		0	0
		FINAL	6.83	6.72		0	0	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	12	1950 INT	0.1	0.4	12	1.2	4.8				0	0
		FINAL	4.84	4.44		0	0	8.22	3.64		0	0
		INT FINAL				0	0				0	0
		1960 INT	0.2	1		0	0	1.25	1.84		0	0
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
		1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash		1920 INT	0.1	0.4		0	0	10.27	4.2		0	0
		1930 INT	0.2	0.5		0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
		1940 INT	0.1	0.4		0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8		0	0
		INT FINAL				0	0				0	0
		1950 INT	0.1	0.4		0	0	0.34	2.48		0	0
		FINAL	2.13	5.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.52		0	0	0.26	1.6		0	0
		FINAL	2.64	5.96		0	0	5.59	8.16		0	0
		INT FINAL				0	0	5.97	6.4		0	0
	180	1970 INT		5	180	0	900		2.4		0	0
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.78	7.04		0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	*114	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT	0.1	0.4		0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
		1930 INT	0.1	0.4		0	0	1.03	2.4		0	0
		FINAL	10	4.88		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT	0.1	0.4		0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT	0.1	0.4		0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						55.3	2200.3				0	0
TOTAL MBF							1750					0
TOTAL VALUE						47632.57					0	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*open land

PTA 4 THINNED

species	BAC ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf		1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	4	1930	INT	2.59	1		0	0	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	209	1940	INT	2.54	1		0	0	2.59			0	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
		1950	INT	2.5	2.28		0	0	2.54	0.96		0	0
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	461	1960	INT	1.18	3.36		0	0	2.5	1		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
	93	1970	INT	1.57	2.8		0	0	2.83	2.56		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
		1980	INT	0.26	2		0	0	2.02	2		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	0.26	2		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
species													
Loblolly		1910	INT	12.03	2.04		0	0				0	0
		1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
		1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.18	3.36		0	0
	81	1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	12	1950	INT	2.09	2		0	0	1.79	1		0	0
			FINAL	11.78	2.44		0	0				0	0
			INT FINAL				0	0	11.42	3.6		0	0
		1960	INT	2.04	1.44		0	0	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970	INT	2.16	2.24		0	0	2.16	1.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
		1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2		0	0	1.2	3.76		0	0
		2010	INT				0	0		2		0	0
species													
Slash		1920	INT	11.02	4.4		0	0	11.7	4.6		0	0
		1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
		1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960	INT	0.35	1.76		0	0	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	180	1970	INT	0.5	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
	*114	1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04		0	0	0.3	2.56		0	0
		2010	INT				0	0		3.04		0	0
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
		1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							0	0				0	0
TOTAL MBF								0					0
TOTAL VALUE							0					0	
GRAND TOTAL MBF												1749.531	
GRAND TOTAL VALUE												47632.57	

*open land

PTA 4 REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf		1920 INT	0.3	0.5		0	0	0.36	1		0	0
		FINAL	8.79	1		0	0	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
	4	1930 INT	0.5	1		0	0	1.21	1.5		0	0
		FINAL	8.14	2.32	4	32.56	9.28	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	209	1940 INT	0.5	2	177	88.5	354	1.89	2.04	66	124.74	134.64
		FINAL	7.8	3.32	32	249.6	106.24	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4	111	1112.22	444
		1950 INT				0	0	0.58	2.32		0	0
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	519	1960 INT		1.92	519	0	996.48	0.5	5.6	519	259.5	2906.4
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
	93	1970 INT		3.2	93	0	297.6	0.38	2	93	35.34	186
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
		1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
		1930 INT				0	0				0	0
		FINAL	7.85	2.8		0	0	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	81	1940 INT				0	0	1.93	2		0	0
		FINAL	6.83	6.72	81	553.23	544.32	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	12	1950 INT				0	0				0	0
		FINAL	4.84	4.44		0	0	8.22	3.64	12	98.64	43.68
		INT FINAL				0	0				0	0
		1960 INT	0.2	1		0	0	1.25	1.84		0	0
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
		1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash		1920 FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930 INT				0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.52		0	0	0.26	1.6		0	0
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
	180	1970 INT		1.84	180	0	331.2		2.4	180	0	432
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.78	7.04		0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	115	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
		1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						923.89	2639.12				1630.44	4146.72
TOTAL MBF							2956					4823
TOTAL VALUE						231088.5					399363	

GRAND TOTAL MBF
GRAND TOTAL VALUE

* OPEN LAND TO BE PLANTED

PTA 4 REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf		1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	4	1930 INT	2.59	1		0	0	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	209	1940 INT	2.54	1		0	0	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24	66	853.38	147.84	14.04	1.04		0	0
		1950 INT	2.5	2.28		0	0	2.54	0.96		0	0
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	519	1960 INT	1.18	3.36	519	612.42	1743.84	2.5	1	519	1297.5	519
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	93	1970 INT	1.57	2.8	93	146.01	260.4	2.83	2.56	93	263.19	238.08
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
		1980 INT	0.26	2		0	0	2.02	2		0	0
		FINAL				0	0				0	0
		1990 INT		2		0	0	0.26	2		0	0
		2000 INT		2	36	0	72	0.26	2	36	9.36	72
		2010 INT				0	0		2	111	0	222
species												
Loblolly		1910 FINAL	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
		1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	81	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	12	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.78	2.44		0	0				0	0
		INT FINAL				0	0	11.42	3.6		0	0
		1960 INT	2.04	1.44		0	0	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970 INT	2.18	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
		1980 INT	1.2	3.76		0	0	1.81	1.84		0	0
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2	81	0	162	1.2	3.76	81	97.2	304.56
		2010 INT				0	0		2	12	0	24
species												
Slash		1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	180	1970 INT	0.5	2.56	114	57	291.84				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2	66	483.78	739.2	7.38	8.64	114	841.32	984.96
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	115	1990 INT		3.04	115	0	349.6	0.3	2.56	115	34.5	294.4
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	0
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
		1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
		1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						2152.59	3766.72				2543.07	2659
TOTAL MBF							5053					4591
TOTAL VALUE						498992.1					559868.2	
GRAND TOTAL MBF											17422.89	
GRAND TOTAL VALUE											1689312	

* OPEN LAND TO BE PLANTED

PTA 5 CLEARED

0 species	BAC ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	44	1920	INT	0.1	0.4		0	0	0.36	1		0	0
			FINAL	8.79	1	44	386.76	44	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5		0	0
	249	1930	INT	0.2	0.5		0	0	1.21	1.5		0	0
			FINAL	8.14	2.32	249	2026.86	577.68	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1		0	0
	43	1940	INT	0.1	0.5		0	0	1.89	2.04		0	0
			FINAL	7.8	3.32	43	335.4	142.76	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
		1950	INT	0.1	0.4		0	0	0.58	2.32		0	0
			FINAL	2.49	5.48		0	0	7.2	4.6		0	0
			INT FINAL				0	0				0	0
		1960	INT		2		0	0	0.5	5.6		0	0
			FINAL	0.9	9.75		0	0				0	0
			INT FINAL				0	0				0	0
		1970	INT		2		0	0	0.38	2		0	0
			FINAL		5.84		0	0				0	0
			INT FINAL				0	0				0	0
	26	1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
	11	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly	76	1910	FINAL	9.4	2.2	76	714.4	167.2	10.08	2.12		0	0
	4	1920	INT	0.1	0.4		0	0	0.89	1.5		0	0
			FINAL	9.02	3.84	4	36.08	15.36	10.96	3.68		0	0
			INT FINAL				0	0				0	0
	39	1930	INT	0.1	0.4		0	0				0	0
			FINAL	7.85	2.8	39	306.15	109.2	10.54	2.32		0	0
			INT FINAL				0	0				0	0
	269	1940	INT	0.4	1		0	0	1.93	2		0	0
			FINAL	6.83	6.72	269	1837.27	1807.68	10.35	5.84		0	0
			INT FINAL				0	0				0	0
	15	1950	INT	0.1	0.4		0	0				0	0
			FINAL	4.84	4.44	15	72.6	66.6	8.22	3.64		0	0
			INT FINAL				0	0				0	0
		1960	INT	0.2	1		0	0	1.25	1.84		0	0
			FINAL	2.38	10.04		0	0	6.99	10.32		0	0
			INT FINAL				0	0				0	0
		1970	INT		2.64		0	0	0.8	2.56		0	0
			FINAL		12.16		0	0				0	0
			INT FINAL				0	0				0	0
	136	1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash		1920	FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930	INT	0.2	0.5		0	0				0	0
			FINAL	9.14	2		0	0	10.18	2.2		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.1	0.4		0	0	0.5	1.2		0	0
			FINAL	5.55	5.84		0	0	6.44	6.8		0	0
			INT FINAL				0	0				0	0
		1950	INT	0.1	0.4		0	0	0.34	2.48		0	0
			FINAL	2.13	6.48		0	0	4.02	7.56		0	0
			INT FINAL				0	0				0	0
		1960	INT		1.52		0	0	0.26	1.6		0	0
			FINAL	2.64	6.96		0	0	5.69	8.16		0	0
			INT FINAL				0	0	5.87	6.4		0	0
	82	1970	INT		5		0	0		2.4		0	0
			FINAL		10.24	82	0	839.68				0	0
			INT FINAL				0	0	3.78	7.04		0	0
		1980	INT				0	0		3.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf	49	1920	INT	0.1	0.4		0	0				0	0
			FINAL	9.66	4.4	49	473.34	215.6	12.61	5.12		0	0
			INT FINAL				0	0				0	0
	13	1930	INT	0.1	0.4		0	0	1.03	2.4		0	0
			FINAL	10	4.88	13	130	63.44	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.1	0.4		0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
	30	1950	INT	0.1	0.4		0	0	1.15	2		0	0
			FINAL	8.2	4	30	246	120	11.55	4.4		0	0
			INT FINAL				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							6564.86	4169.2				0	0
TOTAL MBF								9775					0
TOTAL VALUE							1400682.1					0	

GRAND TOTAL MBF
GRAND TOTAL VALUE

PTA 5 CLEARED

species	0 BAC ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	44	1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	249	1930	INT	2.59	1		0	0	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	43	1940	INT	2.54	1		0	0	2.59			0	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
		1950	INT	2.5	2.28		0	0	2.54	0.96		0	0
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
		1960	INT	1.18	3.36		0	0	2.5	1		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
		1970	INT	1.57	2.8		0	0	2.83	2.56		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
	26	1980	INT	0.26	2		0	0	2.02	2		0	0
			FINAL				0	0				0	0
	11	1990	INT		2		0	0	0.26	2		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
species													
Loblolly	76	1910	FINAL	12.03	2.04		0	0				0	0
	4	1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	39	1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.18	3.36		0	0
	269	1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	15	1950	INT	2.09	2		0	0	1.79	1		0	0
			FINAL	11.78	2.44		0	0				0	0
			INT FINAL				0	0	11.42	3.6		0	0
		1960	INT	2.04	1.44		0	0	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970	INT	2.18	2.24		0	0	2.16	1.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
	136	1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2		0	0	1.2	3.76		0	0
		2010	INT				0	0		2		0	0
species													
Slash		1920	FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
		1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960	INT	0.35	1.76		0	0	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	82	1970	INT	0.5	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
		1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04		0	0	0.3	2.56		0	0
		2010	INT				0	0		3.04		0	0
species													
Shortleaf	49	1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
	13	1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
	30	1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							0	0				0	0
TOTAL MBF								0					0
TOTAL VALUE							0					0	
GRAND TOTAL MBF												9815.168	
GRAND TOTAL VALUE												1407237	

PTA 5 REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	44	1920 INT	0.3	0.5	44	13.2	22	0.36	1		0	0
		FINAL	8.79	1		0	0	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5	44	519.2	22
	249	1930 INT	0.5	1	249	124.5	249	1.21	1.5	249	301.29	373.5
		FINAL	8.14	2.32		0	0	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	43	1940 INT	0.5	2	43	21.5	86	1.89	2.04	43	81.27	87.72
		FINAL	7.8	3.32		0	0	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
		1950 INT				0	0	0.58	2.32		0	0
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.92		0	0	0.5	5.6		0	0
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
		1970 INT		3.2		0	0	0.38	2		0	0
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
	26	1980 INT				0	0		2	26	0	52
		FINAL				0	0				0	0
	11	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly	76	1910 FINAL	9.4	2.2	76	714.4	167.2	10.08	2.12		0	0
	4	1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84	4	36.08	15.36	10.96	3.68		0	0
		INT FINAL				0	0				0	0
	39	1930 INT				0	0				0	0
		FINAL	7.85	2.8	39	306.15	109.2	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	269	1940 INT				0	0	1.93	2		0	0
		FINAL	6.83	6.72	69	471.27	463.68	10.35	5.84	200	2070	1168
		INT FINAL				0	0				0	0
	15	1950 INT				0	0				0	0
		FINAL	4.84	4.44		0	0	8.22	3.64		0	0
		INT FINAL				0	0				0	0
		1960 INT	0.2	1		0	0	1.25	1.84		0	0
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	136	1980 INT				0	0		2	136	0	272
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash		1920 FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930 INT				0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.6		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.52		0	0	0.26	1.6		0	0
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
	82	1970 INT		1.84	82	0	150.88		2.4	82	0	196.8
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.78	7.04		0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf	49	1920 INT				0	0				0	0
		FINAL	9.66	4.4	49	473.34	215.6	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	13	1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
	30	1950 INT				0	0	1.15	2	30	34.5	60
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						2160.44	1478.92				3006.26	2232.02
TOTAL MBF							3299					4725
TOTAL VALUE						462721.4					646759.8	
GRAND TOTAL MBF												
GRAND TOTAL VALUE												

PTA 5 REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	44	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	249	1930 INT	2.59	1	100	259	100	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5	149	2091.96	74.5	14.7	0.5	100	1470	50
	43	1940 INT	2.54	1	43	109.22	43	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04	43	603.72	44.72
		1950 INT	2.5	2.28		0	0	2.54	0.96		0	0
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
		1960 INT	1.18	3.36		0	0	2.5	1		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
		1970 INT	1.57	2.8		0	0	2.83	2.56		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
	26	1980 INT	0.26	2	26	6.76	52	2.02	2	26	52.52	52
		FINAL				0	0				0	0
	11	1990 INT		2	11	0	22	0.26	2	11	2.86	22
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2	44	0	88
species												
Loblolly	76	1910 FINAL	12.03	2.04		0	0				0	0
	4	1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	39	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	269	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	15	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.78	2.44	15	176.7	36.6				0	0
		INT FINAL				0	0	11.42	3.6		0	0
		1960 INT	2.04	1.44		0	0	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970 INT	2.16	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	136	1980 INT	1.2	3.76	136	163.2	511.36	1.81	1.84	136	246.16	250.24
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2	188	0	376	1.2	3.76	188	225.6	706.88
		2010 INT				0	0		2	200	0	400
species												
Slash		1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	82	1970 INT	0.5	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2	60	439.8	672	7.38	8.64	22	162.36	190.08
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
		1990 INT		3.04		0	0	0.3	2.56		0	0
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	0
species												
Shortleaf	49	1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.76		0	0
	13	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	8.32	13	208.39	82.16				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	30	1950 INT	1.62	2	30	48.6	60	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1	30	424.2	30
		2000 INT		2	49	0	98	0.26	2	49	12.74	98
		2010 INT				0	0		2		0	0
TOTAL						3503.63	2127.62				3200.16	1931.92
TOTAL MBF							5142					4688
TOTAL VALUE						745923.5					681125.7	
GRAND TOTAL MBF											17853.76	
GRAND TOTAL VALUE											2536530	

PTA 6 CLEARED

species	BAC ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
longleaf		1920	INT	0.1	0.4		0	0	0.36	1		0	0
			FINAL	8.79	1		0	0	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5		0	0
	99	1930	INT	0.2	0.5		0	0	1.21	1.5		0	0
			FINAL	8.14	2.32	99	805.86	229.68	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1		0	0
	74	1940	INT	0.1	0.5		0	0	1.89	2.04		0	0
			FINAL	7.8	3.32	74	577.2	245.68	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
	31	1950	INT	0.1	0.4		0	0	0.58	2.32		0	0
			FINAL	2.49	5.48	31	77.19	169.88	7.2	4.6		0	0
			INT FINAL				0	0				0	0
		1960	INT		2		0	0	0.5	5.6		0	0
			FINAL	0.9	9.75		0	0				0	0
			INT FINAL				0	0				0	0
		1970	INT		2		0	0	0.38	2		0	0
			FINAL		5.84		0	0				0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
loblolly		1910	FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920	INT	0.1	0.4		0	0	0.89	1.5		0	0
			FINAL	9.02	3.84		0	0	10.96	3.68		0	0
			INT FINAL				0	0				0	0
	3	1930	INT	0.1	0.4		0	0				0	0
			FINAL	7.85	2.8	3	23.55	8.4	10.54	2.32		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.4	1		0	0	1.93	2		0	0
			FINAL	6.83	6.72		0	0	10.35	5.84		0	0
			INT FINAL				0	0				0	0
		1950	INT	0.1	0.4		0	0				0	0
			FINAL	4.84	4.44		0	0	8.22	3.64		0	0
			INT FINAL				0	0				0	0
	21	1960	INT	0.2	1		0	0	1.25	1.84		0	0
			FINAL	2.38	10.04	21	49.98	210.84	6.99	10.32		0	0
			INT FINAL				0	0				0	0
		1970	INT		2.64		0	0	0.8	2.56		0	0
			FINAL		12.16		0	0				0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
slash		1920	FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930	INT	0.2	0.5		0	0				0	0
			FINAL	9.14	2		0	0	10.18	2.2		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.1	0.4		0	0	0.5	1.2		0	0
			FINAL	5.55	5.84		0	0	6.44	6.8		0	0
			INT FINAL				0	0				0	0
		1950	INT	0.1	0.4		0	0	0.34	2.48		0	0
			FINAL	2.13	6.48		0	0	4.02	7.56		0	0
			INT FINAL				0	0				0	0
		1960	INT		1.52		0	0	0.26	1.6		0	0
			FINAL	2.64	6.96		0	0	5.69	8.16		0	0
			INT FINAL				0	0	5.87	6.4		0	0
		1970	INT		5		0	0		2.4		0	0
	19		FINAL		10.24	19	0	194.56				0	0
			INT FINAL				0	0	3.78	7.04		0	0
		1980	INT				0	0		3.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
shortleaf		1920	INT	0.1	0.4		0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
		1930	INT	0.1	0.4		0	0	1.03	2.4		0	0
			FINAL	10	4.88		0	0	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.1	0.4		0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
		1950	INT	0.1	0.4		0	0	1.15	2		0	0
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							1533.78	1059.04				0	0
TOTAL MBF								2349					0
TOTAL VALUE							328654.4					0	
GRAND TOTAL MBF													
GRAND TOTAL VALUE													

PTA 6 CLEARED

species	BAC ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf		1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	99	1930	INT	2.59	1		0	0	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	74	1940	INT	2.54	1		0	0	2.59			0	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
	31	1950	INT	2.5	2.28		0	0	2.54	0.96		0	0
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
		1960	INT	1.18	3.36		0	0	2.5	1		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
		1970	INT	1.57	2.8		0	0	2.83	2.56		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
		1980	INT	0.26	2		0	0	2.02	2		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	0.26	2		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
species													
Loblolly		1910	FINAL	12.03	2.04		0	0				0	0
		1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	3	1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.18	3.36		0	0
		1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
		1950	INT	2.09	2		0	0	1.79	1		0	0
			FINAL	11.78	2.44		0	0				0	0
			INT FINAL				0	0	11.42	3.6		0	0
	21	1960	INT	2.04	1.44		0	0	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970	INT	2.18	2.24		0	0	2.16	1.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
		1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2		0	0	1.2	3.76		0	0
		2010	INT				0	0		2		0	0
species													
Slash		1920	FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
		1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960	INT	0.35	1.76		0	0	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	19	1970	INT	0.5	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
		1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04		0	0	0.3	2.56		0	0
		2010	INT				0	0		3.04		0	0
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
		1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							0	0				0	0
TOTAL MBF								0					0
TOTAL VALUE							0					0	
GRAND TOTAL MBF												2349.241	
GRAND TOTAL VALUE												328654.4	

PTA 6 THINNED

species	BAC ACRES	BAC	TYPE	MBF	CCF	PERIOD 1 (1990) ACRES	MBF TOTAL	CCF TOTAL	MBF	CCF	PERIOD 2 (2000) ACRES	MBF TOTAL	CCF TOTAL
Longleaf	187	1920	INT	0.1	0.4	187	18.7	74.8	0.36	1		0	0
			FINAL	8.79	1		0	0	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5		0	0
	1404	1930	INT	0.2	0.5	1404	280.8	702	1.21	1.5		0	0
			FINAL	8.14	2.32		0	0	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1		0	0
	399	1940	INT	0.1	0.5	399	39.9	199.5	1.89	2.04		0	0
			FINAL	7.8	3.32		0	0	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
	95	1950	INT	0.1	0.4	95	9.5	38	0.58	2.32		0	0
			FINAL	2.49	5.48		0	0	7.2	4.6		0	0
			INT FINAL				0	0				0	0
	115	1960	INT		2	115	0	230	0.5	5.6		0	0
			FINAL	0.9	9.75		0	0				0	0
			INT FINAL				0	0				0	0
		1970	INT		2		0	0	0.38	2		0	0
			FINAL		5.84		0	0				0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
Loblolly		1910	INT	0.1	0.4		0	0	10.08	2.12		0	0
		1920	INT	0.1	0.4		0	0	0.89	1.5		0	0
			FINAL	9.02	3.84		0	0	10.96	3.68		0	0
			INT FINAL				0	0				0	0
		1930	INT	0.1	0.4		0	0				0	0
			FINAL	7.85	2.8		0	0	10.54	2.32		0	0
			INT FINAL				0	0				0	0
	52	1940	INT	0.4	1	52	20.8	52	1.93	2		0	0
			FINAL	6.83	6.72		0	0	10.35	5.84		0	0
			INT FINAL				0	0				0	0
	215	1950	INT	0.1	0.4	215	21.5	86				0	0
			FINAL	4.84	4.44		0	0	8.22	3.64		0	0
			INT FINAL				0	0				0	0
		1960	INT	0.2	1		0	0	1.25	1.84		0	0
			FINAL	2.38	10.04		0	0	6.99	10.32		0	0
			INT FINAL				0	0				0	0
		1970	INT		2.64		0	0	0.8	2.56		0	0
			FINAL		12.16		0	0				0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
Slash	85	1920	INT	0.1	0.4	85	8.5	34	10.27	4.2		0	0
	30	1930	INT	0.2	0.5	30	6	15				0	0
			FINAL	9.14	2		0	0	10.18	2.2		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.1	0.4		0	0	0.5	1.2		0	0
			FINAL	5.55	5.84		0	0	6.44	6.8		0	0
			INT FINAL				0	0				0	0
		1950	INT	0.1	0.4		0	0	0.34	2.48		0	0
			FINAL	2.13	6.48		0	0	4.02	7.56		0	0
			INT FINAL				0	0				0	0
		1960	INT		1.52		0	0	0.26	1.6		0	0
			FINAL	2.64	6.96		0	0	5.69	8.16		0	0
			INT FINAL				0	0	5.87	6.4		0	0
	134	1970	INT		5	134	0	670		2.4		0	0
			FINAL		10.24		0	0				0	0
			INT FINAL				0	0	3.78	7.04		0	0
		1980	INT				0	0		3.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
Shortleaf		1920	INT	0.1	0.4		0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
		1930	INT	0.1	0.4		0	0	1.03	2.4		0	0
			FINAL	10	4.88		0	0	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.1	0.4		0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
		1950	INT	0.1	0.4		0	0	1.15	2		0	0
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							405.7	2101.3				0	0
TOTAL MBF								2024					0
TOTAL VALUE							117072.76					0	
GRAND TOTAL MBF													
GRAND TOTAL VALUE													

PTA 6 THINNED

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	187	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	1404	1930 INT	2.59	1		0	0	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	399	1940 INT	2.54	1		0	0	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
	95	1950 INT	2.5	2.28		0	0	2.54	0.96		0	0
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	115	1960 INT	1.18	3.36		0	0	2.5	1		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
		1970 INT	1.57	2.8		0	0	2.83	2.56		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
		1980 INT	0.26	2		0	0	2.02	2		0	0
		FINAL				0	0				0	0
		1990 INT		2		0	0	0.26	2		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
species												
Loblolly		1910 INT	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
		1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	52	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	215	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.78	2.44		0	0				0	0
		INT FINAL				0	0	11.42	3.6		0	0
		1960 INT	2.04	1.44		0	0	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970 INT	2.18	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
		1980 INT	1.2	3.76		0	0	1.81	1.84		0	0
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2		0	0	1.2	3.76		0	0
		2010 INT				0	0		2		0	0
species												
Slash	85	1920 INT	11.02	4.4		0	0	11.7	4.6		0	0
	30	1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	134	1970 INT	0.5	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
		1990 INT		3.04		0	0	0.3	2.56		0	0
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	0
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
		1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
		1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						0	0				0	0
TOTAL MBF							0					0
TOTAL VALUE						0					0	
GRAND TOTAL MBF											1994.887	
GRAND TOTAL VALUE											115165.8	

PTA 6 REGULAR MANAGEMENT

species	BAC ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	187	1920	INT	0.3	0.5		0	0	0.36	1		0	0
			FINAL	8.79	1	187	1643.73	187	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5		0	0
	1503	1930	INT	0.5	1	1200	600	1200	1.21	1.5	600	726	900
			FINAL	8.14	2.32	303	2466.42	702.96	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1	600	6960	600
	473	1940	INT	0.5	2	473	236.5	946	1.89	2.04	473	893.97	964.92
			FINAL	7.8	3.32		0	0	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
	126	1950	INT				0	0	0.58	2.32	126	73.08	292.32
			FINAL	2.49	5.48		0	0	7.2	4.6		0	0
			INT FINAL				0	0				0	0
	115	1960	INT		1.92	115	0	220.8	0.5	5.6	115	57.5	644
			FINAL	0.9	9.75		0	0				0	0
			INT FINAL				0	0				0	0
		1970	INT		3.2		0	0	0.38	2		0	0
			FINAL		5.84		0	0				0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly		1910	FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920	INT				0	0	0.89	1.5		0	0
			FINAL	9.02	3.84		0	0	10.96	3.68		0	0
			INT FINAL				0	0				0	0
	3	1930	INT				0	0				0	0
			FINAL	7.85	2.8	3	23.55	8.4	10.54	2.32		0	0
			INT FINAL				0	0				0	0
	52	1940	INT				0	0	1.93	2		0	0
			FINAL	6.83	6.72	52	355.16	349.44	10.35	5.84		0	0
			INT FINAL				0	0				0	0
	215	1950	INT				0	0				0	0
			FINAL	4.84	4.44		0	0	8.22	3.64	100	822	364
			INT FINAL				0	0				0	0
	21	1960	INT	0.2	1	21	4.2	21	1.25	1.84	21	26.25	38.64
			FINAL	2.38	10.04		0	0	6.99	10.32		0	0
			INT FINAL				0	0				0	0
		1970	INT		2.64		0	0	0.8	2.56		0	0
			FINAL		12.16		0	0				0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash	85	1920	FINAL	9.44	4	85	802.4	340	10.27	4.2		0	0
	30	1930	INT				0	0				0	0
			FINAL	9.14	2	30	274.2	60	10.18	2.2		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0	0.5	1.2		0	0
			FINAL	5.55	5.84		0	0	6.44	6.8		0	0
			INT FINAL				0	0				0	0
		1950	INT				0	0	0.34	2.48		0	0
			FINAL	2.13	6.48		0	0	4.02	7.56		0	0
			INT FINAL				0	0				0	0
		1960	INT		1.52		0	0	0.26	1.6		0	0
			FINAL	2.64	6.96		0	0	5.69	8.16		0	0
			INT FINAL				0	0	5.87	6.4		0	0
	153	1970	INT		1.84	153	0	281.52		2.4	153	0	367.2
			FINAL		10.24		0	0				0	0
			INT FINAL				0	0	3.78	7.04		0	0
		1980	INT				0	0		3.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf		1920	INT				0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
		1930	INT				0	0	1.03	2.4		0	0
			FINAL	10	4.88		0	0	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
		1950	INT				0	0	1.15	2		0	0
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							6406.16	4317.12				9558.8	4171.08
TOTAL MBF								9730					12771
TOTAL VALUE							1370938					2008034	
GRAND TOTAL MBF													
GRAND TOTAL VALUE													

PTA 6 REGULAR MANAGEMENT

species	BAC ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	187	1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	1503	1930	INT	2.59	1	100	259	100	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5	500	7020	250	14.7	0.5	100	1470	50
	473	1940	INT	2.54	1	473	1201.42	473	2.59			0	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04	473	6640.92	491.92
	126	1950	INT	2.5	2.28	126	315	287.28	2.54	0.96	126	320.04	120.96
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	115	1960	INT	1.18	3.36	115	135.7	386.4	2.5	1	115	287.5	115
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
		1970	INT	1.57	2.8		0	0	2.83	2.56		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
		1980	INT	0.26	2		0	0	2.02	2		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	0.26	2		0	0
		2000	INT		2	490	0	980	0.26	2	490	127.4	980
		2010	INT				0	0		2	600	0	1200
species													
Loblolly		1910	FINAL	12.03	2.04		0	0				0	0
		1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	3	1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.18	3.36		0	0
	52	1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	215	1950	INT	2.09	2		0	0	1.79	1		0	0
			FINAL	11.78	2.44	115	1354.7	280.6				0	0
			INT FINAL				0	0	11.42	3.6		0	0
	21	1960	INT	2.04	1.44		0	0	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88	21	201.81	123.48	11.13	3.96		0	0
		1970	INT	2.18	2.24		0	0	2.16	1.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
		1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2	55	0	110	1.2	3.76	55	66	206.8
		2010	INT				0	0		2	100	0	200
species													
Slash	85	1920	FINAL	11.02	4.4		0	0	11.7	4.6		0	0
	30	1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
		1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960	INT	0.35	1.76		0	0	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	153	1970	INT	0.5	2.56	100	50	256				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2	53	388.49	593.6	7.38	8.64	100	738	864
		1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
		1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04	115	0	349.6	0.3	2.56	115	34.5	294.4
		2010	INT				0	0		3.04		0	0
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
		1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							10926.12	4189.96				9684.36	4523.08
TOTAL MBF								14152					13167
TOTAL VALUE							2285707					2039329	
GRAND TOTAL MBF												49820.39	
GRAND TOTAL VALUE												7704009	

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Maneuver Corridors by Alternative

CORRIDORS, ALTERNATIVE 1 MANEUVER

			PERIOD 1 (1990)					PERIOD 2 (2000)				
species	BAC ACRES	BAC TYPE	MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	172	1920 INT	0.5	1	72	36	72				0	0
		FINAL	9.74	1.6	100	974	160	12.34	1.2		0	0
		INT FINAL				0	0	11.44	0.8		0	0
	686	1930 INT	0.5	1	344	172	344	1.26			0	0
		FINAL	8.56	2.16	342	2927.52	738.72	12.65	2.1		0	0
		INT FINAL				0	0	12.1	1.1		0	0
	208	1940 INT	0.3	1		0	0	1.15	0.6		0	0
		FINAL	6.41	3.66	208	1333.28	765.44	10.99	3.12		0	0
		INT FINAL				0	0	10.2	1		0	0
	111	1950 INT	0.4	1	111	44.4	111	0.73	2		0	0
		FINAL	3.23	6.16		0	0				0	0
		INT FINAL				0	0				0	0
	263	1960 INT		1.1		0	0		1		0	0
		FINAL	0.9	9.1	263	236.7	2393.3				0	0
		INT FINAL				0	0				0	0
	128	1970 INT		2		0	0	0.32	2		0	0
		FINAL		5.84	128	0	747.52				0	0
	63	1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
	35	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly	12	1920 FINAL	7.85	2.6	12	94.2	31.2				0	0
	15	1930 INT										
		FINAL	7.85	2.6	15	117.75	39	10.48	2.1		0	0
		INT FINAL				0	0				0	0
	20	1940 INT				0	0	1.28	1		0	0
		FINAL	9.45	2.8	20	189	56	12.45	2.8		0	0
		INT FINAL				0	0				0	0
	138	1950 INT		2.1		0	0	1.88	1		0	0
		FINAL	3.88	9.36	138	535.44	1291.68	7.84	7.92		0	0
		INT FINAL				0	0	7.22	7.36		0	0
	3	1960 INT	0.5	1		0	0	1.2	1.48		0	0
		FINAL	1.78	11.28	3	5.34	33.84				0	0
		INT FINAL				0	0				0	0
	38	1970 INT		2.48		0	0	0.79	1.36		0	0
		FINAL		12.08	38	0	459.04				0	0
		INT FINAL				0	0				0	0
	36	1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
	12	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash	136	1920 FINAL	9.44	4	136	1283.84	544				0	0
	1032	1930 INT	0.5	1	14	7	14					
		FINAL	4.8	6.75	1018	4886.4	6871.5	5.52	7.8		0	0
	122	1940 INT				0	0	0.35	2.16		0	0
		FINAL	9.59	4.4	122	1169.98	536.8	11.64	4.4		0	0
		INT FINAL				0	0				0	0
	23	1950 INT				0	0	0.27	1.92		0	0
		FINAL	3.23	7.6	23	74.29	174.8	4.94	9.1		0	0
		INT FINAL				0	0				0	0
	32	1960 INT		1.76		0	0	0.26	1.6		0	0
		FINAL	2.32	7.92	32	74.24	253.44	4.24	6.64		0	0
		INT FINAL				0	0	5.45	8		0	0
	77	1970 INT		3.04		0	0		2.56		0	0
		FINAL		11.52	77	0	887.04				0	0
		INT FINAL				0	0				0	0
	123	1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	*139	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	10	1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88	10	100	48.8	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
	126	1950 INT				0	0	1.15	2		0	0
		FINAL	8.2	4	126	1033.2	504	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						15294.58	17077.12				0	0
TOTAL MBF							28443.96					0
TOTAL VALUE						3385132					0	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*39 ACRES OPEN LAND

CORRIDORS, ALTERNATIVE 1 MANEUVER

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	172	1920 INT				0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.86	0.5		0	0	15.66	0.5		0	0
	686	1930 INT	1.4	0		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.58	1.1		0	0	14.7	0.5		0	0
	208	1940 INT	1.15	0		0	0	1.15			0	0
		FINAL				0	0				0	0
		INT FINAL	12.45	1		0	0	14.04	0.6		0	0
	111	1950 INT	1.15			0	0	1.15			0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	12.93	2.24		0	0
	263	1960 INT	1.18	2.8		0	0	2.5			0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1.2		0	0
	128	1970 INT	1.67	2.64		0	0	2.95	2.4		0	0
		FINAL				0	0				0	0
	63	1980 INT	0.26	2		0	0	2.02	2		0	0
		FINAL				0	0				0	0
	35	1990 INT		2		0	0	0.26	2		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
species												
Loblolly	12	1920 FINAL	1.16	1		0	0	1.51	0.5		0	0
	15	1930 INT										
		FINAL	12.97	2.8		0	0				0	0
		INT FINAL				0	0	12.17	2.86		0	0
	20	1940 INT	1.78	1		0	0	1.68			0	0
		FINAL	15.57	2		0	0				0	0
		INT FINAL	11.3	4.48		0	0	12.07	3.48		0	0
	138	1950 INT	1.96	1		0	0	1.75			0	0
		FINAL				0	0				0	0
		INT FINAL	10.84	5.2		0	0	11.86	4.08		0	0
	3	1960 INT	2.05	1.44		0	0	2.02	0.5		0	0
		FINAL				0	0				0	0
		INT FINAL	9.62	5.88		0	0	11.14	4.56		0	0
	38	1970 INT	2.24	1.6		0	0	2.16			0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.26	4.96		0	0
	36	1980 INT	1.2	3.76		0	0	1.81	1.84		0	0
		FINAL				0	0				0	0
	12	1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2		0	0	1.2	3.76		0	0
		2010 INT				0	0		2		0	0
species												
Slash	136	1920 FINAL				0	0				0	0
	1032	1930 INT										
		FINAL	6.06	8.7		0	0				0	0
	122	1940 INT				0	0				0	0
		FINAL	13.4	6.2		0	0				0	0
		INT FINAL	13.21	3		0	0	14.31	4		0	0
	23	1950 INT				0	0				0	0
		FINAL	6.47	10.6		0	0				0	0
		INT FINAL	6.13	9.15		0	0	7.42	10.05		0	0
	32	1960 INT				0	0				0	0
		FINAL	5.99	8.14		0	0				0	0
		INT FINAL	6.38	9.15		0	0	8.13	10.2		0	0
	77	1970 INT				0	0				0	0
		FINAL	6.64	7.38		0	0				0	0
		INT FINAL	4.38	9.5		0	0	6.04	8.45		0	0
	123	1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	*139	1990 INT		3.04		0	0	0.3	2.56		0	0
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
	10	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	126	1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						0	0				0	0
TOTAL MBF							0					0
TOTAL VALUE						0					0	
GRAND TOTAL MBF											28443.96	
GRAND TOTAL VALUE											3385132	

*39 ACRES OPEN LAND

CORRIDORS, ALTERNATIVE 1 REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	172	1920 INT	0.5	1	172	86	172				0	0
		FINAL	9.74	1.6		0	0	12.34	1.2		0	0
		INT FINAL				0	0	11.44	0.6		0	0
	686	1930 INT	0.5	1	686	343	686	1.26		686	864.36	0
		FINAL	8.56	2.16		0	0	12.65	2.1		0	0
		INT FINAL				0	0	12.1	1.1		0	0
	208	1940 INT	0.3	1	208	62.4	208	1.15	0.6	208	239.2	124.8
		FINAL	6.41	3.68		0	0	10.99	3.12		0	0
		INT FINAL				0	0	10.2	1		0	0
	111	1950 INT	0.4	1	111	44.4	111	0.73	2	111	81.03	222
		FINAL	3.23	6.16		0	0				0	0
		INT FINAL				0	0				0	0
	263	1960 INT		1.1	263	0	289.3		1	263	0	263
		FINAL	0.9	9.1		0	0				0	0
		INT FINAL				0	0				0	0
	128	1970 INT		2	128	0	256	0.32	2	128	40.96	256
		FINAL		5.84		0	0				0	0
	63	1980 INT				0	0		2	63	0	126
		FINAL				0	0				0	0
	35	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly	12	1920 FINAL	7.85	2.6		0	0	10.48	2.1	12	125.76	25.2
	15	1930 INT				0	0				0	0
		FINAL	7.85	2.6		0	0	10.48	2.1	15	157.2	31.5
		INT FINAL				0	0				0	0
	20	1940 INT				0	0	1.28	1		0	0
		FINAL	9.45	2.6		0	0	12.45	2.6	20	249	52
		INT FINAL				0	0				0	0
	138	1950 INT		2.1	138	0	289.8	1.88	1	138	259.44	138
		FINAL	3.88	9.36		0	0	7.84	7.92		0	0
		INT FINAL				0	0	7.22	7.36		0	0
	3	1960 INT	0.5	1	3	1.5	3	1.2	1.48	3	3.6	4.44
		FINAL	1.78	11.28		0	0				0	0
		INT FINAL				0	0				0	0
	37	1970 INT		2.48	37	0	91.76	0.79	1.36	37	29.23	50.32
		FINAL		12.08		0	0				0	0
		INT FINAL				0	0				0	0
	36	1980 INT				0	0		2	36	0	72
		FINAL				0	0				0	0
	12	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash	136	1920 FINAL	9.44	4	136	1283.84	544				0	0
	1032	1930 FINAL	4.8	6.75	455	2184	3071.25	5.52	7.8	572	3157.44	4461.6
	122	1940 INT				0	0	0.35	2.16	122	42.7	263.52
		FINAL	9.59	4.4		0	0	11.64	4.4		0	0
		INT FINAL				0	0				0	0
	23	1950 INT				0	0	0.27	1.92	23	6.21	44.16
		FINAL	3.23	7.6		0	0	4.94	9.1		0	0
		INT FINAL				0	0				0	0
	32	1960 INT		1.76	32	0	56.32	0.26	1.6	32	8.32	51.2
		FINAL	2.32	7.92		0	0	4.24	6.64		0	0
		INT FINAL				0	0	5.45	8		0	0
	77	1970 INT		3.04	77	0	234.08		2.56	77	0	197.12
		FINAL		11.52		0	0				0	0
		INT FINAL				0	0				0	0
	123	1980 INT				0	0		3.04	123	0	373.92
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	139	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	10	1930 INT				0	0	1.03	2.4	10	10.3	24
		FINAL	10	4.88		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
	126	1950 INT				0	0	1.15	2	126	144.9	252
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						4005.14	6012.51				5419.65	7032.78
TOTAL MBF							8634.773					10834.89
TOTAL VALUE						911949.7					1215769	
GRAND TOTAL MBF												
GRAND TOTAL VALUE												

CORRIDORS, ALTERNATIVE 1 REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	172	1920 INT				0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.86	0.5	172	2383.92	86	15.66	0.5		0	0
	686	1930 INT	1.4	0	386	540.4	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.58	1.1	300	4074	330	14.7	0.5	386	5674.2	193
	208	1940 INT	1.15	0	208	239.2	0	1.15		180	207	0
		FINAL				0	0				0	0
		INT FINAL	12.45	1		0	0	14.04	0.6	28	393.12	16.8
	111	1950 INT	1.15		111	127.65	0	1.15		111	127.65	0
		FINAL				0	0				0	0
		INT FINAL				0	0	12.93	2.24		0	0
	263	1960 INT	1.16	2.8	263	310.34	736.4	2.5		263	657.5	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1.2		0	0
	128	1970 INT	1.67	2.64	128	213.76	337.92	2.95	2.4	128	377.6	307.2
		FINAL				0	0				0	0
	63	1980 INT	0.26	2	63	16.38	126	2.02	2	63	127.26	126
		FINAL				0	0				0	0
	35	1990 INT		2	35	0	70	0.26	2	35	9.1	70
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
species												
Loblolly	12	1920 FINAL										
	15	1930 INT	1.16	1		0	0	1.51	0.5		0	0
		FINAL	12.97	2.8		0	0				0	0
		INT FINAL				0	0	12.17	2.86		0	0
	20	1940 INT	1.76	1		0	0	1.68			0	0
		FINAL	15.57	2		0	0				0	0
		INT FINAL	11.3	4.48		0	0	12.07	3.48		0	0
	138	1950 INT	1.96	1	138	270.48	138	1.75			0	0
		FINAL				0	0				0	0
		INT FINAL	10.84	5.2		0	0	11.86	4.08	138	1636.68	563.04
	3	1960 INT	2.05	1.44	3	6.15	4.32	2.02	0.5		0	0
		FINAL				0	0				0	0
		INT FINAL	9.62	5.68		0	0	11.14	4.56	3	33.42	13.68
	37	1970 INT	2.24	1.6	37	82.88	59.2	2.16		37	79.92	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.26	4.96		0	0
	36	1980 INT	1.2	3.76	36	43.2	135.36	1.81	1.84	36	65.16	66.24
		FINAL				0	0				0	0
	12	1990 INT		2	12	0	24	1.2	3.76	12	14.4	45.12
		2000 INT		2		0	0	1.2	3.76		0	0
		2010 INT				0	0		2	47	0	94
species												
Slash	136	1920 FINAL				0	0				0	0
	1032	1930 FINAL	6.06	8.7		0	0				0	0
	122	1940 INT				0	0				0	0
		FINAL	13.4	6.2		0	0				0	0
		INT FINAL	13.21	3	122	1611.62	366	14.31	4		0	0
	23	1950 INT				0	0				0	0
		FINAL	6.47	10.6		0	0				0	0
		INT FINAL	6.13	9.15		0	0	7.42	10.05	23	170.66	231.15
	32	1960 INT				0	0				0	0
		FINAL	5.99	8.14		0	0				0	0
		INT FINAL	6.38	9.15		0	0	8.13	10.2	32	260.16	326.4
	77	1970 INT				0	0				0	0
		FINAL	6.64	7.38		0	0				0	0
		INT FINAL	4.38	9.5		0	0	6.04	8.45		0	0
	123	1980 INT	0.3	2.56	123	36.9	314.88				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	139	1990 INT		3.04	139	0	422.56	0.3	2.56	139	41.7	355.84
		2000 INT		3.04	591	0	1796.64	0.3	2.56	591	177.3	1512.96
		2010 INT				0	0		3.04	577	0	
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
	10	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32	10	160.3	63.2				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	126	1950 INT	1.62	2	126	204.12	252	1.66	1	126	209.16	126
		FINAL				0	0				0	0
		INT FINAL	13.1	2.6		0	0	14.14	1		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						10321.3	5262.48				10261.99	4047.43
TOTAL MBF							14373.41					13378.51
TOTAL VALUE						2180770					2148630	
GRAND TOTAL MBF											47221.58	
GRAND TOTAL VALUE											6457118	

CORRIDORS, ALTERNATIVE 2 MANEUVER

			PERIOD 1 (1990)					PERIOD 2 (2000)			
Longleaf	172	1920 INT	0.5	1	72	36	72			0	0
		FINAL	9.74	1.6	100	974	160	12.34	1.2	0	0
		INT FINAL				0	0	11.44	0.6	0	0
	546	1930 INT	0.5	1	227	113.5	227	1.26		0	0
		FINAL	8.56	2.16	319	2730.64	689.04	12.65	2.1	0	0
		INT FINAL				0	0	12.1	1.1	0	0
	116	1940 INT	0.3	1		0	0	1.15	0.6	0	0
		FINAL	6.41	3.68	116	743.56	426.88	10.99	3.12	0	0
		INT FINAL				0	0	10.2	1	0	0
		1950 INT	0.4	1		0	0	0.73	2	0	0
		FINAL	3.23	6.16		0	0			0	0
		INT FINAL				0	0			0	0
	83	1960 INT		1.1		0	0		1	0	0
		FINAL	0.9	9.1	83	74.7	755.3			0	0
		INT FINAL				0	0			0	0
	37	1970 INT		2		0	0	0.32	2	0	0
		FINAL		5.84	37	0	216.08			0	0
	63	1980 INT				0	0		2	0	0
		FINAL				0	0			0	0
	12	1990 INT				0	0			0	0
		2000 INT				0	0			0	0
		2010 INT				0	0			0	0
species											
Loblolly	12	1920 FINAL	7.85	2.6	12	94.2	31.2			0	0
	15	1930 INT									
		FINAL	7.85	2.6	15	117.75	39	10.48	2.1	0	0
		INT FINAL				0	0			0	0
	12	1940 INT				0	0	1.28	1	0	0
		FINAL	9.45	2.8	12	113.4	33.6	12.45	2.6	0	0
		INT FINAL				0	0			0	0
	138	1950 INT		2.1		0	0	1.88	1	0	0
		FINAL	3.88	9.36	138	535.44	1291.68	7.84	7.92	0	0
		INT FINAL				0	0	7.22	7.36	0	0
		1960 INT	0.5	1		0	0	1.2	1.48	0	0
		FINAL	1.78	11.28	3	5.34	33.84			0	0
		INT FINAL				0	0			0	0
	37	1970 INT		2.48		0	0	0.79	1.36	0	0
		FINAL		12.08	37	0	446.96			0	0
		INT FINAL				0	0			0	0
	36	1980 INT				0	0		2	0	0
		FINAL				0	0			0	0
	12	1990 INT				0	0			0	0
		2000 INT				0	0			0	0
		2010 INT				0	0			0	0
species											
Slash	136	1920 FINAL	9.44	4	136	1283.84	544			0	0
	1032	1930 INT	0.5	1	14	7	14				
		1930 FINAL	4.8	6.75	1018	4886.4	6871.5	5.52	7.8	0	0
	122	1940 INT				0	0	0.35	2.16	0	0
		FINAL	9.59	4.4	122	1169.98	536.8	11.64	4.4	0	0
		INT FINAL				0	0			0	0
	23	1950 INT				0	0	0.27	1.92	0	0
		FINAL	3.23	7.6	23	74.29	174.8	4.94	9.1	0	0
		INT FINAL				0	0			0	0
	32	1960 INT		1.76		0	0	0.26	1.6	0	0
		FINAL	2.32	7.92	32	74.24	253.44	4.24	6.64	0	0
		INT FINAL				0	0	5.45	8	0	0
	17	1970 INT		3.04		0	0		2.56	0	0
		FINAL		11.52	17	0	195.84			0	0
		INT FINAL				0	0			0	0
	123	1980 INT				0	0		3.04	0	0
		FINAL				0	0			0	0
		INT FINAL				0	0			0	0
	*124	1990 INT				0	0			0	0
		2000 INT				0	0			0	0
		2010 INT				0	0			0	0
species											
Shortleaf	10	1920 INT				0	0			0	0
		FINAL	9.66	4.4	10	96.6	44	12.61	5.12	0	0
		INT FINAL				0	0			0	0
		1930 INT				0	0	1.03	2.4	0	0
		FINAL	10	4.88		0	0	13.07	5.52	0	0
		INT FINAL				0	0			0	0
		1940 INT				0	0			0	0
		FINAL	6.91	5.12		0	0	10.05	5.28	0	0
		INT FINAL				0	0			0	0
	126	1950 INT				0	0	1.15	2	0	0
		FINAL	8.2	4	126	1033.2	504	11.55	4.4	0	0
		INT FINAL				0	0			0	0
		2000 INT				0	0			0	0
		2010 INT				0	0			0	0
TOTAL						14164.08	13560.96			0	0
TOTAL MBF							24606.02				0
TOTAL VALUE						3097618				0	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*19 ACRES OPEN LAND

)RS, ALTERNATIVE 2 MANEUVER

			PERIOD 3 (2010)				PERIOD 4 (2020)			
172	1920	INT			0	0			0	0
		FINAL			0	0			0	0
		INT FINAL	13.86	0.5	0	0	15.66	0.5	0	0
546	1930	INT	1.4	0	0	0			0	0
		FINAL			0	0			0	0
		INT FINAL	13.58	1.1	0	0	14.7	0.5	0	0
116	1940	INT	1.15	0	0	0	1.15		0	0
		FINAL			0	0			0	0
		INT FINAL	12.45	1	0	0	14.04	0.6	0	0
	1950	INT	1.15		0	0	1.15		0	0
		FINAL			0	0			0	0
		INT FINAL			0	0	12.93	2.24	0	0
83	1960	INT	1.18	2.8	0	0	2.5		0	0
		FINAL			0	0			0	0
		INT FINAL			0	0	11.27	1.2	0	0
37	1970	INT	1.67	2.64	0	0	2.95	2.4	0	0
		FINAL			0	0			0	0
63	1980	INT	0.26	2	0	0	2.02	2	0	0
		FINAL			0	0			0	0
12	1990	INT		2	0	0	0.26	2	0	0
	2000	INT		2	0	0	0.26	2	0	0
	2010	INT			0	0		2	0	0
12	1920	FINAL	1.16	1	0	0	1.51	0.5	0	0
15	1930	INT								
		FINAL	12.97	2.8	0	0			0	0
		INT FINAL			0	0	12.17	2.86	0	0
12	1940	INT	1.78	1	0	0	1.68		0	0
		FINAL	15.57	2	0	0			0	0
		INT FINAL	11.3	4.48	0	0	12.07	3.48	0	0
138	1950	INT	1.96	1	0	0	1.75		0	0
		FINAL			0	0			0	0
		INT FINAL	10.84	5.2	0	0	11.86	4.08	0	0
	1960	INT	2.05	1.44	0	0	2.02	0.5	0	0
		FINAL			0	0			0	0
		INT FINAL	9.62	5.88	0	0	11.14	4.56	0	0
37	1970	INT	2.24	1.6	0	0	2.16		0	0
		FINAL			0	0			0	0
		INT FINAL			0	0	11.26	4.96	0	0
36	1980	INT	1.2	3.76	0	0	1.81	1.84	0	0
		FINAL			0	0			0	0
12	1990	INT		2	0	0	1.2	3.76	0	0
	2000	INT		2	0	0	1.2	3.76	0	0
	2010	INT			0	0		2	0	0
136	1920	FINAL			0	0			0	0
1032	1930	INT								
	1930	FINAL	6.06	8.7	0	0			0	0
122	1940	INT			0	0			0	0
		FINAL	13.4	6.2	0	0			0	0
		INT FINAL	13.21	3	0	0	14.31	4	0	0
23	1950	INT			0	0			0	0
		FINAL	6.47	10.6	0	0			0	0
		INT FINAL	6.13	9.15	0	0	7.42	10.05	0	0
32	1960	INT			0	0			0	0
		FINAL	5.99	8.14	0	0			0	0
		INT FINAL	6.38	9.15	0	0	8.13	10.2	0	0
17	1970	INT			0	0			0	0
		FINAL	6.64	7.38	0	0			0	0
		INT FINAL	4.38	9.5	0	0	6.04	8.45	0	0
123	1980	INT	0.3	2.56	0	0			0	0
		FINAL			0	0			0	0
		INT FINAL			0	0	5.43	7.45	0	0
*124	1990	INT		3.04	0	0	0.3	2.56	0	0
	2000	INT		3.04	0	0	0.3	2.56	0	0
	2010	INT			0	0		3.04	0	
10	1920	INT	0.93	2.4	0	0			0	0
		FINAL	15.48	6.08	0	0	18.24	7.12	0	0
		INT FINAL			0	0	17.5	3.78	0	0
	1930	INT	1.71	1	0	0	1.7	1	0	0
		FINAL	16.03	6.32	0	0			0	0
		INT FINAL	15.22	3.52	0	0	16.7	2.84	0	0
	1940	INT	2.06	2	0	0	1.7	1	0	0
		FINAL	13.05	5.92	0	0			0	0
		INT FINAL			0	0	15.1	3.92	0	0
126	1950	INT	1.62	2	0	0	1.66	1	0	0
		FINAL			0	0			0	0
		INT FINAL	13.1	2.8	0	0	14.14	1	0	0
	2000	INT		2	0	0	0.26	2	0	0
	2010	INT			0	0		2	0	0
					0	0			0	0
3F						0				0
·LUE					0				0	
OTAL MBF									24606.02	
OTAL VALUE									3097618	
S OPEN LAND										

CORRIDORS, ALTERNATIVE 2 REGULAR MANAGEMENT

species	BAC ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	172	1920	INT	0.5	1	172	86	172				0	0
			FINAL	9.74	1.6		0	0	12.34	1.2		0	0
			INT FINAL				0	0	11.44	0.6		0	0
	546	1930	INT	0.5	1	546	273	546	1.26		546	687.96	0
			FINAL	8.56	2.16		0	0	12.65	2.1		0	0
			INT FINAL				0	0	12.1	1.1		0	0
	116	1940	INT	0.3	1	116	34.8	116	1.15	0.6	116	133.4	69.6
			FINAL	6.41	3.68		0	0	10.99	3.12		0	0
			INT FINAL				0	0	10.2	1		0	0
		1950	INT	0.4	1		0	0	0.73	2		0	0
			FINAL	3.23	6.16		0	0				0	0
			INT FINAL				0	0				0	0
	83	1960	INT		1.1	83	0	91.3		1	83	0	83
			FINAL	0.9	9.1		0	0				0	0
			INT FINAL				0	0				0	0
	37	1970	INT		2	37	0	74	0.32	2	37	11.84	74
			FINAL		5.84		0	0				0	0
	63	1980	INT				0	0		2	63	0	126
			FINAL				0	0				0	0
	12	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly	12	1920	FINAL	7.85	2.6	12	94.2	31.2					
	15	1930	INT				0	0				0	0
			FINAL	7.85	2.6	15	117.75	39	10.48	2.1		0	0
			INT FINAL				0	0				0	0
	12	1940	INT				0	0	1.28	1		0	0
			FINAL	9.45	2.8		0	0	12.45	2.6	12	149.4	31.2
			INT FINAL				0	0				0	0
	138	1950	INT		2.1	138	0	289.8	1.88	1	138	259.44	138
			FINAL	3.88	9.36		0	0	7.84	7.92		0	0
			INT FINAL				0	0	7.22	7.36		0	0
		1960	INT	0.5	1		0	0	1.2	1.48		0	0
			FINAL	1.78	11.28		0	0				0	0
			INT FINAL				0	0				0	0
	37	1970	INT		2.48	37	0	91.76	0.79	1.36	37	29.23	50.32
			FINAL		12.08		0	0				0	0
			INT FINAL				0	0				0	0
	36	1980	INT				0	0		2	36	0	72
			FINAL				0	0				0	0
	11	1990	INT				0	0				0	0
	27	2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash	136	1920	FINAL	9.44	4	136	1283.84	544				0	0
	1032	1930	FINAL	4.8	6.75	425	2040	2868.75	5.52	7.8	607	3350.64	4734.6
	122	1940	INT				0	0	0.35	2.16	122	42.7	263.52
			FINAL	9.59	4.4		0	0	11.64	4.4		0	0
			INT FINAL				0	0				0	0
	23	1950	INT				0	0	0.27	1.92	23	6.21	44.16
			FINAL	3.23	7.6		0	0	4.94	9.1		0	0
			INT FINAL				0	0				0	0
	32	1960	INT		1.76	32	0	56.32	0.26	1.6	32	8.32	51.2
			FINAL	2.32	7.92		0	0	4.24	6.64		0	0
			INT FINAL				0	0	5.45	8		0	0
	17	1970	INT		3.04	17	0	51.68		2.56	17	0	43.52
			FINAL		11.52		0	0				0	0
			INT FINAL				0	0				0	0
	123	1980	INT				0	0		3.04	123	0	373.92
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
	124	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf	10	1920	INT				0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
		1930	INT				0	0	1.03	2.4		0	0
			FINAL	10	4.88		0	0	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
	126	1950	INT				0	0	1.15	2	126	144.9	252
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							3929.59	4971.81				4824.04	6407.04
TOTAL MBF								7757.884					9757.461
TOTAL VALUE							879400.8					1084593	
GRAND TOTAL MBF													
GRAND TOTAL VALUE													

CORRIDORS, ALTERNATIVE 2 REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	172	1920 INT				0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.86	0.5	172	2383.92	86	15.66	0.5		0	0
	546	1930 INT	1.4	0	286	400.4	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.58	1.1	260	3530.8	286	14.7	0.5	286	4204.2	143
	116	1940 INT	1.15	0	116	133.4	0	1.15		50	57.5	0
		FINAL				0	0				0	0
		INT FINAL	12.45	1		0	0	14.04	0.6	66	926.64	39.6
		1950 INT	1.15			0	0	1.15			0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	12.93	2.24		0	0
	83	1960 INT	1.18	2.8	83	97.94	232.4	2.5		83	207.5	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1.2		0	0
	37	1970 INT	1.67	2.64	37	61.79	97.68	2.95	2.4	37	109.15	88.8
		FINAL				0	0				0	0
	63	1980 INT	0.26	2	63	16.38	126	2.02	2	63	127.26	126
		FINAL				0	0				0	0
	12	1990 INT		2	12	0	24	0.26	2	12	3.12	24
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
species												
Loblolly	12	1920 FINAL										
	15	1930 INT	1.16	1		0	0	1.51	0.5		0	0
		FINAL	12.97	2.8		0	0				0	0
		INT FINAL				0	0	12.17	2.86		0	0
	12	1940 INT	1.78	1		0	0	1.68			0	0
		FINAL	15.57	2		0	0				0	0
		INT FINAL	11.3	4.48		0	0	12.07	3.48		0	0
	138	1950 INT	1.96	1	138	270.48	138	1.75			0	0
		FINAL				0	0				0	0
		INT FINAL	10.84	5.2		0	0	11.86	4.08	138	1636.68	563.04
		1960 INT	2.05	1.44		0	0	2.02	0.5		0	0
		FINAL				0	0				0	0
		INT FINAL	9.62	5.88		0	0	11.14	4.56		0	0
	37	1970 INT	2.24	1.6	37	82.88	59.2	2.16		37	79.92	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.26	4.96		0	0
	36	1980 INT	1.2	3.76	36	43.2	135.36	1.81	1.84	36	65.16	66.24
		FINAL				0	0				0	0
	11	1990 INT		2	11	0	22	1.2	3.76	11	13.2	41.36
	27	2000 INT		2	27	0	54	1.2	3.76	27	32.4	101.52
		2010 INT				0	0		2	12	0	24
species												
Slash	136	1920 FINAL				0	0				0	0
	1032	1930 FINAL	6.06	8.7		0	0				0	0
	122	1940 INT				0	0				0	0
		FINAL	13.4	6.2		0	0				0	0
		INT FINAL	13.21	3	119	1571.99	357	14.31	4		0	0
	23	1950 INT				0	0				0	0
		FINAL	6.47	10.6		0	0				0	0
		INT FINAL	6.13	9.15		0	0	7.42	10.05	23	170.66	231.15
	32	1960 INT				0	0				0	0
		FINAL	5.99	8.14		0	0				0	0
		INT FINAL	6.38	9.15		0	0	8.13	10.2	32	260.16	326.4
	17	1970 INT				0	0				0	0
		FINAL	6.64	7.38		0	0				0	0
		INT FINAL	4.38	9.5		0	0	6.04	8.45		0	0
	123	1980 INT	0.3	2.56	123	36.9	314.88				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	124	1990 INT		3.04	124	0	376.96	0.3	2.56	124	37.2	317.44
		2000 INT		3.04	561	0	1705.44	0.3	2.56	561	168.3	1436.16
		2010 INT				0	0		3.04	607	0	1845.28
species												
Shortleaf	10	1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08	10	154.8	60.8	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
		1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.08	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	126	1950 INT	1.62	2	126	204.12	252	1.66	1	126	209.16	126
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						8989	4327.72				8308.21	5499.99
TOTAL MBF							12321.34					12543.2
TOTAL VALUE						1895042					1776345	
GRAND TOTAL MBF											42379.89	
GRAND TOTAL VALUE											5635381	

CORRIDORS, ALTERNATIVE 3A MANEUVER

species	EAC ACRES	EAC	TYPE	PERIOD 1 (1990) MEF	CCF	ACRES	MEF TOTAL	CCF TOTAL	PERIOD 2 (2000) MEF	CCF	ACRES	MEF TOTAL	CCF TOTAL
Longleaf	17	1920	INT	0.3	0.5	12	3.6	6	0.36	1		0	0
			FINAL	8.79	1	5	43.95	5	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5		0	0
	291	1930	INT	0.5	1	136	68	136	1.21	1.5		0	0
			FINAL	8.14	2.32	155	1261.7	359.6	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1		0	0
	3	1940	INT	0.5	2		0	0	1.89	2.04		0	0
			FINAL	7.8	3.32	3	23.4	9.96	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
	111	1950	INT	0.3	2	111	33.3	222	0.58	2.32		0	0
			FINAL	2.49	5.48		0	0	7.2	4.6		0	0
			INT FINAL				0	0				0	0
	84	1960	INT		1.92		0	0	0.5	5.6		0	0
			FINAL	0.9	9.75	84	75.6	819				0	0
			INT FINAL				0	0				0	0
	36	1970	INT		3.2		0	0	0.38	2		0	0
			FINAL		5.84	36	0	210.24				0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
	30	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly		1910	FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920	INT				0	0	0.89	1.5		0	0
			FINAL	9.02	3.84		0	0	10.96	3.68		0	0
			INT FINAL				0	0				0	0
	101	1930	INT	0.3	1	38	11.4	38				0	0
			FINAL	7.85	2.8	63	494.55	176.4	10.54	2.32		0	0
			INT FINAL				0	0				0	0
	34	1940	INT				0	0	1.93	2		0	0
			FINAL	6.83	6.72	34	232.22	228.48	10.35	5.84		0	0
			INT FINAL				0	0				0	0
	58	1950	INT	0.4	1	1	0.4	1				0	0
			FINAL	4.84	4.44	57	275.88	253.08	8.22	3.64		0	0
			INT FINAL				0	0				0	0
		1960	INT	0.2	1		0	0	1.25	1.84		0	0
			FINAL	2.38	10.04		0	0	6.99	10.32		0	0
			INT FINAL				0	0				0	0
		1970	INT		2.64		0	0	0.8	2.56		0	0
			FINAL		12.16		0	0				0	0
			INT FINAL				0	0				0	0
	10	1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash		1920	FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930	INT				0	0				0	0
			FINAL	9.14	2		0	0	10.18	2.2		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0	0.5	1.2		0	0
			FINAL	5.55	5.84		0	0	6.44	6.8		0	0
			INT FINAL				0	0				0	0
		1950	INT				0	0	0.34	2.48		0	0
			FINAL	2.13	6.48		0	0	4.02	7.56		0	0
			INT FINAL				0	0				0	0
		1960	INT		1.52		0	0	0.26	1.6		0	0
			FINAL	2.64	6.96		0	0	5.69	8.16		0	0
			INT FINAL				0	0	5.87	6.4		0	0
		1970	INT		1.84		0	0		2.4		0	0
			FINAL		10.24		0	0				0	0
			INT FINAL				0	0	3.78	7.04		0	0
		1980	INT				0	0		3.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
	19	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf		1920	INT				0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
	146	1930	INT	0.3	2	46	13.8	92	1.03	2.4		0	0
			FINAL	10	4.88	100	1000	488	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
		1950	INT				0	0	1.15	2		0	0
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
	30	1980	INT										
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							3537.8	3044.76				0	0
TOTAL MEF								5882					0
TOTAL VALUE							768033.5					0	
GRAND TOTAL MEF													
GRAND TOTAL VALUE													

CORRIDORS, ALTERNATIVE 3A MANEUVER

species	EAC ACRES	EAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	17	1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	291	1930	INT	2.59	1		0	0	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	3	1940	INT	2.54	1		0	0	2.59			0	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
	111	1950	INT	2.5	2.28		0	0	2.54	0.96		0	0
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	84	1960	INT	1.18	3.36		0	0	2.5	1		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
	36	1970	INT	1.57	2.8		0	0	2.83	2.56		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
		1980	INT	0.26	2		0	0	2.02	2		0	0
			FINAL				0	0				0	0
	30	1990	INT		2		0	0	0.26	2		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
species													
Loblolly		1910	FINAL	12.03	2.04		0	0				0	0
		1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	101	1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.18	3.36		0	0
	34	1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	58	1950	INT	2.09	2		0	0	1.79	1		0	0
			FINAL	11.78	2.44		0	0				0	0
			INT FINAL				0	0	11.42	3.6		0	0
		1960	INT	2.04	1.44		0	0	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970	INT	2.18	2.24		0	0	2.16	1.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
	10	1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2		0	0	1.2	3.76		0	0
		2010	INT				0	0		2		0	0
species													
Slash		1920	FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
		1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960	INT	0.35	1.76		0	0	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
		1970	INT	0.5	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
	19	1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04		0	0	0.3	2.56		0	0
		2010	INT				0	0		3.04		0	0
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
	146	1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
	30	1980	INT										
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							0	0				0	0
TOTAL MBF								0					0
TOTAL VALUE							0					0	
GRAND TOTAL MBF												5882.265	
GRAND TOTAL VALUE												768033.5	

CORRIDORS, ALTERNATIVE 3A REGULAR

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	17	1920 INT	0.3	0.5		0	0	0.36	1		0	0
		FINAL	8.79	1	17	149.43	17	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
	291	1930 INT	0.5	1	291	145.5	291	1.21	1.5	150	181.5	225
		FINAL	8.14	2.32		0	0	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1	141	1635.6	141
	3	1940 INT	0.5	2	3	1.5	6	1.89	2.04	3	5.67	6.12
		FINAL	7.8	3.32		0	0	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	111	1950 INT				0	0	0.58	2.32	111	64.38	257.52
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	84	1960 INT		1.92	84	0	161.28	0.5	5.6	84	42	470.4
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
	36	1970 INT		3.2	36	0	115.2	0.38	2	36	13.68	72
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
		1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
	30	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
	101	1930 INT				0	0				0	0
		FINAL	7.85	2.8	101	792.85	282.8	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	34	1940 INT				0	0	1.93	2		0	0
		FINAL	6.83	6.72		0	0	10.35	5.84	34	351.9	198.56
		INT FINAL				0	0				0	0
	58	1950 INT				0	0				0	0
		FINAL	4.84	4.44		0	0	8.22	3.64		0	0
		INT FINAL				0	0				0	0
		1960 INT	0.2	1		0	0	1.25	1.84		0	0
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	10	1980 INT				0	0		2	10	0	20
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash		1920 FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930 INT				0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.52		0	0	0.26	1.6		0	0
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
		1970 INT		1.84		0	0		2.4		0	0
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.76	7.04		0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	19	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	146	1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88	46	460	224.48	13.07	5.52	100	1307	552
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
	30	1980 INT				0	0		2	30	0	60
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						1549.28	1097.76				3601.73	2002.8
TOTAL MBF							2395					5144
TOTAL VALUE						332439.4					763754	
GRAND TOTAL MBF												
GRAND TOTAL VALUE												

CORRIDORS, ALTERNATIVE 3A REGULAR

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	17	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	291	1930 INT	2.59	1		0	0	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5	150	2106	75	14.7	0.5		0	0
	3	1940 INT	2.54	1		0	0	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24	3	38.79	6.72	14.04	1.04		0	0
	111	1950 INT	2.5	2.28	111	277.5	253.08	2.54	0.96		0	0
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24	111	1435.23	248.64
	84	1960 INT	1.18	3.36	84	99.12	282.24	2.5	1	84	210	84
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	36	1970 INT	1.57	2.8	36	56.52	100.8	2.83	2.56	36	101.88	92.16
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
		1980 INT	0.28	2		0	0	2.02	2		0	0
		FINAL				0	0				0	0
	30	1990 INT		2	30	0	60	0.26	2	30	7.8	60
		2000 INT		2	17	0	34	0.26	2	17	4.42	34
		2010 INT				0	0		2	141	0	282
species												
Loblolly		1910 FINAL	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	101	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	34	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	58	1950 INT	2.09	2	58	121.22	116	1.79	1		0	0
		FINAL	11.78	2.44		0	0				0	0
		INT FINAL				0	0	11.42	3.6	58	662.36	208.8
		1960 INT	2.04	1.44		0	0	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970 INT	2.18	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	10	1980 INT	1.2	3.76	10	12	37.6	1.81	1.84	10	18.1	18.4
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2	101	0	202	1.2	3.76	101	121.2	379.76
		2010 INT				0	0		2	34	0	68
species												
Slash		1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
		1970 INT	0.5	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	19	1990 INT		3.04	19	0	57.76	0.3	2.56	19	5.7	48.64
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	0
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
	146	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	5.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
		1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
	30	1980 INT	0.4	2	30	12	60	1.81	1.84	30	54.3	55.2
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						2723.15	1285.2				2620.99	1579.6
TOTAL MBF							3713					3837
TOTAL VALUE						573661					557810.2	
GRAND TOTAL MBF											15088.32	
GRAND TOTAL VALUE											2227665	

CORRIDORS, ALTERNATIVE 3B MANEUVER

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	85	1920 INT	0.3	0.5	41	12.3	20.5	0.36	1		0	0
		FINAL	8.79	1	44	386.76	44	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
	351	1930 INT	0.5	1	193	96.5	193	1.21	1.5		0	0
		FINAL	8.14	2.32	158	1286.12	366.56	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	16	1940 INT	0.5	2	13	6.5	26	1.89	2.04		0	0
		FINAL	7.8	3.32	3	23.4	9.96	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	120	1950 INT	0.3	2	112	33.6	224	0.58	2.32		0	0
		FINAL	2.49	5.48	8	19.92	43.84	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	84	1960 INT		1.92		0	0	0.5	5.6		0	0
		FINAL	0.9	9.75	84	75.6	819				0	0
		INT FINAL				0	0				0	0
	36	1970 INT		3.2		0	0	0.38	2		0	0
		FINAL		5.84	36	0	210.24				0	0
		INT FINAL				0	0				0	0
		1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
	96	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
	141	1930 INT	0.3	1	38	11.4	38				0	0
		FINAL	7.85	2.8	103	808.55	288.4	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	248	1940 INT	0.4	1	16	6.4	16	1.93	2		0	0
		FINAL	6.83	6.72	232	1584.56	1559.04	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	79	1950 INT	0.4	1	11	4.4	11				0	0
		FINAL	4.84	4.44	68	329.12	301.92	8.22	3.64		0	0
		INT FINAL				0	0				0	0
	28	1960 INT	0.2	1		0	0	1.25	1.84		0	0
		FINAL	2.38	10.04	28	66.64	281.12	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	25	1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash	1	1920 FINAL	9.44	4	1	9.44	4	10.27	4.2		0	0
		1930 INT				0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8		0	0
		INT FINAL				0	0				0	0
	21	1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48	21	44.73	136.08	4.02	7.56		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.52		0	0	0.26	1.6		0	0
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
	119	1970 INT		1.84	82	0	150.88		2.4		0	0
		FINAL		10.24	37	0	378.88				0	0
		INT FINAL				0	0	3.78	7.04		0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	19	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	146	1930 INT	0.3	2	46	13.8	92	1.03	2.4		0	0
		FINAL	10	4.98	100	1000	498	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
	30	1980 INT										
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						5819.74	5702.42				0	0
TOTAL MBF							10211					0
TOTAL VALUE						1274909					0	
GRAND TOTAL MBF												
GRAND TOTAL VALUE												

CORRIDORS, ALTERNATIVE 3B MANEUVER

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	85	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	351	1930 INT	2.59	1		0	0	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	16	1940 INT	2.54	1		0	0	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
	120	1950 INT	2.5	2.28		0	0	2.54	0.96		0	0
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	84	1960 INT	1.18	3.36		0	0	2.5	1		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	36	1970 INT	1.57	2.8		0	0	2.83	2.56		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
		1980 INT	0.26	2		0	0	2.02	2		0	0
		FINAL				0	0				0	0
	96	1990 INT		2		0	0	0.26	2		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
species												
Loblolly		1910 FINAL	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	141	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.16	3.36		0	0
	248	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	79	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.78	2.44		0	0				0	0
		INT FINAL				0	0	11.42	3.6		0	0
	28	1960 INT	2.04	1.44		0	0	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970 INT	2.18	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	25	1980 INT	1.2	3.76		0	0	1.81	1.84		0	0
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2		0	0	1.2	3.76		0	0
		2010 INT				0	0		2		0	0
species												
Slash	1	1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
	21	1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	119	1970 INT	0.5	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	19	1990 INT		3.04		0	0	0.3	2.56		0	0
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	0
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.46	6.08		0	0	16.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
	146	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
		1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
	30	1980 INT										
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						0	0				0	0
TOTAL MBF							0					0
TOTAL VALUE						0					0	
GRAND TOTAL MBF											10210.6	
GRAND TOTAL VALUE											1274909	

CORRIDORS, ALTERNATIVE 3B REGULAR

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	85	1920 INT	0.3	0.5		0	0	0.36	1		0	0
		FINAL	8.79	1	85	747.15	85	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
	351	1930 INT	0.5	1	351	175.5	351	1.21	1.5	351	424.71	526.5
		FINAL	8.14	2.32		0	0	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	16	1940 INT	0.5	2	16	8	32	1.89	2.04	16	30.24	32.64
		FINAL	7.8	3.32		0	0	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	120	1950 INT				0	0	0.58	2.32	120	69.6	278.4
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	84	1960 INT		1.92	84	0	161.28	0.5	5.6	84	42	470.4
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
	36	1970 INT		3.2	36	0	115.2	0.38	2	36	13.68	72
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
		1980 INT				0	0		2		0	0
		FINAL				0	0				0	0
	96	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
	141	1930 INT				0	0				0	0
		FINAL	7.85	2.8	141	1106.85	394.8	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	248	1940 INT				0	0	1.93	2		0	0
		FINAL	6.83	6.72		0	0	10.35	5.84	248	2566.8	1448.32
		INT FINAL				0	0				0	0
	79	1950 INT				0	0				0	0
		FINAL	4.84	4.44		0	0	8.22	3.64		0	0
		INT FINAL				0	0				0	0
	28	1960 INT	0.2	1	28	5.6	28	1.25	1.84	28	35	51.52
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	25	1980 INT				0	0		2	25	0	50
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash	1	1920 FINAL	9.44	4	1	9.44	4	10.27	4.2		0	0
		1930 INT				0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8		0	0
		INT FINAL				0	0				0	0
	21	1950 INT				0	0	0.34	2.48	21	7.14	52.08
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.52		0	0	0.26	1.6		0	0
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
	119	1970 INT		1.84	119	0	218.96		2.4	119	0	285.6
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.78	7.04		0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	19	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	146	1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88	20	200	97.6	13.07	5.52	126	1646.82	695.52
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
	30	1980 INT				0	0		2	30	0	60
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						2252.54	1487.84				4835.99	4022.98
TOTAL MBF							3398					7934
TOTAL VALUE						481551.5					1047561	

GRAND TOTAL MBF
GRAND TOTAL VALUE

CORRIDORS, ALTERNATIVE 3B REGULAR

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	85	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	351	1930 INT	2.59	1	111	287.49	111	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5	240	3369.6	120	14.7	0.5	111	1631.7	55.5
	16	1940 INT	2.54	1	16	40.64	16	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04	16	224.64	16.64
	120	1950 INT	2.5	2.28	120	300	273.6	2.54	0.96	120	304.8	115.2
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	84	1960 INT	1.18	3.36	84	99.12	282.24	2.5	1	84	210	84
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	36	1970 INT	1.57	2.8	36	56.52	100.8	2.83	2.56	36	101.88	92.16
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
		1980 INT	0.26	2		0	0	2.02	2		0	0
		FINAL				0	0				0	0
	96	1990 INT		2	96	0	192	0.26	2	96	24.96	192
		2000 INT		2	85	0	170	0.26	2	85	22.1	170
		2010 INT				0	0		2		0	0
species												
Loblolly		1910 FINAL	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	141	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	248	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	79	1950 INT	2.09	2	79	165.11	158	1.79	1		0	0
		FINAL	11.78	2.44		0	0				0	0
		INT FINAL				0	0	11.42	3.6	79	902.18	284.4
	28	1960 INT	2.04	1.44	28	57.12	40.32	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96	28	311.64	110.88
		1970 INT	2.18	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	25	1980 INT	1.2	3.76	25	30	94	1.81	1.84	25	45.25	46
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2	141	0	282	1.2	3.76	141	169.2	530.16
		2010 INT				0	0		2	248	0	496
species												
Slash	1	1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
	21	1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08	21	124.74	169.68
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	119	1970 INT	0.5	2.56	119	59.5	304.64				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	19	1990 INT		3.04	19	0	57.76	0.3	2.56	19	5.7	48.64
		2000 INT		3.04	1	0	3.04	0.3	2.56	1	0.3	2.56
		2010 INT				0	0		3.04		0	0
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
	146	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
		1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
	30	1980 INT	0.4	2	30	12	60	1.81	1.84	30	54.3	55.2
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						4477.1	2265.4				4133.39	2469.02
TOTAL MBF							6221					6035
TOTAL VALUE						945672.1					879320.4	
GRAND TOTAL MBF											23587.85	
GRAND TOTAL VALUE											3354105	

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Primary and Alternate Multipurpose Range Complex-Heavy (MPRC-H)

PRIMARY MPRC-H DEVELOPED

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	18	1920 INT	0.3	0.5		0	0	0.36	1		0	0
		FINAL	8.79	1	16	140.64	16	12.11	1		0	0
		INT FINAL				0	0	11.6	0.5		0	0
	0	1930 INT	0.5	1		0	0	1.21	1.5		0	0
		FINAL	8.14	2.32		0	0	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	2	1940 INT	0.5	2		0	0	1.89	2.04		0	0
		FINAL	7.8	3.32	2	15.6	6.64	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	0	1950 INT				0	0	0.58	2.32		0	0
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	454	1960 INT		1.92		0	0	0.5	5.6		0	0
		FINAL	0.9	9.75	94	84.6	916.5				0	0
		INT FINAL				0	0				0	0
	433	1970 INT		3.2		0	0	0.38	2		0	0
		FINAL		5.84	344	0	2008.96				0	0
		INT FINAL				0	0				0	0
	50	1980 INT				0	0		2		0	0
		FINAL			23	0	0				0	0
	*317	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
		1930 INT				0	0				0	0
		FINAL	7.85	2.8		0	0	10.64	2.32		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0	1.93	2		0	0
		FINAL	6.83	6.72		0	0	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	1	1950 INT				0	0				0	0
		FINAL	4.84	4.44		0	0	8.22	3.64		0	0
		INT FINAL				0	0				0	0
		1960 INT	0.2	1		0	0	1.25	1.84		0	0
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	29	1980 INT				0	0		2		0	0
		FINAL			26	0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash		1920 FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930 INT				0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
	12	1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84	11	61.05	64.24	8.44	6.8		0	0
		INT FINAL				0	0				0	0
	2	1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48	1	2.13	6.48	4.02	7.56		0	0
		INT FINAL				0	0				0	0
	122	1960 INT		1.52		0	0	0.26	1.6		0	0
		FINAL	2.64	6.96	80	211.2	556.8	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
	308	1970 INT		1.84		0	0		2.4		0	0
		FINAL		10.24	113	0	1157.12				0	0
		INT FINAL				0	0	3.78	7.04		0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
		1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.56	4.4		0	0
		INT FINAL				0	0				0	0
		1980 INT				0	0		2		0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						515.22	4732.74				0	0
TOTAL MBF							4159					0
TOTAL VALUE						182839.2					0	
GRAND TOTAL MBF												
GRAND TOTAL VALUE												

*OPEN LAND

PRIMARY MPRC-H DEVELOPED

species	BAC ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	18	1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	0	1930	INT	2.59	1		0	0	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	2	1940	INT	2.54	1		0	0	2.59			0	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
	0	1950	INT	2.5	2.28		0	0	2.54	0.96		0	0
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	454	1960	INT	1.16	3.36		0	0	2.5	1		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
	433	1970	INT	1.57	2.8		0	0	2.83	2.56		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
	50	1980	INT	0.26	2		0	0	2.02	2		0	0
			FINAL				0	0				0	0
	*317	1990	INT		2		0	0	0.26	2		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
species													
Loblolly		1910	FINAL	12.03	2.04		0	0				0	0
		1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
		1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.16	3.36		0	0
		1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	1	1950	INT	2.09	2		0	0	1.79	1		0	0
			FINAL	11.78	2.44		0	0				0	0
			INT FINAL				0	0	11.42	3.6		0	0
		1960	INT	2.04	1.44		0	0	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970	INT	2.16	2.24		0	0	2.16	1.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
	29	1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2		0	0	1.2	3.76		0	0
		2010	INT				0	0		2		0	0
species													
Slash		1920	FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
	12	1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
	2	1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
	122	1960	INT	0.35	1.76		0	0	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	308	1970	INT	0.5	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
		1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04		0	0	0.3	2.56		0	0
		2010	INT				0	0		3.04		0	0
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.46	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
		1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							0	0				0	0
TOTAL MBF								0					0
TOTAL VALUE							0					0	
GRAND TOTAL MBF												4159.43	
GRAND TOTAL VALUE												182839.2	

*OPEN LAND

PRIMARY MPRC-H REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	18	1920 INT	0.3	0.5		0	0	0.36	1		0	0
		FINAL	8.79	1	18	158.22	18	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
		1930 INT	0.5	1		0	0	1.21	1.5		0	0
		FINAL	8.14	2.32		0	0	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	2	1940 INT	0.5	2		0	0	1.89	2.04		0	0
		FINAL	7.8	3.32	2	15.6	6.64	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
		1950 INT				0	0	0.58	2.32		0	0
		FINAL	2.49	5.48		0	0	7.2	4.8		0	0
		INT FINAL				0	0				0	0
	454	1960 INT		1.92	454	0	871.68	0.5	5.6	454	227	2542.4
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
	433	1970 INT		3.2	433	0	1385.6	0.38	2	433	164.54	866
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
	50	1980 INT				0	0		2	50	0	100
		FINAL				0	0				0	0
	*317	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920 INT				0	0	0.69	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
		1930 INT				0	0				0	0
		FINAL	7.85	2.8		0	0	10.54	2.32		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0	1.93	2		0	0
		FINAL	6.83	6.72		0	0	10.36	5.84		0	0
		INT FINAL				0	0				0	0
	1	1950 INT				0	0				0	0
		FINAL	4.84	4.44	1	4.84	4.44	8.22	3.64		0	0
		INT FINAL				0	0				0	0
		1960 INT	0.2	1		0	0	1.25	1.84		0	0
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	29	1980 INT				0	0		2	29	0	58
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash		1920 FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930 INT				0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
	12	1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84	12	66.6	70.08	6.44	6.8		0	0
		INT FINAL				0	0				0	0
	2	1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48	2	4.26	12.96	4.02	7.56		0	0
		INT FINAL				0	0				0	0
	122	1960 INT		1.52	122	0	185.44	0.26	1.6		0	0
		FINAL	2.64	6.96		0	0	5.69	6.16		0	0
		INT FINAL				0	0	5.87	6.4	122	716.14	780.8
	308	1970 INT		1.84	308	0	566.72		2.4	200	0	480
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.78	7.04	108	408.24	760.32
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
		1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.68		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		1980 INT				0	0		2		0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						249.52	3121.56				1515.92	5587.52
TOTAL MBF							2653					5818
TOTAL VALUE						102277					399977.8	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*OPEN LAND

PRIMARY MPRC-H REGULAR MANAGEMENT

species	SAC ACRES	SAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	18	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
		1930 INT	2.59	1		0	0	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	2	1940 INT	2.54	1		0	0	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
		1950 INT	2.5	2.26		0	0	2.54	0.96		0	0
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	454	1960 INT	1.18	3.36	454	535.72	1525.44	2.5	1	150	375	150
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1	304	3426.08	304
	433	1970 INT	1.57	2.8	433	679.81	1212.4	2.83	2.56	433	1225.39	1108.48
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
	50	1980 INT	0.26	2	50	13	100	2.02	2	50	101	100
		FINAL				0	0				0	0
	*317	1990 INT		2	317	0	634	0.26	2	317	82.42	634
		2000 INT		2	20	0	40	0.26	2	20	5.2	40
		2010 INT				0	0		2		0	0
species												
Loblolly		1910 FINAL	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
		1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.16	3.36		0	0
		1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	1	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.76	2.44		0	0				0	0
		INT FINAL				0	0	11.42	3.6		0	0
		1960 INT	2.04	1.44		0	0	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970 INT	2.16	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	29	1980 INT	1.2	3.76	29	34.8	109.04	1.81	1.84		0	0
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76	29	34.8	109.04
		2000 INT		2	1	0	2	1.2	3.76	1	1.2	3.76
		2010 INT				0	0		2		0	0
species												
Slash		1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
	12	1940 INT				0	0				0	0
		FINAL	7.2	7.8		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
	2	1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
	122	1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	308	1970 INT	0.5	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2	200	1466	2240	7.38	8.64		0	0
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
		1990 INT		3.04		0	0	0.3	2.56		0	0
		2000 INT		3.04	14	0	42.56	0.3	2.56	14	4.2	35.84
		2010 INT				0	0		3.04	230	0	699.2
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
		1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	16.1	3.92		0	0
		1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		1980 INT	1.2	3.76		0	0	1.81	1.84		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						2729.33	5905.44				5255.29	3184.32
TOTAL MBF							7277					7707
TOTAL VALUE						651379.6					1118736	
GRAND TOTAL MBF											23455.17	
GRAND TOTAL VALUE											2272370	

*OPEN LAND

ALTERNATE MPRC-H DEVELOPED

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	44	1920 INT	0.3	0.5		0	0	0.36	1		0	0
		FINAL	8.79	1	44	386.76	44	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
	375	1930 INT	0.5	1		0	0	1.21	1.5		0	0
		FINAL	8.14	2.32	375	3052.5	870	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
		1940 INT	0.5	2		0	0	1.89	2.04		0	0
		FINAL	7.8	3.32		0	0	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
		1950 INT				0	0	0.58	2.32		0	0
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.92		0	0	0.5	5.6		0	0
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
		1970 INT		3.2		0	0	0.38	2		0	0
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
	56	1980 INT			56	0	0		2		0	0
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		FINAL				0	0				0	0
species												
Slash		1920 FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930 INT				0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.52		0	0	0.26	1.8		0	0
		FINAL	2.64	6.96		0	0	5.69	6.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
		1970 INT		1.64		0	0		2.4		0	0
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.78	7.04		0	0
	19	1980 INT				0	0		3.04		0	0
		FINAL			19	0	0				0	0
		INT FINAL				0	0				0	0
		1990 INT				0	0				0	0
		FINAL										
species												
Loblolly	250	1910 FINAL	9.4	2.2	250	2350	550	10.08	2.12		0	0
	62	1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84	62	559.24	238.08	10.96	3.88		0	0
		INT FINAL				0	0				0	0
	43	1930 INT				0	0				0	0
		FINAL	7.85	2.8	43	337.55	120.4	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	119	1940 INT				0	0	1.93	2		0	0
		FINAL	6.83	6.72	119	812.77	799.68	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	24	1950 INT				0	0				0	0
		FINAL	4.84	4.44	24	116.16	106.56	8.22	3.64		0	0
		INT FINAL				0	0				0	0
		1960 INT	0.2	1		0	0	1.25	1.84		0	0
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
	26	1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16	26	0	316.16				0	0
		INT FINAL				0	0				0	0
	34	1980 INT				0	0		2		0	0
		FINAL			34	0	0				0	0
		1990 INT				0	0				0	0
		FINAL				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
		1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
	18	1940 INT				0	0				0	0
		FINAL	6.91	5.12	18	124.38	92.16	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
TOTAL						7739.36	3137.04				0	0
TOTAL MBF							10154.88					0.00
TOTAL VALUE						1621847					0	
GRAND TOTAL MBF												
GRAND TOTAL VALUE												

ALTERNATE MPRC-H DEVELOPED

species	BAC ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	44	1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	375	1930	INT	2.59	1		0	0	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
		1940	INT	2.54	1		0	0	2.59			0	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
		1950	INT	2.5	2.28		0	0	2.54	0.96		0	0
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
		1960	INT	1.18	3.36		0	0	2.5	1		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
		1970	INT	1.57	2.8		0	0	2.83	2.56		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
	56	1980	INT	0.26	2		0	0	2.02	2		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	0.26	2		0	0
			FINAL				0	0				0	0
species													
Slash		1920	FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
		1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	8.91	6.4		0	0	8.01	7.72		0	0
		1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960	INT	0.35	1.76		0	0	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
		1970	INT	0.5	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
	19	1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
		1990	INT		3.04		0	0	0.3	2.56		0	0
			FINAL										
species													
Loblolly	250	1910	FINAL	12.03	2.04		0	0				0	0
	62	1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	43	1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.18	3.36		0	0
	119	1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	24	1950	INT	2.09	2		0	0	1.79	1		0	0
			FINAL	11.78	2.44		0	0				0	0
			INT FINAL				0	0	11.42	3.6		0	0
		1960	INT	2.04	1.44		0	0	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
	26	1970	INT	2.18	2.24		0	0	2.16	1.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
	34	1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	1.2	3.76		0	0
			FINAL				0	0				0	0
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
		1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
	18	1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
TOTAL							0	0				0	0
TOTAL MBF								0.00					0.00
TOTAL VALUE							0					0	
GRAND TOTAL MBF												10154.86	
GRAND TOTAL VALUE												1621847	

ALTERNATE MPRC-H
REGULAR MANAGEMENT

species	BAC ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	44	1920	INT	0.3	0.5	44	13.2	22	0.36	1		0	0
			FINAL	8.79	1		0	0	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5	44	519.2	22
	375	1930	INT	0.5	1	375	187.5	375	1.21	1.5	375	453.75	562.5
			FINAL	8.14	2.32		0	0	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1		0	0
		1940	INT	0.5	2		0	0	1.89	2.04		0	0
			FINAL	7.8	3.32		0	0	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
		1950	INT				0	0	0.58	2.32		0	0
			FINAL	2.49	5.48		0	0	7.2	4.6		0	0
			INT FINAL				0	0				0	0
		1960	INT		1.92		0	0	0.5	5.8		0	0
			FINAL	0.9	9.75		0	0				0	0
			INT FINAL				0	0				0	0
		1970	INT		3.2		0	0	0.38	2		0	0
			FINAL		5.84		0	0				0	0
			INT FINAL				0	0				0	0
	56	1980	INT				0	0		2	56	0	112
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
			FINAL				0	0				0	0
species													
Slash		1920	FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930	INT				0	0				0	0
			FINAL	9.14	2		0	0	10.18	2.2		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0	0.5	1.2		0	0
			FINAL	5.55	5.84		0	0	6.44	6.8		0	0
			INT FINAL				0	0				0	0
		1950	INT				0	0	0.34	2.48		0	0
			FINAL	2.13	6.48		0	0	4.02	7.56		0	0
			INT FINAL				0	0				0	0
		1960	INT		1.52		0	0	0.26	1.6		0	0
			FINAL	2.64	6.96		0	0	5.69	8.16		0	0
			INT FINAL				0	0	5.87	6.4		0	0
		1970	INT		1.84		0	0		2.4		0	0
			FINAL		10.24		0	0				0	0
			INT FINAL				0	0	3.78	7.04		0	0
	19	1980	INT			19	0	0		3.04	19	0	57.76
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
		1990	INT				0	0				0	0
			FINAL										
species													
Loblolly	250	1910	FINAL	9.4	2.2	150	1410	330	10.08	2.12	100	1008	212
	62	1920	INT				0	0	0.89	1.5		0	0
			FINAL	9.02	3.84	62	559.24	238.08	10.96	3.68		0	0
			INT FINAL				0	0				0	0
	43	1930	INT				0	0				0	0
			FINAL	7.85	2.8	43	337.55	120.4	10.54	2.32		0	0
			INT FINAL				0	0				0	0
	119	1940	INT				0	0	1.93	2		0	0
			FINAL	6.83	6.72		0	0	10.35	5.84	119	1231.65	694.96
			INT FINAL				0	0				0	0
	24	1950	INT				0	0				0	0
			FINAL	4.84	4.44		0	0	6.22	3.64		0	0
			INT FINAL				0	0				0	0
		1960	INT	0.2	1		0	0	1.25	1.84		0	0
			FINAL	2.38	10.04		0	0	6.99	10.32		0	0
			INT FINAL				0	0				0	0
	26	1970	INT		2.64	26	0	68.64	0.8	2.56	26	20.8	66.56
			FINAL		12.16		0	0				0	0
			INT FINAL				0	0				0	0
	34	1980	INT				0	0		2	34	0	68
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
			FINAL				0	0				0	0
species													
Shortleaf		1920	INT				0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
		1930	INT				0	0	1.03	2.4		0	0
			FINAL	10	4.68		0	0	13.07	5.52		0	0
			INT FINAL				0	0				0	0
	18	1940	INT				0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
		1950	INT				0	0	1.15	2		0	0
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
TOTAL							2507.49	1154.12				3233.4	1795.76
TOTAL MBF								3396.16					4616.15
TOTAL VALUE							527745					685615.3	

GRAND TOTAL MBF
GRAND TOTAL VALUE

ALTERNATE MPRC-H
REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	44	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	375	1930 INT	2.59	1	175	453.25	175	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5	200	2808	100	14.7	0.5	175	2572.5	87.5
		1940 INT	2.54	1		0	0	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
		1950 INT	2.5	2.28		0	0	2.54	0.96		0	0
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
		1960 INT	1.18	3.36		0	0	2.5	1		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
		1970 INT	1.57	2.8		0	0	2.83	2.56		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
	56	1980 INT	0.26	2	56	14.56	112	2.02	2	56	113.12	112
		FINAL				0	0				0	0
		1990 INT		2		0	0	0.26	2		0	0
		FINAL				0	0				0	0
species												
Slash		1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	6.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
		1970 INT	0.5	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
	19	1980 INT	0.3	2.56	19	5.7	48.64				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
		1990 INT		3.04		0	0	0.3	2.56		0	0
		FINAL										
species												
Loblolly	250	1910 FINAL	12.03	2.04		0	0				0	0
	62	1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	43	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	119	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	24	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.78	2.44	24	282.72	58.56				0	0
		INT FINAL				0	0	11.42	3.6		0	0
		1960 INT	2.04	1.44		0	0	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
	26	1970 INT	2.18	2.24	26	56.68	58.24	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92	26	272.48	153.92
	34	1980 INT	1.2	3.76	34	40.8	127.84	1.81	1.64	34	61.54	62.56
		FINAL				0	0				0	0
		1990 INT		2	255	0	510	1.2	3.76	255	306	958.8
		FINAL				0	0				0	0
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
		1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
	18	1940 INT	2.06	2	18	37.08	36	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92	18	271.8	70.56
		1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
TOTAL												
TOTAL MBF						3698.79	1226.28				3597.44	1445.34
TOTAL VALUE							4643.03					4710.35
						770594.5					753661.1	
GRAND TOTAL MBF											17365.69	
GRAND TOTAL VALUE											2737616	

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Returned Tank Areas

TURNBACK ALTERNATIVE 1

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	1350	1920 INT	0.3	0.5	1350	405	675	0.36	1	350	126	350
		FINAL	8.79	1		0	0	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5	1000	11800	500
	843	1930 INT	0.5	1	843	421.5	843	1.21	1.5	843	1020.03	1264.5
		FINAL	8.14	2.32		0	0	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	362	1940 INT	0.5	2	362	181	724	1.89	2.04	362	684.18	738.48
		FINAL	7.8	3.32		0	0	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	79	1950 INT				0	0	0.58	2.32	79	45.82	183.28
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	682	1960 INT		1.92	682	0	1309.44	0.5	5.6	682	341	3819.2
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
	388	1970 INT		3.2	388	0	1241.6	0.38	2	388	147.44	776
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
	98	1980 INT				0	0		2	98	0	196
		FINAL				0	0				0	0
	*743	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
	16	1930 INT				0	0				0	0
		FINAL	7.85	2.8	16	125.6	44.8	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	391	1940 INT				0	0	1.93	2	391	754.63	782
		FINAL	6.83	6.72		0	0	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	366	1950 INT				0	0				0	0
		FINAL	4.84	4.44		0	0	8.22	3.64		0	0
		INT FINAL				0	0				0	0
	35	1960 INT	0.2	1	35	7	35	1.25	1.84	35	43.75	64.4
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
	4	1970 INT		2.64	4	0	10.56	0.8	2.56	4	3.2	10.24
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	42	1980 INT				0	0		2	42	0	84
		FINAL				0	0				0	0
	24	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash	106	1920 FINAL	9.44	4	106	1000.64	424	10.27	4.2		0	0
	1173	1930 INT				0	0				0	0
		FINAL	9.14	2	1000	9140	2000	10.18	2.2	173	1761.14	380.6
		INT FINAL				0	0				0	0
	19	1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84	19	105.45	110.96	6.44	6.8		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
	118	1960 INT		1.52	118	0	179.36	0.26	1.6	118	30.68	188.8
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.67	6.4		0	0
	674	1970 INT		1.84	674	0	1240.16		2.4	674	0	1617.6
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.78	7.04		0	0
	14	1980 INT				0	0		3.04	14	0	42.56
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	**109	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	2	1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88	2	20	9.76	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
	6	1980 INT				0	0		2	6	0	12
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						11406.19	8847.64				16757.87	11009.66
TOTAL MBF							18219					25235
TOTAL VALUE						2460174					3581544	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*564 OPEN LAND
** OPEN LAND

TURNBACK ALTERNATIVE 1

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	1350	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5	350	5145	175	15.1	0.5		0	0
	843	1930 INT	2.59	1	400	1036	400	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5	443	6219.72	221.5	14.7	0.5	400	5880	200
	362	1940 INT	2.54	1	362	919.48	362	2.59		100	259	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04	262	3678.48	272.48
	79	1950 INT	2.5	2.28	79	197.5	180.12	2.54	0.96	79	200.66	75.84
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	682	1960 INT	1.18	3.36	682	804.76	2291.52	2.5	1	682	1705	682
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	388	1970 INT	1.57	2.8	388	609.16	1086.4	2.83	2.56	388	1098.04	993.28
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
	98	1980 INT	0.26	2	98	25.48	196	2.02	2	98	197.96	196
		FINAL				0	0				0	0
	*743	1990 INT		2	743	0	1486	0.26	2	743	193.18	1486
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2	1000	0	2000
species												
Loblolly		1910 FINAL	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	16	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	391	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5	391	4453.49	1368.5	12.16	2.3		0	0
	366	1950 INT	2.09	2	366	764.94	732	1.79	1		0	0
		FINAL	11.78	2.44		0	0				0	0
		INT FINAL				0	0	11.42	3.6	366	4179.72	1317.6
	35	1960 INT	2.04	1.44	35	71.4	50.4	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96	35	389.55	138.6
	4	1970 INT	2.18	2.24	4	8.72	8.96	2.16	1.04	4	8.64	4.16
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	42	1980 INT	1.2	3.76	42	50.4	157.92	1.81	1.84	42	76.02	77.28
		FINAL				0	0				0	0
	24	1990 INT		2	24	0	48	1.2	3.76	24	28.8	90.24
		2000 INT		2	16	0	32	1.2	3.76	16	19.2	60.16
		2010 INT				0	0		2		0	0
species												
Slash	106	1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
	1173	1930 INT	0.86	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
	19	1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
	118	1960 INT	0.35	1.76	118	41.3	207.68	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.56	6.88	118	894.44	811.84
	674	1970 INT	0.5	2.56	674	337	1725.44				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
	14	1980 INT	0.3	2.56	14	4.2	35.84				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	**109	1990 INT		3.04	109	0	331.36	0.3	2.56	109	32.7	279.04
		2000 INT		3.04	1125	0	3420	0.3	2.56	1125	337.5	2880
		2010 INT				0	0		3.04	173	0	525.92
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.76		0	0
	2	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
		1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.6		0	0	14.14	1		0	0
	6	1980 INT	1.2	3.76	6	7.2	22.56	1.81	1.84	6	10.86	11.04
		2000 INT		2	2	0	4	0.26	2	2	0.52	4
		2010 INT				0	0		2		0	0
TOTAL						20695.75	14543.2				19190.27	12105.48
TOTAL MBF							31894					28511
TOTAL VALUE						4438823					4093092	
GRAND TOTAL MBF											103859.7	
GRAND TOTAL VALUE											14573633	

*564 OPEN LAND
** OPEN LAND

TURNBACK ALTERNATIVE 2

species	BAC ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	1349	1920	INT	0.3	0.5	1349	404.7	674.5	0.36	1	349	125.64	349
			FINAL	8.79	1		0	0	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5	1000	11800	500
	1113	1930	INT	0.5	1	1113	556.5	1113	1.21	1.5	1113	1346.73	1669.5
			FINAL	8.14	2.32		0	0	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1		0	0
	367	1940	INT	0.5	2	367	183.5	734	1.89	2.04	367	693.63	748.68
			FINAL	7.8	3.32		0	0	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
	80	1950	INT				0	0	0.58	2.32	80	46.4	185.6
			FINAL	2.49	5.48		0	0	7.2	4.6		0	0
			INT FINAL				0	0				0	0
	652	1960	INT		1.92	652	0	1251.84	0.5	5.6	652	326	3651.2
			FINAL	0.9	9.75		0	0				0	0
			INT FINAL				0	0				0	0
	526	1970	INT		3.2	526	0	1683.2	0.38	2	526	199.88	1052
			FINAL		5.84		0	0				0	0
			INT FINAL				0	0				0	0
	98	1980	INT				0	0		2	98	0	196
			FINAL				0	0				0	0
	* 1889	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly		1910	FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920	INT				0	0	0.89	1.5		0	0
			FINAL	9.02	3.84		0	0	10.96	3.68		0	0
			INT FINAL				0	0				0	0
	16	1930	INT				0	0				0	0
			FINAL	7.85	2.8	16	125.6	44.8	10.54	2.32		0	0
			INT FINAL				0	0				0	0
	427	1940	INT				0	0	1.93	2	427	824.11	854
			FINAL	6.83	6.72		0	0	10.35	5.84		0	0
			INT FINAL				0	0				0	0
	450	1950	INT				0	0				0	0
			FINAL	4.84	4.44		0	0	8.22	3.64		0	0
			INT FINAL				0	0				0	0
	39	1960	INT	0.2	1	39	7.8	39	1.25	1.84	39	48.75	71.76
			FINAL	2.38	10.04		0	0	6.99	10.32		0	0
			INT FINAL				0	0				0	0
	47	1970	INT		2.64	47	0	124.08	0.8	2.56	47	37.6	120.32
			FINAL		12.16		0	0				0	0
			INT FINAL				0	0				0	0
	46	1980	INT				0	0		2	46	0	92
			FINAL				0	0				0	0
	36	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash	106	1920	FINAL	9.44	4	106	1000.64	424	10.27	4.2		0	0
	1173	1930	INT				0	0				0	0
			FINAL	9.14	2	1073	9807.22	2146	10.18	2.2	100	1018	220
			INT FINAL				0	0				0	0
	63	1940	INT				0	0	0.5	1.2		0	0
			FINAL	5.55	5.84		0	0	6.44	6.8	63	405.72	428.4
			INT FINAL				0	0				0	0
		1950	INT				0	0	0.34	2.48		0	0
			FINAL	2.13	6.48		0	0	4.02	7.56		0	0
			INT FINAL				0	0				0	0
	118	1960	INT		1.52	118	0	179.36	0.26	1.6	118	30.68	188.8
			FINAL	2.64	6.96		0	0	5.69	8.16		0	0
			INT FINAL				0	0	5.87	6.4		0	0
	530	1970	INT		1.84	530	0	975.2		2.4	530	0	1272
			FINAL		10.24		0	0				0	0
			INT FINAL				0	0	3.78	7.04		0	0
	14	1980	INT				0	0		3.04	14	0	42.56
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
	**183	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf		1920	INT				0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
	2	1930	INT				0	0	1.03	2.4		0	0
			FINAL	10	4.88	2	20	9.76	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
	3	1950	INT				0	0	1.15	2	3	3.45	6
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
	6	1980	INT				0	0		2	6	0	12
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							12105.96	9398.74				16906.59	11659.82
TOTAL MBF								19343					25885
TOTAL VALUE							2611243					3622472	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*1675 OPEN LAND
**183 OPEN LAND

TURNBACK ALTERNATIVE 2

species	BAC ACRES	BAC	TYPE	MBF	CCF	PERIOD 3 (2010) ACRES	MBF TOTAL	CCF TOTAL	MBF	CCF	PERIOD 4 (2020) ACRES	MBF TOTAL	CCF TOTAL
Longleaf	1349	1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5	349	5130.3	174.5	15.1	0.5		0	0
	1113	1930	INT	2.59	1	613	1587.67	613	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5	500	7020	250	14.7	0.5	613	9011.1	306.5
	367	1940	INT	2.54	1	367	932.18	367	2.59		367	950.53	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
	80	1950	INT	2.5	2.28	80	200	182.4	2.54	0.96	80	203.2	76.8
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	652	1960	INT	1.18	3.36	652	769.36	2190.72	2.5	1	652	1630	652
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
	526	1970	INT	1.57	2.8	526	825.82	1472.8	2.83	2.56	526	1488.58	1346.56
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
	98	1980	INT	0.26	2	98	25.48	196	2.02	2	98	197.96	196
			FINAL				0	0				0	0
	* 1889	1990	INT		2	1889	0	3778	0.26	2	1889	491.14	3778
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2	1000	0	2000
species													
Loblolly		1910	FINAL	12.03	2.04		0	0				0	0
		1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	16	1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.18	3.36		0	0
	427	1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5	427	4863.53	1494.5	12.16	2.3		0	0
	450	1950	INT	2.09	2	450	940.5	900	1.79	1		0	0
			FINAL	11.78	2.44		0	0				0	0
			INT FINAL				0	0	11.42	3.6	449	5127.58	1616.4
	39	1960	INT	2.04	1.44	39	79.56	56.16	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88		0	0	11.13	3.96	39	434.07	154.44
	47	1970	INT	2.18	2.24	47	102.46	105.28	2.16	1.04	47	101.52	48.88
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
	46	1980	INT	1.2	3.76	46	55.2	172.96	1.81	1.84	46	83.26	84.64
			FINAL				0	0				0	0
	36	1990	INT		2	36	0	72	1.2	3.76	36	43.2	135.36
		2000	INT		2	16	0	32	1.2	3.76	16	19.2	60.16
		2010	INT				0	0		2		0	0
species													
Slash	106	1920	FINAL	11.02	4.4		0	0	11.7	4.6		0	0
	1173	1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
	63	1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
	118	1960	INT	0.35	1.76	118	41.3	207.68	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.58	6.88	118	894.44	811.84
	530	1970	INT	0.5	2.56	530	265	1356.8				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
	14	1980	INT	0.3	2.56	14	4.2	35.84				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
	**183	1990	INT		3.04	183	0	556.32	0.3	2.56	183	54.9	468.48
		2000	INT		3.04	1179	0	3584.16	0.3	2.56	1179	353.7	3018.24
		2010	INT				0	0		3.04	163	0	495.52
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
	2	1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
	3	1950	INT	1.62	2	3	4.86	6	1.66	1	3	4.98	3
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
	6	1980	INT	1.2	3.76	6	7.2	22.56	1.81	1.84	6	10.86	11.04
		2000	INT		2	2	0	4	0.26	2	2	0.52	4
		2010	INT				0	0		2		0	0
TOTAL							22854.62	17830.68				21100.74	15267.86
TOTAL MBF								36584					32857
TOTAL VALUE							4931157					4532968	
GRAND TOTAL MBF												114668.9	
GRAND TOTAL VALUE												15697841	

*1675 OPEN LAND
**183 OPEN LAND

TURNBACK ALTERNATIVE 3A

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	1424	1920 INT	0.3	0.5	1424	427.2	712	0.36	1	1000	360	1000
		FINAL	8.79	1		0	0	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5	424	5003.2	212
	832	1930 INT	0.5	1	832	416	832	1.21	1.5	832	1006.72	1248
		FINAL	8.14	2.32		0	0	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	217	1940 INT	0.5	2	217	108.5	434	1.89	2.04	217	410.13	442.68
		FINAL	7.8	3.32		0	0	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	105	1950 INT				0	0	0.58	2.32	105	60.9	243.6
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	282	1960 INT		1.92	282	0	541.44	0.5	5.6	282	141	1579.2
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
	418	1970 INT		3.2	418	0	1337.6	0.38	2	418	158.84	836
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
	109	1980 INT				0	0		2	109	0	218
		FINAL				0	0				0	0
	*813	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
	16	1930 INT				0	0				0	0
		FINAL	7.85	2.8	16	125.6	44.8	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	376	1940 INT				0	0	1.93	2	376	725.68	752
		FINAL	6.83	6.72		0	0	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	361	1950 INT				0	0				0	0
		FINAL	4.84	4.44		0	0	8.22	3.64		0	0
		INT FINAL				0	0				0	0
	35	1960 INT	0.2	1	35	7	35	1.25	1.84	35	43.75	64.4
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
	139	1970 INT		2.64	139	0	366.96	0.8	2.56	139	111.2	355.84
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	42	1980 INT				0	0		2	42	0	84
		FINAL				0	0				0	0
	33	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash	208	1920 FINAL	9.44	4	208	1963.52	832	10.27	4.2		0	0
	2372	1930 INT				0	0				0	0
		FINAL	9.14	2	1272	11626.08	2544	10.18	2.2	1100	11198	2420
		INT FINAL				0	0				0	0
	2	1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8	2	12.88	13.6
		INT FINAL				0	0				0	0
		1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
	118	1960 INT		1.52	118	0	179.36	0.26	1.6	118	30.68	188.8
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
	881	1970 INT		1.84	881	0	1621.04		2.4	881	0	2114.4
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.78	7.04		0	0
	28	1980 INT				0	0		3.04	28	0	85.12
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	2	1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88	2	20	9.76	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	1.15	2		0	0
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
	6	1980 INT				0	0		2	6	0	12
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						14693.9	9489.96				19262.98	11869.64
TOTAL MBF							22001					28403
TOTAL VALUE						3137716					4103938	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*560 OPEN LAND
** OPEN LAND

TURNBACK ALTERNATIVE 3A

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	1424	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5	1000	14700	500	15.1	0.5		0	0
	832	1930 INT	2.59	1	732	1895.88	732	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5	100	1404	50	14.7	0.5	732	10760.4	366
	217	1940 INT	2.54	1	217	551.18	217	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04	217	3046.68	225.68
	105	1950 INT	2.5	2.28	105	262.5	239.4	2.54	0.96	105	266.7	100.8
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	282	1960 INT	1.18	3.36	282	332.76	947.52	2.5	1	282	705	282
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	418	1970 INT	1.57	2.8	418	656.26	1170.4	2.83	2.56	418	1182.94	1070.08
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
	109	1980 INT	0.26	2	109	28.34	218	2.02	2	109	220.18	218
		FINAL				0	0				0	0
	*813	1990 INT		2	813	0	1626	0.26	2	813	211.38	1626
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2	424	0	848
species												
Loblolly		1910 FINAL	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	16	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	376	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5	376	4282.64	1316	12.16	2.3		0	0
	361	1950 INT	2.09	2	361	754.49	722	1.79	1		0	0
		FINAL	11.78	2.44		0	0				0	0
		INT FINAL				0	0	11.42	3.6	361	4122.62	1299.6
	35	1960 INT	2.04	1.44	35	71.4	50.4	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96	35	389.55	138.6
	139	1970 INT	2.18	2.24	139	303.02	311.36	2.16	1.04	139	300.24	144.56
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	42	1980 INT	1.2	3.76	42	50.4	157.92	1.81	1.84	42	76.02	77.28
		FINAL				0	0				0	0
	33	1990 INT		2	33	0	66	1.2	3.76	34	40.8	127.84
		2000 INT		2	16	0	32	1.2	3.76	16	19.2	60.16
		2010 INT				0	0		2		0	0
species												
Slash	209	1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
	2372	1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
	2	1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
	118	1960 INT	0.35	1.76	118	41.3	207.68	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88	118	894.44	811.84
	881	1970 INT	0.5	2.56	881	440.5	2255.36				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
	28	1980 INT	0.3	2.56	28	8.4	71.68				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
		1990 INT		3.04		0	0	0.3	2.56		0	0
		2000 INT		3.04	1480	0	4499.2	0.3	2.56	1480	444	3788.8
		2010 INT				0	0		3.04	1102	0	3350.08
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.76		0	0
	2	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
		1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
	6	1980 INT	1.2	3.76	6	7.2	22.56	1.81	1.84	6	10.86	11.04
		2000 INT		2	2	0	4	0.26	2	2	0.52	4
		2010 INT				0	0		2		0	0
TOTAL						25790.27	15416.48				22691.53	14550.36
TOTAL MBF							37661					33895
TOTAL VALUE						5486699					4843785	
GRAND TOTAL MBF											121960	
GRAND TOTAL VALUE											17572139	

*560 OPEN LAND
** OPEN LAND

TURNBACK ALTERNATIVE 3B

species	BAC ACRES	BAC	TYPE	MBF	CCF	PERIOD 1 (1990) ACRES	MBF TOTAL	CCF TOTAL	MBF	CCF	PERIOD 2 (2000) ACRES	MBF TOTAL	CCF TOTAL
Longleaf	421	1920	INT	0.3	0.5	421	126.3	210.5	0.36	1	421	151.56	421
			FINAL	8.79	1		0	0	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5		0	0
	137	1930	INT	0.5	1	137	68.5	137	1.21	1.5	137	165.77	205.5
			FINAL	8.14	2.32		0	0	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1		0	0
	36	1940	INT	0.5	2	36	18	72	1.89	2.04	36	68.04	73.44
			FINAL	7.8	3.32		0	0	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
	49	1950	INT				0	0	0.58	2.32	49	28.42	113.68
			FINAL	2.49	5.48		0	0	7.2	4.6		0	0
			INT FINAL				0	0				0	0
	252	1960	INT		1.92	252	0	483.84	0.5	5.6	252	126	1411.2
			FINAL	0.9	9.75		0	0				0	0
			INT FINAL				0	0				0	0
	414	1970	INT		3.2	414	0	1324.8	0.38	2	414	157.32	828
			FINAL		5.84		0	0				0	0
			INT FINAL				0	0				0	0
	109	1980	INT				0	0		2	109	0	218
			FINAL				0	0				0	0
	*615	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly		1910	FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920	INT				0	0	0.89	1.5		0	0
			FINAL	9.02	3.84		0	0	10.96	3.68		0	0
			INT FINAL				0	0				0	0
		1930	INT				0	0				0	0
			FINAL	7.85	2.8		0	0	10.54	2.32		0	0
			INT FINAL				0	0				0	0
	44	1940	INT				0	0	1.93	2	44	84.92	88
			FINAL	6.83	6.72		0	0	10.35	5.84		0	0
			INT FINAL				0	0				0	0
	335	1950	INT				0	0				0	0
			FINAL	4.84	4.44		0	0	8.22	3.64		0	0
			INT FINAL				0	0				0	0
	24	1960	INT	0.2	1	24	4.8	24	1.25	1.84	24	30	44.16
			FINAL	2.38	10.04		0	0	6.99	10.32		0	0
			INT FINAL				0	0				0	0
	138	1970	INT		2.64	138	0	364.32	0.8	2.56	138	110.4	353.28
			FINAL		12.16		0	0				0	0
			INT FINAL				0	0				0	0
	35	1980	INT				0	0		2	35	0	70
			FINAL				0	0				0	0
	33	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash	208	1920	FINAL	9.44	4	208	1963.52	832	10.27	4.2		0	0
	2224	1930	INT				0	0				0	0
			FINAL	9.14	2	1000	9140	2000	10.18	2.2	1224	12460.32	2692.8
			INT FINAL				0	0				0	0
	2	1940	INT				0	0	0.5	1.2	2	1	2.4
			FINAL	5.55	5.84		0	0	6.44	6.8		0	0
			INT FINAL				0	0				0	0
		1950	INT				0	0	0.34	2.48		0	0
			FINAL	2.13	6.48		0	0	4.02	7.56		0	0
			INT FINAL				0	0				0	0
	118	1960	INT		1.52	118	0	179.36	0.26	1.6	118	30.68	188.8
			FINAL	2.64	6.96		0	0	5.69	8.16		0	0
			INT FINAL				0	0	5.87	6.4		0	0
	674	1970	INT		1.84	674	0	1240.16		2.4	674	0	1617.6
			FINAL		10.24		0	0				0	0
			INT FINAL				0	0	3.78	7.04		0	0
	28	1980	INT				0	0		3.04	28	0	85.12
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf		1920	INT				0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
		1930	INT				0	0	1.03	2.4		0	0
			FINAL	10	4.88		0	0	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
		1950	INT				0	0	1.15	2		0	0
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							11321.12	6867.98				13414.43	8412.98
TOTAL MBF								16609					19892
TOTAL VALUE							2410154					2860352	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*494 OPEN LAND
** OPEN LAND

TURNBACK ALTERNATIVE 3B

species	BAC ACRES	BAC	TYPE	MBF	CCF	PERIOD 3 (2010)– ACRES	MBF TOTAL	CCF TOTAL	MBF	CCF	PERIOD 4 (2020)– ACRES	MBF TOTAL	CCF TOTAL
Longleaf	421	1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5	421	6188.7	210.5	15.1	0.5		0	0
	137	1930	INT	2.59	1	137	354.83	137	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5		0	0	14.7	0.5	137	2013.9	68.5
	36	1940	INT	2.54	1	36	91.44	36	2.59			0	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04	36	505.44	37.44
	49	1950	INT	2.5	2.28	49	122.5	111.72	2.54	0.96	49	124.46	47.04
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	252	1960	INT	1.18	3.36	252	297.36	846.72	2.5	1	252	630	252
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
	414	1970	INT	1.57	2.8	414	649.98	1159.2	2.83	2.56	414	1171.62	1059.84
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
	109	1980	INT	0.26	2	109	28.34	218	2.02	2	109	220.18	218
			FINAL				0	0				0	0
	*615	1990	INT		2	615	0	1230	0.26	2	615	159.9	1230
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
species													
Loblolly		1910	FINAL	12.03	2.04		0	0				0	0
		1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
		1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.18	3.36		0	0
	44	1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5	44	501.16	154	12.16	2.3		0	0
	335	1950	INT	2.09	2	335	700.15	670	1.79	1		0	0
			FINAL	11.78	2.44		0	0				0	0
			INT FINAL				0	0	11.42	3.6	335	3825.7	1206
	24	1960	INT	2.04	1.44	24	48.96	34.56	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88		0	0	11.13	3.96	24	267.12	95.04
	138	1970	INT	2.18	2.24	138	300.84	309.12	2.16	1.04	138	298.08	143.52
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
	35	1980	INT	1.2	3.76	35	42	131.6	1.81	1.84	35	63.35	64.4
			FINAL				0	0				0	0
	33	1990	INT		2	33	0	66	1.2	3.76	33	39.6	124.08
		2000	INT		2		0	0	1.2	3.76		0	0
		2010	INT				0	0		2		0	0
species													
Slash	208	1920	FINAL	11.02	4.4		0	0	11.7	4.6		0	0
	2224	1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
	2	1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	6.91	6.4		0	0	8.01	7.72	2	16.02	15.44
		1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
	118	1960	INT	0.35	1.76	118	41.3	207.68	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.58	6.88	118	894.44	811.84
	674	1970	INT	0.5	2.56	674	337	1725.44				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
	28	1980	INT	0.3	2.56	28	8.4	71.68				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
		1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04	1208	0	3672.32	0.3	2.56	1208	362.4	3092.48
		2010	INT				0	0		3.04	1224	0	3720.96
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
		1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.68	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							9712.96	10991.54				10592.21	12186.58
TOTAL MBF								18176					19976
TOTAL VALUE							2152184					2350318	
GRAND TOTAL MBF												74654.21	
GRAND TOTAL VALUE												9773008	

*494 OPEN LAND
** OPEN LAND

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New Tank Areas

NEW AREAS ALTERNATIVE 1 MANEUVER

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	750	1920 INT	0.1	0.4	464	46.4	185.6	0.36	1		0	0
		FINAL	8.79	1	286	2513.94	286	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
	5668	1930 INT	0.2	0.5	1697	339.4	848.5	1.21	1.5		0	0
		FINAL	8.14	2.32	3971	32323.94	9212.72	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	1412	1940 INT	0.1	0.5	490	49	245	1.89	2.04		0	0
		FINAL	7.8	3.32	922	7191.6	3061.04	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	277	1950 INT	0.1	0.4	127	12.7	50.8	0.58	2.32		0	0
		FINAL	2.49	5.48	150	373.5	822	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	109	1960 INT		2	53	0	106	0.5	5.6		0	0
		FINAL	0.9	9.75	56	50.4	546				0	0
		INT FINAL				0	0				0	0
	238	1970 INT		2	56	0	112	0.38	2		0	0
		FINAL		5.84	182	0	1062.88				0	0
		INT FINAL				0	0				0	0
	976	1980 INT			541	0	0		2		0	0
		FINAL			526	0	0				0	0
	*569	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 INT	0.1	0.4		0	0	10.08	2.12		0	0
	54	1920 INT	0.1	0.4	17	1.7	6.8	0.89	1.5		0	0
		FINAL	9.02	3.84	37	333.74	142.08	10.96	3.68		0	0
		INT FINAL				0	0				0	0
	86	1930 INT	0.1	0.4	23	2.3	9.2				0	0
		FINAL	7.85	2.8	63	494.55	176.4	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	113	1940 INT	0.4	1	23	9.2	23	1.93	2		0	0
		FINAL	6.83	6.72	90	614.7	604.8	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	262	1950 INT	0.1	0.4	72	7.2	28.8				0	0
		FINAL	4.84	4.44	190	919.6	843.6	8.22	3.64		0	0
		INT FINAL				0	0				0	0
	160	1960 INT	0.2	1	157	31.4	157	1.25	1.84		0	0
		FINAL	2.38	10.04	3	7.14	30.12	6.99	10.32		0	0
		INT FINAL				0	0				0	0
	116	1970 INT		2.64	32	0	84.48	0.8	2.56		0	0
		FINAL		12.16	84	0	1021.44				0	0
		INT FINAL				0	0				0	0
	264	1980 INT			63	0	0		2		0	0
		FINAL			201	0	0				0	0
	2	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash	35	1920 INT	0.1	0.4		0	0	10.27	4.2		0	0
		FINAL	9.44	4	35	330.4	140					
	553	1930 INT	0.2	0.5	92	18.4	46				0	0
		FINAL	9.14	2	461	4213.54	922	10.18	2.2		0	0
		INT FINAL				0	0				0	0
	169	1940 INT	0.1	0.4	31	3.1	12.4	0.5	1.2		0	0
		FINAL	5.55	5.84	138	765.9	805.92	6.44	6.8		0	0
		INT FINAL				0	0				0	0
	184	1950 INT	0.1	0.4	82	8.2	32.8	0.34	2.48		0	0
		FINAL	2.13	6.48	102	217.26	660.96	4.02	7.56		0	0
		INT FINAL				0	0				0	0
	202	1960 INT		1.52	75	0	114	0.26	1.6		0	0
		FINAL	2.64	6.96	127	335.28	883.92	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
	897	1970 INT		5	328	0	1640		2.4		0	0
		FINAL		10.24	569	0	5826.56				0	0
		INT FINAL				0	0	3.78	7.04		0	0
	214	1980 INT			10	0	0		3.04		0	0
		FINAL			204	0	0				0	0
		INT FINAL				0	0				0	0
	**180	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf	10	1920 INT	0.1	0.4		0	0				0	0
		FINAL	9.66	4.4	10	96.6	44	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	93	1930 INT	0.1	0.4	4	0.4	1.6	1.03	2.4		0	0
		FINAL	10	4.68	89	890	434.32	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT	0.1	0.4		0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
	156	1950 INT	0.1	0.4		0	0	1.15	2		0	0
		FINAL	8.2	4	156	1279.2	624	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						53480.69	31654.74				0	0
TOTAL MBF							78009					0
TOTAL VALUE						11375754					0	
GRAND TOTAL MBF												
GRAND TOTAL VALUE												

NEW AREAS ALTERNATIVE 1 MANEUVER

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	750	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	5668	1930 INT	2.59	1		0	0	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	1412	1940 INT	2.54	1		0	0	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
	277	1950 INT	2.5	2.28		0	0	2.54	0.96		0	0
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	109	1960 INT	1.18	3.36		0	0	2.5	1		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	238	1970 INT	1.57	2.8		0	0	2.83	2.56		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
	976	1980 INT	0.26	2		0	0	2.02	2		0	0
		FINAL				0	0				0	0
	*569	1990 INT		2		0	0	0.26	2		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
species												
Loblolly		1910 INT	12.03	2.04		0	0				0	0
	54	1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	86	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	113	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	262	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.78	2.44		0	0				0	0
		INT FINAL				0	0	11.42	3.6		0	0
	160	1960 INT	2.04	1.44		0	0	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
	116	1970 INT	2.18	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	264	1980 INT	1.2	3.76		0	0	1.81	1.84		0	0
		FINAL				0	0				0	0
	2	1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2		0	0	1.2	3.76		0	0
		2010 INT				0	0		2		0	0
species												
Slash	35	1920 INT	11.02	4.4		0	0	11.7	4.6		0	0
		FINAL										
	553	1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
	189	1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
	184	1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
	202	1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	897	1970 INT	0.5	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
	214	1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	**180	1990 INT		3.04		0	0	0.3	2.56		0	0
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	0
species												
Shortleaf	10	1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
	93	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	156	1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						0	0				0	0
TOTAL MBF							0					0
TOTAL VALUE						0					0	
GRAND TOTAL MBF											78008.84	
GRAND TOTAL VALUE											11375754	

NEW MANEUVER ACRES ALTERNATIVE 1
REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	750	1920 INT	0.5	1		0	0				0	0
		FINAL	9.74	1.6	750	7305	1200	12.34	1.2		0	0
		INT FINAL				0	0	11.44	0.6		0	0
	5668	1930 INT	0.5	1	5400	2700	5400	1.26		3600	4536	0
		FINAL	8.56	2.16	268	2294.08	578.88	12.65	2.1		0	0
		INT FINAL				0	0	12.1	1.1	1800	21780	1980
	1412	1940 INT	0.3	1	1412	423.6	1412	1.15	0.6	1412	1623.8	847.2
		FINAL	6.41	3.68		0	0	10.99	3.12		0	0
		INT FINAL				0	0	10.2	1		0	0
	277	1950 INT	0.4	1	277	110.8	277	0.73	2	277	202.21	554
		FINAL	3.23	6.16		0	0				0	0
		INT FINAL				0	0				0	0
	109	1960 INT		1.1	109	0	119.9		1	109	0	109
		FINAL	0.9	9.1		0	0				0	0
		INT FINAL				0	0				0	0
	238	1970 INT		2	238	0	476	0.32	2	238	76.16	476
		FINAL		5.84		0	0				0	0
	976	1980 INT				0	0		2	976	0	1952
		FINAL				0	0				0	0
	*569	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly	140	1930 INT				0	0				0	0
		FINAL	7.85	2.6	140	1099	364	10.48	2.1		0	0
		INT FINAL				0	0				0	0
	113	1940 INT				0	0	1.28	1		0	0
		FINAL	9.45	2.8	113	1067.85	316.4	12.45	2.6		0	0
		INT FINAL				0	0				0	0
	262	1950 INT		2.1	262	0	550.2	1.88	1		0	0
		FINAL	3.88	9.36		0	0	7.84	7.92		0	0
		INT FINAL				0	0	7.22	7.36	262	1891.64	1928.32
	160	1960 INT	0.5	1	160	80	160	1.2	1.48	160	192	236.8
		FINAL	1.78	11.28		0	0				0	0
		INT FINAL				0	0				0	0
	116	1970 INT		2.48	116	0	287.68	0.79	1.36	116	91.64	157.76
		FINAL		12.08		0	0				0	0
		INT FINAL				0	0				0	0
	264	1980 INT				0	0		2	264	0	528
		FINAL				0	0				0	0
	2	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash	35	1920 FINAL	9.44	4	35	330.4	140				0	0
	553	1930 FINAL	4.8	6.75	553	2654.4	3732.75	5.52	7.8		0	0
	169	1940 INT				0	0	0.35	2.16		0	0
		FINAL	9.59	4.4	169	1620.71	743.6	11.64	4.4		0	0
		INT FINAL				0	0				0	0
	184	1950 INT				0	0	0.27	1.92		0	0
		FINAL	3.23	7.6	184	594.32	1398.4	4.94	9.1		0	0
		INT FINAL				0	0				0	0
	202	1960 INT		1.76	202	0	355.52	0.26	1.6	202	52.52	323.2
		FINAL	2.32	7.92		0	0	4.24	8.64		0	0
		INT FINAL				0	0	5.45	8		0	0
	897	1970 INT		3.04	897	0	2726.88		2.56	897	0	2296.32
		FINAL		11.52		0	0				0	0
		INT FINAL				0	0				0	0
	**180	1980 INT				0	0		3.04	214	0	650.56
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	**182	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf	10	1920 INT				0	0				0	0
		FINAL	9.66	4.4	10	96.6	44	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	93	1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88	93	930	453.84	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
	156	1950 INT				0	0	1.15	2	156	179.4	312
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						21306.76	20737.05				30625.37	12351.16
TOTAL MBF							37274.29					40135.76
TOTAL VALUE						4665274					6416768	

GRAND TOTAL MBF
GRAND TOTAL VALUE

* 120 OPEN LAND
** 82 OPEN LAND

NEW MANEUVER ACRES ALTERNATIVE 1
REGULAR MANAGEMENT

species	BAC ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	750	1920	INT				0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	13.86	0.5		0	0	15.66	0.5		0	0
	5668	1930	INT	1.4	0	1600	2240	0				0	0
			FINAL				0	0				0	0
			INT FINAL	13.58	1.1	2000	27160	2200	14.7	0.5	1600	23520	800
	1412	1940	INT	1.15	0	1312	1508.8	0	1.15		600	690	0
			FINAL				0	0				0	0
			INT FINAL	12.45	1	100	1245	100	14.04	0.6	712	9996.48	427.2
	277	1950	INT	1.15		277	318.55	0	1.15		277	318.55	0
			FINAL				0	0				0	0
			INT FINAL				0	0	12.93	2.24		0	0
	109	1960	INT	1.18	2.8	109	128.62	305.2	2.5		109	272.5	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1.2		0	0
	238	1970	INT	1.67	2.64	238	397.46	628.32	2.95	2.4	238	702.1	571.2
			FINAL				0	0				0	0
	976	1980	INT	0.26	2	976	253.76	1952	2.02	2	976	1971.52	1952
			FINAL				0	0				0	0
	*569	1990	INT		2	569	0	1138	0.26	2	569	147.94	1138
		2000	INT		2	1018	0	2036	0.26	2	1018	264.68	2036
		2010	INT				0	0		2	1800	0	3600
species													
Loblolly	140	1930	INT	1.16	1		0	0	1.51	0.5		0	0
			FINAL	12.97	2.8		0	0				0	0
			INT FINAL				0	0	12.17	2.86		0	0
	113	1940	INT	1.78	1		0	0	1.68			0	0
			FINAL	15.57	2		0	0				0	0
			INT FINAL	11.3	4.48		0	0	12.07	3.48		0	0
	262	1950	INT	1.96	1		0	0	1.75			0	0
			FINAL				0	0				0	0
			INT FINAL	10.84	5.2		0	0	11.86	4.08		0	0
	160	1960	INT	2.05	1.44	160	328	230.4	2.02	0.5	160	323.2	80
			FINAL				0	0				0	0
			INT FINAL	9.62	5.88		0	0	11.14	4.56		0	0
	116	1970	INT	2.24	1.6	116	259.84	185.6	2.16		116	250.56	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.26	4.96		0	0
	264	1980	INT	1.2	3.76	264	316.8	992.64	1.81	1.84	264	477.84	485.76
			FINAL				0	0				0	0
	2	1990	INT		2	2	0	4	1.2	3.76	2	2.4	7.52
		2000	INT		2	253	0	506	1.2	3.76	253	303.6	951.28
		2010	INT				0	0		2	262	0	524
species													
Slash	35	1920	FINAL				0	0				0	0
	553	1930	FINAL	6.06	8.7		0	0				0	0
	169	1940	INT				0	0				0	0
			FINAL	13.4	6.2		0	0				0	0
			INT FINAL	13.21	3		0	0	14.31	4		0	0
	184	1950	INT				0	0				0	0
			FINAL	6.47	10.8		0	0				0	0
			INT FINAL	6.13	9.15		0	0	7.42	10.05		0	0
	202	1960	INT				0	0				0	0
			FINAL	5.99	8.14		0	0				0	0
			INT FINAL	6.38	9.15	202	1288.76	1848.3	8.13	10.2		0	0
	897	1970	INT				0	0				0	0
			FINAL	6.64	7.38		0	0				0	0
			INT FINAL	4.38	9.5		0	0	6.04	8.45		0	0
	**180	1980	INT	0.3	2.56	214	64.2	547.84				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
	**182	1990	INT		3.04	180	0	547.2	0.3	2.56	180	54	460.8
		2000	INT		3.04	941	0	2860.64	0.3	2.56	941	282.3	2408.96
		2010	INT				0	0		3.04		0	0
species													
Shortleaf	10	1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
	93	1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
	156	1950	INT	1.62	2	156	252.72	312	1.66	1	156	258.96	156
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000	INT		2	103	0	206	0.26	2	103	26.78	206
		2010	INT				0	0		2		0	0
TOTAL							35762.51	16600.14				39863.41	15804.72
TOTAL MBF								48544.62					52033.04
TOTAL VALUE							7529157					8347861	
GRAND TOTAL MBF												177987.7	
GRAND TOTAL VALUE												26959061	

* 120 OPEN LAND
** 82 OPEN LAND

NEW TANK AREA ALTERNATIVE 2 MANEUVER

species	ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	TOTAL	TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	TOTAL	TOTAL
Longleaf	750	1920	INT	0.1	0.4	464	46.4	185.6	0.36	1		0	0
			FINAL	8.79	1	286	2513.94	286	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5		0	0
	5498	1930	INT	0.2	0.5	1549	309.8	774.5	1.21	1.5		0	0
			FINAL	8.14	2.32	3940	32071.6	9140.8	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1		0	0
	1402	1940	INT	0.1	0.5	479	47.9	239.5	1.89	2.04		0	0
			FINAL	7.8	3.32	923	7199.4	3064.36	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
	146	1950	INT	0.1	0.4	17	1.7	6.8	0.58	2.32		0	0
			FINAL	2.49	5.48	129	321.21	706.92	7.2	4.6		0	0
			INT FINAL				0	0				0	0
	335	1960	INT		2	192	0	384	0.5	5.6		0	0
			FINAL	0.9	9.75	143	128.7	1394.25				0	0
			INT FINAL				0	0				0	0
	238	1970	INT		2	56	0	112	0.38	2		0	0
			FINAL		5.84	182	0	1062.88				0	0
			INT FINAL				0	0				0	0
	976	1980	INT			435	0	0		2		0	0
			FINAL			541	0	0				0	0
	417	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly		1910	INT	0.1	0.4		0	0	10.08	2.12		0	0
	54	1920	INT	0.1	0.4	17	1.7	6.8	0.89	1.5		0	0
			FINAL	9.02	3.84	37	333.74	142.08	10.96	3.68		0	0
			INT FINAL				0	0				0	0
	86	1930	INT	0.1	0.4	23	2.3	9.2				0	0
			FINAL	7.85	2.8	63	494.55	176.4	10.54	2.32		0	0
			INT FINAL				0	0				0	0
	165	1940	INT	0.4	1	96	38.4	96	1.93	2		0	0
			FINAL	6.83	6.72	69	471.27	463.68	10.35	5.84		0	0
			INT FINAL				0	0				0	0
	190	1950	INT	0.1	0.4		0	0				0	0
			FINAL	4.84	4.44	190	919.6	843.6	8.22	3.64		0	0
			INT FINAL				0	0				0	0
	160	1960	INT	0.2	1	157	31.4	157	1.25	1.64		0	0
			FINAL	2.38	10.04	3	7.14	30.12	6.99	10.32		0	0
			INT FINAL				0	0				0	0
	116	1970	INT		2.64	32	0	84.48	0.8	2.56		0	0
			FINAL		12.16	84	0	1021.44				0	0
			INT FINAL				0	0				0	0
	257	1980	INT			56	0	0		2		0	0
			FINAL			201	0	0				0	0
	2	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash	35	1920	INT	0.1	0.4		0	0	10.27	4.2		0	0
			FINAL	9.44	4	35	330.4	140					
	553	1930	INT	0.2	0.5	92	18.4	46				0	0
			FINAL	9.14	2	461	4213.54	922	10.18	2.2		0	0
			INT FINAL				0	0				0	0
	169	1940	INT	0.1	0.4	31	3.1	12.4	0.5	1.2		0	0
			FINAL	5.55	5.84	138	765.9	805.92	6.44	6.8		0	0
			INT FINAL				0	0				0	0
	184	1950	INT	0.1	0.4	82	8.2	32.8	0.34	2.48		0	0
			FINAL	2.13	6.48	102	217.26	660.96	4.02	7.56		0	0
			INT FINAL				0	0				0	0
	302	1960	INT		1.52	75	0	114	0.26	1.6		0	0
			FINAL	2.64	6.96	127	335.28	883.92	5.69	8.16		0	0
			INT FINAL				0	0	5.87	5.4		0	0
	902	1970	INT		5	334	0	1670		2.4		0	0
			FINAL		10.24	568	0	5816.32				0	0
			INT FINAL				0	0	3.78	7.04		0	0
	214	1980	INT			10	0	0		3.04		0	0
			FINAL			204	0	0				0	0
			INT FINAL				0	0				0	0
	182	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf	10	1920	INT	0.1	0.4		0	0				0	0
			FINAL	9.66	4.4	10	96.6	44	12.61	5.12		0	0
			INT FINAL				0	0				0	0
	93	1930	INT	0.1	0.4	4	0.4	1.6	1.03	2.4		0	0
			FINAL	10	4.68	89	890	434.32	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT	0.1	0.4		0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
	156	1950	INT	0.1	0.4		0	0	1.15	2		0	0
			FINAL	8.2	4	156	1279.2	624	11.55	4.4		0	0
			INT FINAL				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							53099.03	32596.65				0	0
TOTAL MBF								78198					0
TOTAL VALUE							11310613					0	
GRAND TOTAL MBF													
GRAND TOTAL VALUE													

NEW TANK AREA ALTERNATIVE 2 MANEUVER

species	ACRES	BAC	TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	TOTAL	TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	TOTAL	TOTAL
Longleaf	750	1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	5498	1930	INT	2.59	1		0	0	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	1402	1940	INT	2.54	1		0	0	2.59			0	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
	146	1950	INT	2.5	2.28		0	0	2.54	0.96		0	0
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	335	1960	INT	1.18	3.36		0	0	2.5	1		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
	238	1970	INT	1.57	2.8		0	0	2.83	2.56		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
	976	1980	INT	0.26	2		0	0	2.02	2		0	0
			FINAL				0	0				0	0
	417	1990	INT		2		0	0	0.26	2		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
species													
Loblolly		1910	INT	12.03	2.04		0	0				0	0
	54	1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	86	1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.18	3.36		0	0
	165	1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	190	1950	INT	2.09	2		0	0	1.79	1		0	0
			FINAL	11.76	2.44		0	0				0	0
			INT FINAL				0	0	11.42	3.6		0	0
	160	1960	INT	2.04	1.44		0	0	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
	116	1970	INT	2.18	2.24		0	0	2.16	1.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
	257	1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
	2	1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2		0	0	1.2	3.76		0	0
		2010	INT				0	0		2		0	0
species													
Slash	35	1920	INT	11.02	4.4		0	0	11.7	4.6		0	0
			FINAL										
	553	1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
	169	1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
	184	1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
	302	1960	INT	0.35	1.76		0	0	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.56	6.88		0	0
	902	1970	INT	0.5	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
	214	1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
	182	1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04		0	0	0.3	2.56		0	0
		2010	INT				0	0		3.04		0	0
species													
Shortleaf	10	1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
	93	1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
	156	1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
TOTAL							0	0				0	0
TOTAL MBF								0					0
TOTAL VALUE							0					0	
GRAND TOTAL MBF												78198.45	
GRAND TOTAL VALUE												11310613	

NEW TANK MANEUVER ALTERNATIVE 2
REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	750	1920 INT	0.5	1		0	0				0	0
		FINAL	9.74	1.6	750	7305	1200	12.34	1.2		0	0
		INT FINAL				0	0	11.44	0.6		0	0
	5489	1930 INT	0.5	1	5350	2675	5350	1.26		3250	4095	0
		FINAL	8.56	2.16	139	1189.84	300.24	12.65	2.1		0	0
		INT FINAL				0	0	12.1	1.1	2100	25410	2310
	1402	1940 INT	0.3	1	1402	420.6	1402	1.15	0.6	1402	1612.3	841.2
		FINAL	6.41	3.68		0	0	10.99	3.12		0	0
		INT FINAL				0	0	10.2	1		0	0
	146	1950 INT	0.4	1	146	58.4	146	0.73	2	146	106.58	292
		FINAL	3.23	6.16		0	0				0	0
		INT FINAL				0	0				0	0
	335	1960 INT		1.1	335	0	368.5		1	335	0	335
		FINAL	0.9	9.1		0	0				0	0
		INT FINAL				0	0				0	0
	238	1970 INT		2	238	0	476	0.32	2	238	76.16	476
		FINAL		5.84		0	0				0	0
	976	1980 INT				0	0		2	976	0	1952
		FINAL				0	0				0	0
	417	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly	140	1930 INT				0	0				0	0
		FINAL	7.85	2.6	140	1099	364	10.48	2.1		0	0
		INT FINAL				0	0				0	0
	165	1940 INT				0	0	1.28	1		0	0
		FINAL	9.45	2.8	100	945	280	12.45	2.6	65	809.25	169
		INT FINAL				0	0				0	0
	190	1950 INT		2.1	190	0	399	1.88	1	190	357.2	190
		FINAL	3.88	9.36		0	0	7.84	7.92		0	0
		INT FINAL				0	0	7.22	7.36		0	0
	160	1960 INT	0.5	1	160	80	160	1.2	1.48	160	192	236.8
		FINAL	1.76	11.28		0	0				0	0
		INT FINAL				0	0				0	0
	116	1970 INT		2.48	116	0	287.68	0.79	1.36	116	91.64	157.76
		FINAL		12.08		0	0				0	0
		INT FINAL				0	0				0	0
	257	1980 INT				0	0		2	257	0	514
		FINAL				0	0				0	0
	2	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash	35	1920 FINAL	9.44	4	35	330.4	140				0	0
	553	1930 FINAL	4.8	6.75	553	2654.4	3732.75	5.52	7.8		0	0
	169	1940 INT				0	0	0.35	2.16		0	0
		FINAL	9.59	4.4	169	1620.71	743.6	11.64	4.4		0	0
		INT FINAL				0	0				0	0
	184	1950 INT				0	0	0.27	1.92		0	0
		FINAL	3.23	7.6	184	594.32	1398.4	4.94	9.1		0	0
		INT FINAL				0	0				0	0
	302	1960 INT		1.76	302	0	531.52	0.26	1.6	250	65	400
		FINAL	2.32	7.92		0	0	4.24	6.64		0	0
		INT FINAL				0	0	5.45	8	52	283.4	416
	902	1970 INT		3.04	902	0	2742.08		2.56	902	0	2309.12
		FINAL		11.52		0	0				0	0
		INT FINAL				0	0				0	0
	214	1980 INT				0	0		3.04	214	0	650.56
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	*182	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf	10	1920 INT				0	0				0	0
		FINAL	9.66	4.4	10	96.6	44	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	93	1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88	93	930	453.84	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
	156	1950 INT				0	0	1.15	2	156	179.4	312
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						19999.27	20519.61				33277.93	11561.44
TOTAL MBF							35799.37					42180.24
TOTAL VALUE						4396451					6941770	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*82 OPEN LAND

NEW TANK MANEUVER ALTERNATIVE 2
REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	750	1920 INT				0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.86	0.5		0	0	15.66	0.5		0	0
	5489	1930 INT	1.4	0	1500	2100	0				0	0
		FINAL				0	0				0	0
		INT FINAL	13.58	1.1	1750	23765	1925	14.7	0.5	1500	22050	750
	1402	1940 INT	1.15	0	1402	1612.3	0	1.15		700	805	0
		FINAL				0	0				0	0
		INT FINAL	12.45	1		0	0	14.04	0.6	702	9856.08	421.2
	146	1950 INT	1.15		146	167.9	0	1.15		146	167.9	0
		FINAL				0	0				0	0
		INT FINAL				0	0	12.93	2.24		0	0
	335	1960 INT	1.18	2.8	335	395.3	938	2.5		335	837.5	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1.2		0	0
	238	1970 INT	1.67	2.64	238	397.46	628.32	2.95	2.4	238	702.1	571.2
		FINAL				0	0				0	0
	976	1980 INT	0.26	2	976	253.76	1952	2.02	2	976	1971.52	1952
		FINAL				0	0				0	0
	417	1990 INT		2	417	0	834	0.26	2	417	108.42	834
		2000 INT		2	889	0	1778	0.26	2	889	231.14	1778
		2010 INT				0	0		2	2100	0	4200
species												
Loblolly	140	1930 INT	1.16	1		0	0	1.51	0.5		0	0
		FINAL	12.97	2.8		0	0				0	0
		INT FINAL				0	0	12.17	2.86		0	0
	165	1940 INT	1.78	1		0	0	1.68			0	0
		FINAL	15.57	2		0	0				0	0
		INT FINAL	11.3	4.48		0	0	12.07	3.48		0	0
	190	1950 INT	1.96	1		0	0	1.75			0	0
		FINAL				0	0				0	0
		INT FINAL	10.84	5.2	190	2059.6	988	11.86	4.08		0	0
	160	1960 INT	2.05	1.44		0	0	2.02	0.5		0	0
		FINAL				0	0				0	0
		INT FINAL	9.62	5.88	160	1539.2	940.8	11.14	4.56		0	0
	116	1970 INT	2.24	1.6	116	259.84	185.6	2.16		116	250.56	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.26	4.96		0	0
	257	1980 INT	1.2	3.76	257	308.4	966.32	1.81	1.84	259	468.79	476.56
		FINAL				0	0				0	0
	2	1990 INT		2	2	0	4	1.2	3.76	2	2.4	7.52
		2000 INT		2	240	0	480	1.2	3.76	240	288	902.4
		2010 INT				0	0		2	65	0	130
species												
Slash	35	1920 FINAL				0	0				0	0
	553	1930 FINAL	6.06	8.7		0	0				0	0
	169	1940 INT				0	0				0	0
		FINAL	13.4	6.2		0	0				0	0
		INT FINAL	13.21	3		0	0	14.31	4		0	0
	184	1950 INT				0	0				0	0
		FINAL	6.47	10.6		0	0				0	0
		INT FINAL	6.13	9.15		0	0	7.42	10.05		0	0
	302	1960 INT				0	0				0	0
		FINAL	5.99	8.14		0	0				0	0
		INT FINAL	6.38	9.15	250	1595	2287.5	8.13	10.2		0	0
	902	1970 INT				0	0				0	0
		FINAL	6.64	7.38		0	0				0	0
		INT FINAL	4.38	9.5		0	0	6.04	8.45		0	0
	214	1980 INT	0.3	2.56	214	64.2	547.84				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	*182	1990 INT		3.04	182	0	553.28	0.3	2.56	182	54.6	465.92
		2000 INT		3.04	944	0	2869.76	0.3	2.56	944	283.2	2416.64
		2010 INT				0	0		3.04	53	0	
species												
Shortleaf	10	1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.76		0	0
	93	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	5.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	156	1950 INT	1.62	2	156	252.72	312	1.66	1	100	166	100
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1	56	791.84	56
		2000 INT		2	103	0	206	0.26	2	103	26.78	206
		2010 INT				0	0		2		0	0
TOTAL						34770.68	18396.42				39061.83	15267.44
TOTAL MBF							48935.92					50817.76
TOTAL VALUE						7357693					8176368	
GRAND TOTAL MBF											177733.3	
GRAND TOTAL VALUE											26872283	

*82 OPEN LAND

NEW TANK AREA ALTERNATIVE 3A MANEUVER

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	62	1920 INT	0.1	0.4	12	1.2	4.8	0.36	1		0	0
		FINAL	8.79	1	50	439.5	50	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
	587	1930 INT	0.2	0.5	174	34.8	87	1.21	1.5		0	0
		FINAL	8.14	2.32	413	3361.82	958.16	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	66	1940 INT	0.1	0.5	22	2.2	11	1.89	2.04		0	0
		FINAL	7.8	3.32	44	343.2	146.08	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	132	1950 INT	0.1	0.4	111	11.1	44.4	0.58	2.32		0	0
		FINAL	2.49	5.48	21	52.29	115.08	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	276	1960 INT		2	176	0	352	0.5	5.6		0	0
		FINAL	0.9	9.75	139	125.1	1355.25				0	0
		INT FINAL				0	0				0	0
	44	1970 INT		2	8	0	16	0.38	2		0	0
		FINAL		5.84	36	0	210.24				0	0
		INT FINAL				0	0				0	0
	26	1980 INT				0	0		2		0	0
		FINAL			26	0	0				0	0
	160	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly	76	1910 INT	0.1	0.4		0	0	10.08	2.12		0	0
		FINAL	12.03	2.04	76	914.28	155.04					
	4	1920 INT	0.1	0.4		0	0	0.89	1.5		0	0
		FINAL	9.02	3.84	4	36.08	15.36	10.96	3.68		0	0
		INT FINAL				0	0				0	0
	140	1930 INT	0.1	0.4	38	3.8	15.2				0	0
		FINAL	7.85	2.8	102	800.7	285.6	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	393	1940 INT	0.4	1	73	29.2	73	1.93	2		0	0
		FINAL	6.83	6.72	320	2185.6	2150.4	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	146	1950 INT	0.1	0.4	73	7.3	29.2				0	0
		FINAL	4.84	4.44	73	353.32	324.12	8.22	3.64		0	0
		INT FINAL				0	0				0	0
	7	1960 INT	0.2	1	7	1.4	7	1.25	1.84		0	0
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	152	1980 INT			7	0	0		2		0	0
		FINAL			145	0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash		1920 INT	0.1	0.4		0	0	10.27	4.2		0	0
		1930 INT	0.2	0.5		0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
		1940 INT	0.1	0.4		0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8		0	0
		INT FINAL				0	0				0	0
		1950 INT	0.1	0.4		0	0	0.34	2.48		0	0
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.52		0	0	0.26	1.6		0	0
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
	88	1970 INT		5	6	0	30		2.4		0	0
		FINAL		10.24	82	0	839.68				0	0
		INT FINAL				0	0	3.78	7.04		0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	154	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf	49	1920 INT	0.1	0.4		0	0				0	0
		FINAL	9.66	4.4	49	473.34	215.6	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	160	1930 INT	0.1	0.4	46	4.6	18.4	1.03	2.4		0	0
		FINAL	10	4.88	114	1140	556.32	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT	0.1	0.4		0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
	30	1950 INT	0.1	0.4		0	0	1.15	2		0	0
		FINAL	8.2	4	30	246	120	11.55	4.4		0	0
		INT FINAL				0	0				0	0
	30	1980 INT			30							
		FINAL										
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						10566.83	8184.93				0	0
TOTAL MBF							16869					0
TOTAL VALUE						2278942					0	
GRAND TOTAL MBF												
GRAND TOTAL VALUE												

NEW TANK AREA ALTERNATIVE 3A MANEUVER

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	PERIOD 3 (2010) CCF	PERIOD 3 (2010) ACRES	PERIOD 3 (2010) MBF TOTAL	PERIOD 3 (2010) CCF TOTAL	PERIOD 4 (2020) MBF	PERIOD 4 (2020) CCF	PERIOD 4 (2020) ACRES	PERIOD 4 (2020) MBF TOTAL	PERIOD 4 (2020) CCF TOTAL
Longleaf	62	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	587	1930 INT	2.59	1		0	0	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5		0	0	14.7	0.5		0	0
	66	1940 INT	2.54	1		0	0	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
	132	1950 INT	2.5	2.28		0	0	2.54	0.96		0	0
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	276	1960 INT	1.18	3.36		0	0	2.5	1		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	44	1970 INT	1.57	2.8		0	0	2.83	2.56		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
	26	1980 INT	0.26	2		0	0	2.02	2		0	0
		FINAL				0	0				0	0
	160	1990 INT		2		0	0	0.26	2		0	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
species												
Loblolly	76	1910 INT	12.03	2.04		0	0				0	0
		FINAL										
	4	1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	140	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	393	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	146	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.78	2.44		0	0				0	0
		INT FINAL				0	0	11.42	3.6		0	0
	7	1960 INT	2.04	1.44		0	0	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
		1970 INT	2.18	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	152	1980 INT	1.2	3.76		0	0	1.81	1.84		0	0
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2		0	0	1.2	3.76		0	0
		2010 INT				0	0		2		0	0
species												
Slash		1920 INT	11.02	4.4		0	0	11.7	4.6		0	0
		1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.86		0	0
	88	1970 INT	0.5	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	154	1990 INT		3.04		0	0	0.3	2.56		0	0
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	0
species												
Shortleaf	49	1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	16.24	7.12		0	0
		INT FINAL				0	0	17.5	3.76		0	0
	160	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	30	1950 INT	1.62	2		0	0	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
	30	1980 INT										
		FINAL										
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						0	0				0	0
TOTAL MBF							0					0
TOTAL VALUE						0					0	
GRAND TOTAL MBF											16869.23	
GRAND TOTAL VALUE											2278942	

NEW TANK MANEUVER ALTERNATIVE 3A
REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	62	1920 INT	0.3	0.5		NEW TANK	0	0.36	1		0	0
		FINAL	8.79	1	62	544.98	62	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
	587	1930 INT	0.5	1	587	293.5	587	1.21	1.5	587	710.27	880.5
		FINAL	8.14	2.32		0	0	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	66	1940 INT	0.5	2	66	33	132	1.89	2.04	66	124.74	134.64
		FINAL	7.8	3.32		0	0	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	132	1950 INT				0	0	0.58	2.32	132	76.56	306.24
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	276	1960 INT		1.92	276	0	529.92	0.5	5.6	276	138	1545.6
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
	44	1970 INT		3.2	44	0	140.8	0.38	2	44	16.72	88
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
	26	1980 INT				0	0		2	26	0	52
		FINAL				0	0				0	0
	*160	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly	76	1910 FINAL	9.4	2.2	76	714.4	167.2	10.08	2.12		0	0
		1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
	140	1930 INT				0	0				0	0
		FINAL	7.85	2.8	113	887.05	316.4	10.54	2.32	27	284.58	62.64
		INT FINAL				0	0				0	0
	393	1940 INT				0	0	1.93	2		0	0
		FINAL	6.83	6.72	43	293.69	288.96	10.35	5.84	350	3622.5	2044
		INT FINAL				0	0				0	0
	146	1950 INT				0	0				0	0
		FINAL	4.84	4.44		0	0	8.22	3.64		0	0
		INT FINAL				0	0				0	0
	7	1960 INT	0.2	1	7	1.4	7	1.25	1.84	7	8.75	12.88
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	152	1980 INT				0	0		2	152	0	304
		FINAL				0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash		1920 FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930 INT				0	0				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8		0	0
		INT FINAL				0	0				0	0
		1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.52		0	0	0.26	1.6		0	0
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
	88	1970 INT		1.84	88	0	161.92		2.4	88	0	211.2
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.78	7.04		0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	**154	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf	49	1920 INT				0	0				0	0
		FINAL	9.66	4.4	49	473.34	215.6	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	160	1930 INT				0	0	1.03	2.4		0	0
		FINAL	10	4.88	100	1000	488	13.07	5.52	60	784.2	331.2
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
	30	1950 INT				0	0	1.15	2	30	34.5	60
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
	30	1980 INT				0	0		2	30	0	60
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						4241.36	3096.8				5800.82	6092.9
TOTAL MBF							6626					10492
TOTAL VALUE						911611.9					1277534	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*136 OPEN LAND
** OPEN LAND

NEW TANK MANEUVER ALTERNATIVE 3A
REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	62	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	587	1930 INT	2.59	1	187	484.33	187	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5	400	5616	200	14.7	0.5	187	2748.9	93.5
	66	1940 INT	2.54	1	66	167.64	66	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04	66	926.64	68.64
	132	1950 INT	2.5	2.28	132	330	300.96	2.54	0.96	132	335.28	126.72
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	276	1960 INT	1.18	3.36	276	325.68	927.36	2.5	1	276	690	276
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	44	1970 INT	1.57	2.8	44	69.08	123.2	2.83	2.56	44	124.52	112.64
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
	26	1980 INT	0.26	2	26	6.76	52	2.02	2	26	52.52	52
		FINAL				0	0				0	0
	*160	1990 INT		2	160	0	320	0.26	2	160	41.6	320
		2000 INT		2	62	0	124	0.26	2	62	16.12	124
		2010 INT				0	0		2		0	0
species												
Loblolly	76	1910 FINAL	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	140	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	393	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	146	1950 INT	2.09	2	146	305.14	292	1.79	1		0	0
		FINAL	11.78	2.44		0	0				0	0
		INT FINAL				0	0	11.42	3.6	146	1667.32	525.6
	7	1960 INT	2.04	1.44	7	14.28	10.08	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96	7	77.91	27.72
		1970 INT	2.18	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	152	1980 INT	1.2	3.76	152	182.4	571.52	1.81	1.84	152	275.12	279.68
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2	232	0	464	1.2	3.76	232	278.4	872.32
		2010 INT				0	0		2	377	0	754
species												
Slash		1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	88	1970 INT	0.5	2.56	88	44	225.28				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	**154	1990 INT		3.04	154	0	468.16	0.3	2.56	154	46.2	394.24
		2000 INT		3.04		0	0	0.3	2.56		0	0
		2010 INT				0	0		3.04		0	0
species												
Shortleaf	49	1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
	160	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	30	1950 INT	1.62	2	30	48.6	60	1.66	1	30	49.8	30
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
	30	1980 INT	1.2	3.76	30	36	112.8	1.81	1.84	30	54.3	55.2
		2000 INT		2	149	0	298	0.26	2	149	38.74	298
		2010 INT				0	0		2	60	0	120
TOTAL						7629.91	4802.36				7423.37	4530.26
TOTAL MBF							11328					10912
TOTAL VALUE						1627206					1580806	
GRAND TOTAL MBF											39357.65	
GRAND TOTAL VALUE											5397158	

*136 OPEN LAND
** OPEN LAND

NEW TANK AREA ALTERNATIVE 3B MANEUVER

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	62	1920 INT	0.1	0.4	12	1.2	4.8	0.36	1		0	0
		FINAL	8.79	1	50	439.5	50	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5		0	0
	1907	1930 INT	0.2	0.5	1418	283.6	709	1.21	1.5	907	1097.47	1360.5
		FINAL	8.14	2.32	489	3980.46	1134.48	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1	500	5800	500
	506	1940 INT	0.1	0.5	434	43.4	217	1.89	2.04	506	956.34	1032.24
		FINAL	7.8	3.32	72	561.6	239.04	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	230	1950 INT	0.1	0.4	207	20.7	82.8	0.58	2.32	230	133.4	533.6
		FINAL	2.49	5.48	23	57.27	126.04	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	391	1960 INT		2	253	0	506	0.5	5.6	391	195.5	2189.6
		FINAL	0.9	9.75	138	124.2	1345.5				0	0
		INT FINAL				0	0				0	0
	44	1970 INT		2	8	0	16	0.38	2	44	16.72	88
		FINAL		5.84	38	0	210.24				0	0
		INT FINAL				0	0				0	0
	26	1980 INT				0	0		2	26	0	52
		FINAL			26	0	0				0	0
	161	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly	76	1910 INT	0.1	0.4		0	0	10.08	2.12		0	0
		FINAL	9.4	2.2	76							
	4	1920 INT	0.1	0.4		0	0	0.89	1.5		0	0
		FINAL	9.02	3.84	4	36.08	15.36	10.96	3.68		0	0
		INT FINAL				0	0				0	0
	181	1930 INT	0.1	0.4	38	3.8	15.2				0	0
		FINAL	7.85	2.8	143	1122.55	400.4	10.54	2.32		0	0
		INT FINAL				0	0				0	0
	491	1940 INT	0.4	1	126	50.4	126	1.93	2		0	0
		FINAL	6.83	6.72	365	2492.95	2452.8	10.35	5.84	491	5081.85	2867.44
		INT FINAL				0	0				0	0
	361	1950 INT	0.1	0.4	288	28.8	115.2				0	0
		FINAL	4.84	4.44	73	353.32	324.12	8.22	3.64		0	0
		INT FINAL				0	0				0	0
	37	1960 INT	0.2	1		0	0	1.25	1.84	37	46.25	68.08
		FINAL	2.38	10.04	37	88.06	371.48	6.99	10.32		0	0
		INT FINAL				0	0				0	0
		1970 INT		2.64		0	0	0.8	2.56		0	0
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	69	1980 INT			7	0	0		2	69	0	138
		FINAL			62	0	0				0	0
		1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash	86	1920 INT	0.1	0.4	85	8.5	34	10.27	4.2		0	0
		FINAL	9.44	4	1	9.44	4					
	30	1930 INT	0.2	0.5	30	6	15				0	0
		FINAL	9.14	2		0	0	10.18	2.2		0	0
		INT FINAL				0	0				0	0
		1940 INT	0.1	0.4		0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8		0	0
		INT FINAL				0	0				0	0
	21	1950 INT	0.1	0.4		0	0	0.34	2.48		0	0
		FINAL	2.13	6.48	21	44.73	136.08	4.02	7.56		0	0
		INT FINAL				0	0				0	0
		1960 INT		1.52		0	0	0.26	1.6		0	0
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
	316	1970 INT		5	206	0	1030		2.4	316	0	758.4
		FINAL		10.24	110	0	1126.4				0	0
		INT FINAL				0	0	3.78	7.04		0	0
		1980 INT				0	0		3.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	154	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf	49	1920 INT	0.1	0.4		0	0				0	0
		FINAL	9.66	4.4	49	473.34	215.6	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	160	1930 INT	0.1	0.4	46	4.6	18.4	1.03	2.4	160	164.8	384
		FINAL	10	4.88	114	1140	556.32	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT	0.1	0.4		0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
	30	1950 INT	0.1	0.4		0	0	1.15	2	30	34.5	60
		FINAL	8.2	4	30	246	120	11.55	4.4		0	0
		INT FINAL				0	0				0	0
	30	1980 INT			30							
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						11620.5	11717.26				13526.83	10031.86
TOTAL MBF							20643					21251
TOTAL VALUE						2551139					2909945	
GRAND TOTAL MBF												
GRAND TOTAL VALUE												

NEW TANK AREA ALTERNATIVE 3B MANEUVER

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	62	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	1907	1930 INT	2.59	1	450	1165.5	450	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5	457	6418.28	228.5	14.7	0.5	450	6615	225
	506	1940 INT	2.54	1	506	1285.24	506	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04	506	7104.24	526.24
	230	1950 INT	2.5	2.28	230	575	524.4	2.54	0.96	230	584.2	220.8
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24	391	5055.63	875.84
	391	1960 INT	1.18	3.36	391	461.38	1313.76	2.5	1		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	44	1970 INT	1.57	2.8	44	69.08	123.2	2.83	2.56	44	124.52	112.64
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
	26	1980 INT	0.26	2	26	6.76	52	2.02	2	26	52.52	52
		FINAL				0	0				0	0
	161	1990 INT		2	161	0	322	0.26	2	161	41.86	322
		2000 INT		2	562	0	1124	0.26	2	562	146.12	1124
		2010 INT				0	0		2	500	0	1000
species												
Loblolly	76	1910 INT	12.03	2.04		0	0				0	0
		FINAL										
	4	1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	181	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	491	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
	361	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.78	2.44	361	4252.58	880.84				0	0
		INT FINAL				0	0	11.42	3.6		0	0
	37	1960 INT	2.04	1.44	37	75.48	53.28	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96	37	411.81	146.52
		1970 INT	2.18	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	69	1980 INT	1.2	3.76	69	82.8	259.44	1.81	1.84	69	124.89	126.96
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2	261	0	522	1.2	3.76	261	313.2	981.36
		2010 INT				0	0		2	491	0	982
species												
Slash	86	1920 INT	11.02	4.4		0	0	11.7	4.6		0	0
		FINAL										
	30	1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
	21	1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	316	1970 INT	0.5	2.56	316	158	808.96				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	154	1990 INT		3.04	154	0	468.16	0.3	2.56	154	46.2	394.24
		2000 INT		3.04	137	0	416.48	0.3	2.56	137	41.1	350.72
		2010 INT				0	0		3.04		0	0
species												
Shortleaf	49	1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
	160	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52	160	2435.2	563.2	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	30	1950 INT	1.62	2	30	48.6	60	1.66	1	30	49.8	30
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
	30	1980 INT	1.2	3.76	30	36	112.8	1.81	1.84	30	54.3	55.2
		2000 INT		2	49	0	98	0.26	2	49	12.74	98
		2010 INT				0	0		2		0	0
TOTAL						17067.9	8887.02				20778.13	7623.52
TOTAL MBF							23911					26648
TOTAL VALUE						3609304					4341013	
GRAND TOTAL MBF											92453.3	
GRAND TOTAL VALUE											13411400	

NEW TANK MANEUVER ALTERNATIVE 3B
REGULAR MANAGEMENT

species	BAC ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	62	1920	INT	0.3	0.5		0	0	0.36	1		0	0
			FINAL	8.79	1	62	544.98	62	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5		0	0
	1907	1930	INT	0.5	1	1407	703.5	1407	1.21	1.5	907	1097.47	1360.5
			FINAL	8.14	2.32	500	4070	1160	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1	500	5800	500
	506	1940	INT	0.5	2	506	253	1012	1.89	2.04	506	956.34	1032.24
			FINAL	7.8	3.32		0	0	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
	230	1950	INT				0	0	0.58	2.32	230	133.4	533.6
			FINAL	2.49	5.48		0	0	7.2	4.6		0	0
			INT FINAL				0	0				0	0
	391	1960	INT		1.92	391	0	750.72	0.5	5.6	391	195.5	2189.6
			FINAL	0.9	9.75		0	0				0	0
			INT FINAL				0	0				0	0
	44	1970	INT		3.2	44	0	140.8	0.38	2	44	16.72	88
			FINAL		5.84		0	0				0	0
			INT FINAL				0	0				0	0
	26	1980	INT				0	0		2	26	0	52
			FINAL				0	0				0	0
	*161	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly	76	1910	FINAL	9.4	2.2	76	714.4	167.2	10.08	2.12		0	0
	4	1920	INT				0	0	0.89	1.5		0	0
			FINAL	9.02	3.84	4	36.08	15.36	10.96	3.68		0	0
			INT FINAL				0	0				0	0
	181	1930	INT				0	0				0	0
			FINAL	7.85	2.8	181	1420.85	506.8	10.54	2.32		0	0
			INT FINAL				0	0				0	0
	491	1940	INT				0	0	1.93	2		0	0
			FINAL	6.83	5.72		0	0	10.35	5.84	491	5081.85	2867.44
			INT FINAL				0	0				0	0
	361	1950	INT				0	0				0	0
			FINAL	4.84	4.44		0	0	8.22	3.84		0	0
			INT FINAL				0	0				0	0
	37	1960	INT	0.2	1	37	7.4	37	1.25	1.84	37	46.25	68.08
			FINAL	2.38	10.04		0	0	6.99	10.32		0	0
			INT FINAL				0	0				0	0
		1970	INT		2.64		0	0	0.8	2.56		0	0
			FINAL		12.16		0	0				0	0
			INT FINAL				0	0				0	0
	69	1980	INT				0	0		2	69	0	138
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash	86	1920	FINAL	9.44	4	86	811.84	344	10.27	4.2		0	0
	30	1930	INT				0	0				0	0
			FINAL	9.14	2	30	274.2	60	10.16	2.2		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0	0.5	1.2		0	0
			FINAL	5.55	5.84		0	0	6.44	6.8		0	0
			INT FINAL				0	0				0	0
	21	1950	INT				0	0	0.34	2.48		0	0
			FINAL	2.13	6.48	21	44.73	136.08	4.02	7.56		0	0
			INT FINAL				0	0				0	0
		1960	INT		1.52		0	0	0.26	1.6		0	0
			FINAL	2.64	6.96		0	0	5.69	8.16		0	0
			INT FINAL				0	0	5.67	6.4		0	0
	316	1970	INT		1.84	316	0	581.44		2.4	316	0	758.4
			FINAL		10.24		0	0				0	0
			INT FINAL				0	0	3.78	7.04		0	0
		1980	INT				0	0		3.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
	**154	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf	49	1920	INT				0	0				0	0
			FINAL	9.66	4.4	49	473.34	215.6	12.61	5.12		0	0
			INT FINAL				0	0				0	0
	160	1930	INT				0	0	1.03	2.4	160	164.8	384
			FINAL	10	4.88		0	0	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
	30	1950	INT				0	0	1.15	2	30	34.5	60
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
	30	1980	INT				0	0		2	30	0	60
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
TOTAL							9354.32	6596				13526.83	10091.86
TOTAL MBF								14433					21298
TOTAL VALUE							2006688					2910938	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*136 OPEN LAND
** OPEN LAND

NEW TANK MANEUVER ALTERNATIVE 3B
REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	62	1920 INT	2.51	1		0	0				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5		0	0	15.1	0.5		0	0
	1907	1930 INT	2.59	1	450	1165.5	450	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5	457	6416.28	228.5	14.7	0.5	450	6615	225
	506	1940 INT	2.54	1	506	1285.24	506	2.59			0	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04	506	7104.24	526.24
	230	1950 INT	2.5	2.28	230	575	524.4	2.54	0.96	230	584.2	220.8
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	391	1960 INT	1.18	3.36	391	461.38	1313.76	2.5	1	391	977.5	391
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	44	1970 INT	1.57	2.8	44	69.08	123.2	2.83	2.56	44		112.64
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
	26	1980 INT	0.26	2	26	6.76	52	2.02	2	26	52.52	52
		FINAL				0	0				0	0
	*161	1990 INT		2	161	0	322	0.26	2	161	41.86	322
		2000 INT		2	562	0	1124	0.26	2	562	146.12	1124
		2010 INT				0	0		2	500	0	1000
species												
Loblolly	76	1910 FINAL	12.03	2.04		0	0				0	0
	4	1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	181	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	491	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5		0	0	12.18	2.3		0	0
	361	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.78	2.44	361	4252.58	880.84				0	0
		INT FINAL				0	0	11.42	3.6		0	0
	37	1960 INT	2.04	1.44	37	75.48	53.28	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96	37	411.81	146.52
		1970 INT	2.18	2.24		0	0	2.16	1.04		0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	69	1980 INT	1.2	3.76	69	82.8	259.44	1.81	1.84	69	124.89	126.96
		FINAL				0	0				0	0
		1990 INT		2		0	0	1.2	3.76		0	0
		2000 INT		2	261	0	522	1.2	3.76	261	313.2	981.36
		2010 INT				0	0		2	491	0	982
species												
Slash	86	1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
	30	1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
		1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
	21	1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	316	1970 INT	0.5	2.56	316	158	808.96				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980 INT	0.3	2.56		0	0				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	**154	1990 INT		3.04	154	0	468.16	0.3	2.56	154	46.2	394.24
		2000 INT		3.04	137	0	416.48	0.3	2.56	137	41.1	350.72
		2010 INT				0	0		3.04		0	0
species												
Shortleaf	49	1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
	160	1930 INT	1.71	1		0	0	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52	160	2435.2	563.2	16.7	2.84		0	0
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	30	1950 INT	1.62	2	30	48.6	60	1.66	1	30	49.8	30
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1		0	0
	30	1980 INT	1.2	3.76	30	36	112.8	1.81	1.84	30	54.3	55.2
		2000 INT		2	49	0	98	0.26	2	49	12.74	98
		2010 INT				0	0		2		0	0
TOTAL						17067.9	8887.02				16575.48	7138.68
TOTAL MBF							23911					22072
TOTAL VALUE						3609304					3480481	
GRAND TOTAL MBF											81713.97	
GRAND TOTAL VALUE											12007410	

*136 OPEN LAND
** OPEN LAND

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Alternatives 4/5, 6 and Concurrent Training (T19 and T43)

CURRENT MANAGEMENT ALTERNATIVES 4 & 5

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	1654	1920 INT	0.3	0.5	1654	496.2	827	0.36	1	954	343.44	954
		FINAL	8.79	1		0	0	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5	700	8260	350
	1340	1930 INT	0.5	1	1340	670	1340	1.21	1.5	1340	1621.4	2010
		FINAL	8.14	2.32		0	0	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1		0	0
	612	1940 INT	0.5	2	612	306	1224	1.89	2.04	612	1156.68	1248.48
		FINAL	7.6	3.32		0	0	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	105	1950 INT				0	0	0.58	2.32	105	60.9	243.6
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	1051	1960 INT		1.92	1051	0	2017.92	0.5	5.6	1019	509.5	5708.4
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
	645	1970 INT		3.2	645	0	2064	0.38	2	645	245.1	1290
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
	112	1980 INT				0	0		2	112	0	224
		FINAL				0	0				0	0
	*2307	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
	16	1930 INT				0	0				0	0
		FINAL	7.85	2.8		0	0	10.54	2.32	16	168.64	37.12
		INT FINAL				0	0				0	0
	437	1940 INT				0	0	1.93	2	437	843.41	874
		FINAL	6.83	6.72		0	0	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	469	1950 INT				0	0				0	0
		FINAL	4.84	4.44		0	0	8.22	3.64		0	0
		INT FINAL				0	0				0	0
	39	1960 INT	0.2	1	39	7.8	39	1.25	1.84	39	48.75	71.76
		FINAL	2.38	10.04		0	0	8.99	10.32		0	0
		INT FINAL				0	0				0	0
	182	1970 INT		2.64	182	0	480.48	0.8	2.56	182	145.6	465.92
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	46	1980 INT				0	0		2	46	0	92
		FINAL				0	0				0	0
	46	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash	208	1920 FINAL	9.44	4	208	1963.52	832	10.27	4.2		0	0
	2372	1930 INT				0	0				0	0
		FINAL	9.14	2	1480	13527.2	2960	10.18	2.2	892	9080.56	1962.4
		INT FINAL				0	0				0	0
	63	1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8	63	405.72	428.4
		INT FINAL				0	0				0	0
		1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
	118	1960 INT		1.52	118	0	179.36	0.26	1.6	118	30.68	188.8
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
	1089	1970 INT		1.84	1089	0	2003.76		2.4	1089	0	2613.6
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.78	7.04		0	0
	28	1980 INT				0	0		3.04	28	0	85.12
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	**234	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	2	1930 INT				0	0	1.03	2.4	2	2.06	4.8
		FINAL	10	4.88		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
	3	1950 INT				0	0	1.15	2	3	3.45	6
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
	6	1980 INT				0	0		2	6	0	12
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						16970.72	13967.52				22925.89	18868.4
TOTAL MBF							27726					37455
TOTAL VALUE						3673673					4962769	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*2019 OPEN LAND
**OPEN LAND

CURRENT MANAGEMENT ALTERNATIVES 4 & 5

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	1654	1920 INT	2.51	1	254	637.54	254				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5	700	10290	350	15.1	0.5	254	3835.4	127
	1340	1930 INT	2.59	1	1340	3470.6	1340	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5		0	0	14.7	0.5	1340	19698	670
	612	1940 INT	2.54	1	612	1554.48	612	2.59		612	1585.08	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
	105	1950 INT	2.5	2.28	105	262.5	239.4	2.54	0.96	105	266.7	100.8
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	1051	1960 INT	1.18	3.36	1051	1240.18	3531.36	2.5	1	1051	2627.5	1051
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	645	1970 INT	1.57	2.8	645	1012.65	1806	2.83	2.56	645	1825.35	1651.2
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
	112	1980 INT	0.26	2	112	29.12	224	2.02	2	112	226.24	224
		FINAL				0	0				0	0
	*2307	1990 INT		2	2307	0	4614	0.26	2	2307	599.82	4614
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2	700	0	1400
species												
Loblolly		1910 FINAL	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	16	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	437	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5	437	4977.43	1529.5	12.16	2.3		0	0
	469	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.78	2.44	469	5524.82	1144.36				0	0
		INT FINAL				0	0	11.42	3.6		0	0
	39	1960 INT	2.04	1.44	39	79.56	56.16	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96	39	434.07	154.44
	182	1970 INT	2.18	2.24	182	396.76	407.68	2.16	1.04	182	393.12	189.28
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	46	1980 INT	1.2	3.76	46	55.2	172.96	1.81	1.84	46	83.26	84.64
		FINAL				0	0				0	0
	46	1990 INT		2	46	0	92	1.2	3.76	46	55.2	172.96
		2000 INT		2		0	0	1.2	3.76		0	0
		2010 INT				0	0		2	16	0	32
species												
Slash	208	1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
	2372	1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
	63	1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
	118	1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88	118	894.44	811.84
	1089	1970 INT	0.5	2.56	1089	544.5	2787.84				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
	28	1980 INT	0.3	2.56	28	8.4	71.68				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	**234	1990 INT		3.04	234	0	711.36	0.3	2.56	234	70.2	599.04
		2000 INT		3.04	1688	0	5131.52	0.3	2.56	1688	506.4	4321.28
		2010 INT				0	0		3.04	955	0	2903.2
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.78		0	0
	2	1930 INT	1.71	1	2	3.42	2	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84	2	33.4	5.68
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	3	1950 INT	1.62	2	3	4.86	6	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1	3	42.42	3
	6	1980 INT	1.2	3.76	6	7.2	22.56	1.84		6	11.04	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						30099.22	25106.38				33187.64	19115.36
TOTAL MBF							49431					47906
TOTAL VALUE						6521137					7048472	
GRAND TOTAL MBF											162517.9	
GRAND TOTAL VALUE											22206071	

*2019 OPEN LAND
**OPEN LAND

ALTERNATIVE 6 REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	1797	1920 INT	0.3	0.5	1797	539.1	898.5	0.36	1	1060	381.6	1060
		FINAL	8.79	1		0	0	12.11	1		0	0
		INT FINAL				0	0	11.8	0.5	737	8696.6	368.5
	5293	1930 INT	0.5	1	4293	2146.5	4293	1.21	1.5	3293	3984.53	4939.5
		FINAL	8.14	2.32	1000	8140	2320	12.1	1.92		0	0
		INT FINAL				0	0	11.6	1	1000	11600	1000
	652	1940 INT	0.5	2	652	326	1304	1.89	2.04	652	1232.28	1330.08
		FINAL	7.8	3.32		0	0	11.16	4.76		0	0
		INT FINAL				0	0	10.02	4		0	0
	105	1950 INT				0	0	0.58	2.32	105	60.9	243.6
		FINAL	2.49	5.48		0	0	7.2	4.6		0	0
		INT FINAL				0	0				0	0
	1019	1960 INT		1.92	1019	0	1958.48	0.5	5.6	1019	509.5	5706.4
		FINAL	0.9	9.75		0	0				0	0
		INT FINAL				0	0				0	0
	666	1970 INT		3.2	666	0	2131.2	0.38	2	666	253.08	1332
		FINAL		5.84		0	0				0	0
		INT FINAL				0	0				0	0
	144	1980 INT				0	0		2	144	0	288
		FINAL				0	0				0	0
	*2689	1990 INT				0	0				0	0
OPEN RANGES WITHOUT MAIN ARTILLERY IMPACT AREA												
	4733	INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Loblolly		1910 FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920 INT				0	0	0.89	1.5		0	0
		FINAL	9.02	3.84		0	0	10.96	3.68		0	0
		INT FINAL				0	0				0	0
	4	1930 INT				0	0				0	0
		FINAL	7.85	2.8		0	0	10.54	2.32	4	42.16	9.28
		INT FINAL				0	0				0	0
	434	1940 INT				0	0	1.93	2	434	837.62	868
		FINAL	6.83	6.72		0	0	10.35	5.84		0	0
		INT FINAL				0	0				0	0
	463	1950 INT				0	0				0	0
		FINAL	4.84	4.44		0	0	8.22	3.64		0	0
		INT FINAL				0	0				0	0
	17	1960 INT	0.2	1	17	3.4	17	1.25	1.84	17	21.25	31.28
		FINAL	2.38	10.04		0	0	6.99	10.32		0	0
		INT FINAL				0	0				0	0
	204	1970 INT		2.64	204	0	538.56	0.8	2.56	204	163.2	522.24
		FINAL		12.16		0	0				0	0
		INT FINAL				0	0				0	0
	46	1980 INT				0	0		2	46	0	92
		FINAL				0	0				0	0
	34	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Slash	210	1920 FINAL	9.44	4	210	1982.4	840	10.27	4.2		0	0
	2366	1930 INT				0	0				0	0
		FINAL	9.14	2	1480	13527.2	2960	10.18	2.2	886	9019.48	1949.2
		INT FINAL				0	0				0	0
	63	1940 INT				0	0	0.5	1.2		0	0
		FINAL	5.55	5.84		0	0	6.44	6.8	63	405.72	428.4
		INT FINAL				0	0				0	0
		1950 INT				0	0	0.34	2.48		0	0
		FINAL	2.13	6.48		0	0	4.02	7.56		0	0
		INT FINAL				0	0				0	0
	118	1960 INT		1.52	118	0	179.36	0.26	1.6	118	30.68	188.8
		FINAL	2.64	6.96		0	0	5.69	8.16		0	0
		INT FINAL				0	0	5.87	6.4		0	0
	962	1970 INT		1.84	962	0	1770.08		2.4	962	0	2308.8
		FINAL		10.24		0	0				0	0
		INT FINAL				0	0	3.78	7.04		0	0
	28	1980 INT				0	0		3.04	28	0	85.12
		FINAL				0	0				0	0
		INT FINAL				0	0				0	0
	**235	1990 INT				0	0				0	0
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
species												
Shortleaf		1920 INT				0	0				0	0
		FINAL	9.66	4.4		0	0	12.61	5.12		0	0
		INT FINAL				0	0				0	0
	3	1930 INT				0	0	1.03	2.4	3	3.09	7.2
		FINAL	10	4.88		0	0	13.07	5.52		0	0
		INT FINAL				0	0				0	0
		1940 INT				0	0				0	0
		FINAL	6.91	5.12		0	0	10.05	5.28		0	0
		INT FINAL				0	0				0	0
	3	1950 INT				0	0	1.15	2	3	3.45	6
		FINAL	8.2	4		0	0	11.55	4.4		0	0
		INT FINAL				0	0				0	0
	1	1980 INT				0	0		2	1	0	2
		2000 INT				0	0				0	0
		2010 INT				0	0				0	0
TOTAL						26664.6	19208.18				37245.14	22766.4
TOTAL MBF							41455					54775
TOTAL VALUE						5726809					7931961	

GRAND TOTAL MBF
GRAND TOTAL VALUE

*2403 OPEN LAND
**OPEN LAND

ALTERNATIVE 6 REGULAR MANAGEMENT

species	BAC ACRES	BAC TYPE	PERIOD 3 (2010) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 4 (2020) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	1797	1920 INT	2.51	1	260	652.6	260				0	0
		FINAL	15.46	1		0	0				0	0
		INT FINAL	14.7	0.5	800	11760	400	15.1	0.5	260	3926	130
	5293	1930 INT	2.59	1	2293	5938.87	2293	2.51			0	0
		FINAL				0	0				0	0
		INT FINAL	14.04	0.5	1000	14040	500	14.7	0.5	2293	33707.1	1146.5
	652	1940 INT	2.54	1	652	1656.08	652	2.59		652	1688.68	0
		FINAL				0	0				0	0
		INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
	105	1950 INT	2.5	2.28	105	262.5	239.4	2.54	0.96	105	266.7	100.8
		FINAL	12.13	4.08		0	0				0	0
		INT FINAL	11.27	4		0	0	12.93	2.24		0	0
	1019	1960 INT	1.18	3.36	1019	1202.42	3423.84	2.5	1	1019	2547.5	1019
		FINAL				0	0				0	0
		INT FINAL				0	0	11.27	1		0	0
	666	1970 INT	1.57	2.8	666	1045.62	1864.8	2.83	2.56	666	1884.78	1704.96
		FINAL				0	0				0	0
		INT FINAL				0	0	9.74	1		0	0
	144	1980 INT	0.26	2	144	37.44	288	2.02	2	144	290.88	288
		FINAL				0	0				0	0
	*2689	1990 INT		2	2689	0	5378	0.26	2	2689	699.14	5378
OPEN RANGES WITHOUT MAIN ARTILLERY IMPACT AREA												
	4733	INT				0	0		2	4733	0	9466
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2	737	0	1474
species												
Loblolly		1910 FINAL	12.03	2.04		0	0				0	0
		1920 INT	0.87	1		0	0				0	0
		FINAL	12.4	3.52		0	0	14.46	3.52		0	0
		INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	4	1930 INT	1.3	1		0	0	1.52	1		0	0
		FINAL	13.04	2.16		0	0				0	0
		INT FINAL				0	0	12.18	3.36		0	0
	434	1940 INT	1.79	1		0	0	1.69	1		0	0
		FINAL				0	0				0	0
		INT FINAL	11.39	3.5	434	4943.26	1519	12.16	2.3		0	0
	463	1950 INT	2.09	2		0	0	1.79	1		0	0
		FINAL	11.78	2.44	463	5454.14	1129.72				0	0
		INT FINAL				0	0	11.42	3.6		0	0
	17	1960 INT	2.04	1.44	17	34.68	24.48	2.01	1		0	0
		FINAL				0	0				0	0
		INT FINAL	9.61	5.88		0	0	11.13	3.96	17	189.21	67.32
	204	1970 INT	2.18	2.24	204	444.72	456.96	2.16	1.04	204	440.64	212.16
		FINAL				0	0				0	0
		INT FINAL				0	0	10.48	5.92		0	0
	46	1980 INT	1.2	3.76	46	55.2	172.96	1.81	1.84	46	83.26	84.64
		FINAL				0	0				0	0
	34	1990 INT		2	34	0	68	1.2	3.76	34	40.8	127.84
		2000 INT		2		0	0	1.2	3.76		0	0
		2010 INT				0	0		2	4	0	8
species												
Slash	210	1920 FINAL	11.02	4.4		0	0	11.7	4.6		0	0
	2366	1930 INT	0.88	1		0	0				0	0
		FINAL	11.12	2.2		0	0	12.02	2.4		0	0
		INT FINAL				0	0	10.42	1.4		0	0
	63	1940 INT				0	0				0	0
		FINAL	7.2	7.6		0	0				0	0
		INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950 INT				0	0				0	0
		FINAL	5.26	8.44		0	0				0	0
		INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
	118	1960 INT	0.35	1.76		0	0	0.92	0.5		0	0
		FINAL	7.2	9.16		0	0				0	0
		INT FINAL	6.61	7.32		0	0	7.58	6.88	118	894.44	811.84
	962	1970 INT	0.5	2.56	962	481	2462.72				0	0
		FINAL				0	0				0	0
		INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
	28	1980 INT	0.3	2.56	28	8.4	71.68				0	0
		FINAL				0	0				0	0
		INT FINAL				0	0	5.43	7.45		0	0
	**235	1990 INT		3.04	235	0	714.4	0.3	2.56	235	70.5	501.6
		2000 INT		3.04	1690	0	5137.6	0.3	2.56	1690	507	4326.4
		2010 INT				0	0		3.04	949	0	2884.96
species												
Shortleaf		1920 INT	0.93	2.4		0	0				0	0
		FINAL	15.48	6.08		0	0	18.24	7.12		0	0
		INT FINAL				0	0	17.5	3.76		0	0
	3	1930 INT	1.71	1	3	5.13	3	1.7	1		0	0
		FINAL	16.03	6.32		0	0				0	0
		INT FINAL	15.22	3.52		0	0	16.7	2.84	3	50.1	8.52
		1940 INT	2.06	2		0	0	1.7	1		0	0
		FINAL	13.05	5.92		0	0				0	0
		INT FINAL				0	0	15.1	3.92		0	0
	3	1950 INT	1.62	2	3	4.86	6	1.66	1		0	0
		FINAL				0	0				0	0
		INT FINAL	13.1	2.8		0	0	14.14	1	3	42.42	3
	1	1960 INT	1.2	3.76	1	1.2	3.76	1.84		1	1.84	0
		2000 INT		2		0	0	0.26	2		0	0
		2010 INT				0	0		2		0	0
TOTAL						48028.12	27069.32				47330.99	29843.54
TOTAL MBF							68871					70311
TOTAL VALUE						10190501					10095002	
GRAND TOTAL MBF											235412.2	
GRAND TOTAL VALUE											33944273	

*2403 OPEN LAND

T-19 & 43 REGULAR MANAGEMENT

species	BAC ACRES	BAC	TYPE	PERIOD 1 (1990) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL	PERIOD 2 (2000) MBF	CCF	ACRES	MBF TOTAL	CCF TOTAL
Longleaf	409	1920	INT	0.3	0.5	250	75	125	0.36	1	100	36	100
			FINAL	8.79	1	159	1397.61	159	12.11	1		0	0
			INT FINAL				0	0	11.8	0.5	150	1770	75
	238	1930	INT	0.5	1	238	119	238	1.21	1.5	220	266.2	330
			FINAL	8.14	2.32		0	0	12.1	1.92		0	0
			INT FINAL				0	0	11.6	1	18	208.8	18
		1940	INT	0.5	2		0	0	1.89	2.04		0	0
			FINAL	7.8	3.32		0	0	11.16	4.76		0	0
			INT FINAL				0	0	10.02	4		0	0
		1950	INT				0	0	0.58	2.32		0	0
			FINAL	2.49	5.48		0	0	7.2	4.6		0	0
			INT FINAL				0	0				0	0
		1960	INT		1.92		0	0	0.5	5.6		0	0
			FINAL	0.9	9.75		0	0				0	0
			INT FINAL				0	0				0	0
		1970	INT		3.2		0	0	0.38	2		0	0
			FINAL		5.84		0	0				0	0
			INT FINAL				0	0				0	0
	35	1980	INT				0	0		2	35	0	70
			FINAL				0	0				0	0
	*736	1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Loblolly		1910	FINAL	9.4	2.2		0	0	10.08	2.12		0	0
		1920	INT				0	0	0.89	1.5		0	0
			FINAL	9.02	3.84		0	0	10.96	3.68		0	0
			INT FINAL				0	0				0	0
	3	1930	INT				0	0				0	0
			FINAL	7.85	2.8	3	23.55	8.4	10.54	2.32		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0	1.93	2		0	0
			FINAL	6.83	6.72		0	0	10.35	5.84		0	0
			INT FINAL				0	0				0	0
		1950	INT				0	0				0	0
			FINAL	4.84	4.44		0	0	8.22	3.64		0	0
			INT FINAL				0	0				0	0
		1960	INT	0.2	1		0	0	1.25	1.84		0	0
			FINAL	2.38	10.04		0	0	6.99	10.32		0	0
			INT FINAL				0	0				0	0
	25	1970	INT		2.64	25	0	66	0.8	2.56	25	20	64
			FINAL		12.16		0	0				0	0
			INT FINAL				0	0				0	0
		1980	INT				0	0		2		0	0
			FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Slash		1920	FINAL	9.44	4		0	0	10.27	4.2		0	0
		1930	INT				0	0				0	0
			FINAL	9.14	2		0	0	10.18	2.2		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0	0.5	1.2		0	0
			FINAL	5.55	5.84		0	0	6.44	6.8		0	0
			INT FINAL				0	0				0	0
		1950	INT				0	0	0.34	2.48		0	0
			FINAL	2.13	6.48		0	0	4.02	7.56		0	0
			INT FINAL				0	0				0	0
		1960	INT		1.52		0	0	0.26	1.6		0	0
			FINAL	2.64	6.96		0	0	5.69	8.16		0	0
			INT FINAL				0	0	5.87	6.4		0	0
	10	1970	INT		1.84	10	0	18.4		2.4	10	0	24
			FINAL		10.24		0	0				0	0
			INT FINAL				0	0	3.78	7.04		0	0
		1980	INT				0	0		3.04		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0				0	0
		1990	INT				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
species													
Shortleaf		1920	INT				0	0				0	0
			FINAL	9.66	4.4		0	0	12.61	5.12		0	0
			INT FINAL				0	0				0	0
		1930	INT				0	0	1.03	2.4		0	0
			FINAL	10	4.88		0	0	13.07	5.52		0	0
			INT FINAL				0	0				0	0
		1940	INT				0	0				0	0
			FINAL	6.91	5.12		0	0	10.05	5.28		0	0
			INT FINAL				0	0				0	0
		1950	INT				0	0	1.15	2		0	0
			FINAL	8.2	4		0	0	11.55	4.4		0	0
			INT FINAL				0	0				0	0
		2000	INT				0	0				0	0
		2010	INT				0	0				0	0
*715 OPEN LAND													
TOTAL							1615.16	614.8				2301	681
TOTAL MBF								2089					2825
TOTAL VALUE							337810.1					478028.4	
GRAND TOTAL MBF													
GRAND TOTAL VALUE													

T-19 & 43 REGULAR MANAGEMENT

species	EAC ACRES	EAC	TYPE	PERIOD 3 (2010) MEF	CCF	ACRES	MEF TOTAL	CCF TOTAL	PERIOD 4 (2020) MEF	CCF	ACRES	MEF TOTAL	CCF TOTAL
Longleaf	409	1920	INT	2.51	1		0	0				0	0
			FINAL	15.46	1		0	0				0	0
			INT FINAL	14.7	0.5	100	1470	50	15.1	0.5		0	0
	238	1930	INT	2.59	1	160	414.4	160	2.51			0	0
			FINAL				0	0				0	0
			INT FINAL	14.04	0.5	60	842.4	30	14.7	0.5	160	2352	80
		1940	INT	2.54	1		0	0	2.59			0	0
			FINAL				0	0				0	0
			INT FINAL	12.93	2.24		0	0	14.04	1.04		0	0
		1950	INT	2.5	2.28		0	0	2.54	0.96		0	0
			FINAL	12.13	4.08		0	0				0	0
			INT FINAL	11.27	4		0	0	12.93	2.24		0	0
		1960	INT	1.18	3.36		0	0	2.5	1		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	11.27	1		0	0
		1970	INT	1.57	2.8		0	0	2.83	2.56		0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	9.74	1		0	0
	35	1980	INT	0.26	2	35	9.1	70	2.02	2	35	70.7	70
			FINAL				0	0				0	0
	*736	1990	INT		2	736	0	1472	0.26	2	736	191.36	1472
		2000	INT		2	159	0	318	0.26	2	159	41.34	318
		2010	INT				0	0		2	168	0	336
species													
Loblolly		1910	FINAL	12.03	2.04		0	0				0	0
		1920	INT	0.87	1		0	0				0	0
			FINAL	12.4	3.52		0	0	14.46	3.52		0	0
			INT FINAL	11.44	2.08		0	0	12.54	1.14		0	0
	3	1930	INT	1.3	1		0	0	1.52	1		0	0
			FINAL	13.04	2.16		0	0				0	0
			INT FINAL				0	0	12.18	3.36		0	0
		1940	INT	1.79	1		0	0	1.69	1		0	0
			FINAL				0	0				0	0
			INT FINAL	11.39	3.5		0	0	12.16	2.3		0	0
		1950	INT	2.09	2		0	0	1.79	1		0	0
			FINAL	11.78	2.44		0	0				0	0
			INT FINAL				0	0	11.42	3.6		0	0
		1960	INT	2.04	1.44		0	0	2.01	1		0	0
			FINAL				0	0				0	0
			INT FINAL	9.61	5.88		0	0	11.13	3.96		0	0
	25	1970	INT	2.18	2.24	25	54.5	56	2.16	1.04	25	54	26
			FINAL				0	0				0	0
			INT FINAL				0	0	10.48	5.92		0	0
		1980	INT	1.2	3.76		0	0	1.81	1.84		0	0
			FINAL				0	0				0	0
		1990	INT		2		0	0	1.2	3.76		0	0
		2000	INT		2		0	0	1.2	3.76		0	0
		2010	INT				0	0		2		0	0
species													
Slash		1920	FINAL	11.02	4.4		0	0	11.7	4.6		0	0
		1930	INT	0.88	1		0	0				0	0
			FINAL	11.12	2.2		0	0	12.02	2.4		0	0
			INT FINAL				0	0	10.42	1.4		0	0
		1940	INT				0	0				0	0
			FINAL	7.2	7.6		0	0				0	0
			INT FINAL	6.91	6.4		0	0	8.01	7.72		0	0
		1950	INT				0	0				0	0
			FINAL	5.26	8.44		0	0				0	0
			INT FINAL	4.91	7.32		0	0	5.94	8.08		0	0
		1960	INT	0.35	1.76		0	0	0.92	0.5		0	0
			FINAL	7.2	9.16		0	0				0	0
			INT FINAL	6.61	7.32		0	0	7.58	6.88		0	0
	10	1970	INT	0.5	2.56	10	5	25.6				0	0
			FINAL				0	0				0	0
			INT FINAL	7.33	11.2		0	0	7.38	8.64		0	0
		1980	INT	0.3	2.56		0	0				0	0
			FINAL				0	0				0	0
			INT FINAL				0	0	5.43	7.45		0	0
		1990	INT		3.04		0	0	0.3	2.56		0	0
		2000	INT		3.04		0	0	0.3	2.56		0	0
		2010	INT				0	0		3.04		0	0
species													
Shortleaf		1920	INT	0.93	2.4		0	0				0	0
			FINAL	15.48	6.08		0	0	18.24	7.12		0	0
			INT FINAL				0	0	17.5	3.78		0	0
		1930	INT	1.71	1		0	0	1.7	1		0	0
			FINAL	16.03	6.32		0	0				0	0
			INT FINAL	15.22	3.52		0	0	16.7	2.84		0	0
		1940	INT	2.06	2		0	0	1.7	1		0	0
			FINAL	13.05	5.92		0	0				0	0
			INT FINAL				0	0	15.1	3.92		0	0
		1950	INT	1.62	2		0	0	1.66	1		0	0
			FINAL				0	0				0	0
			INT FINAL	13.1	2.8		0	0	14.14	1		0	0
		2000	INT		2		0	0	0.26	2		0	0
		2010	INT				0	0		2		0	0
*715 OPEN LAND													
TOTAL							2795.4	2181.6				2709.4	2302
TOTAL MEF								4475					4482
TOTAL VALUE							603152.4					587699.9	
GRAND TOTAL MEF												13871.1	
GRAND TOTAL VALUE												2006691	

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6. Species/Age Tables

Introduction

The tables that follow depict the species/birth decade relationships between alternatives and the proposed treatment. The hardwood and pine-hardwood acreage to be cleared or thinned occurs within those stands laying along narrow drainage ways. The only trees to be cut in these areas are those needed to develop or maintain a line-of-sight between points. Other than where drain crossings occur, tanks would not be using the area but timber may need to be cut.

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Proposed Alternatives

ALTERNATIVE 1 AGE

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	48		36	36	12
	1920	1126	351	428	779	347
	1930	8674	4076	1701	5777	2897
	1940	3067	1016	494	1510	1557
	1950	481	156	127	283	198
	1960	558	268	56	324	234
	1970	687	292	62	354	333
	1980	1921	542	434	976	945
	1990	866	306	221	527	339
	OPEN LAND	1453	799	314	1113	340
SUB-TOTAL		18881	7806	3873	11679	7202
		0			0	
LOBLOLLY	1920	0	0	0	0	
	1930	97	27	21	48	49
	1940	231	118	25	143	88
	1950	428	199	165	364	64
	1960	203	3	157	160	43
	1970	266	74	32	106	160
	1980	424	201	67	268	156
	1990	33	22		22	11
SUB-TOTAL		1682	644	467	1111	571
		0			0	
SLASH	1920	136	136		136	
	1930	2211	1508	93	1601	610
	1940	357	138	31	169	188
	1950	278	102	82	184	94
	1960	336	127	75	202	134
	1970	2053	805	352	1157	896
	1980	333	216	10	226	107
	1990	105	98	2	100	5
	OPEN LAND	514	208		208	306
SUB-TOTAL		6323	3338	645	3983	2340
		0			0	
SHORTLEAF	1920	10	10		10	
	1930	112	89	4	93	19
	1950	266	156		156	110
SUB-TOTAL		388	255	4	259	129
		0			0	
PINE-HDWD	1910	86	36		36	50
	1920	519	121	77	198	321
	1930	910	236	38	274	636
	1940	127	39		39	88
	1950	0			0	
	1960	1055	662	266	928	127
	1970	213	93		93	120
	1980	0			0	
	1990	0			0	
SUB-TOTAL		2910	1187	381	1568	1342
		0			0	
HARDWOOD	1900	163	34	19	53	110
	1910	207	91	52	143	64
	1920	682	163	32	195	487
	1930	2139	455	228	683	1456
	1940	595	90	40	130	465
	1950	203	4	26	30	173
	1960	105	35	46	81	24
	1970	88		1	1	87
	1980	13			0	13
	1990	0			0	
SUB-TOTAL		4195	872	444	1316	2879
		0			0	
UN-DRAINED		0			0	
FLAT-WOODS	1990	27	10		10	17
	TOTAL	34406	14112	5814	19926	14480

ALTERNATE 2 SPECIES/AGE

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	48		36	36	12
	1920	1107	351	428	779	328
	1930	8225	3964	1550	5514	2711
	1940	2996	925	682	1607	1389
	1950	327	134	16	150	177
	1960	878	148	514	662	216
	1970	554	200	155	355	199
	1980	1921	542	434	976	945
	1990	797	295	197	492	305
	OPEN LAND	33	4	26	30	3
SUB-TOTAL		16886	6563	4038	10601	6285
LOBLOLLY	1920	0		0	0	0
	1930	97	27	21	48	49
	1940	194	56	103	159	35
	1950	271	195	12	207	64
	1960	189	3	157	160	29
	1970	230	74	32	106	124
	1980	413	201	56	257	156
	1990	12	12		12	0
SUB-TOTAL		1406	568	381	949	457
SLASH	1920	136	136		136	
	1930	2211	1508	93	1601	610
	1940	293	138	31	169	124
	1950	278	102	82	184	94
	1960	336	127	75	202	134
	1970	2202	745	531	1276	926
	1980	333	216	10	226	107
	1990	105	98	2	100	5
	OPEN LAND	136	20	114	134	2
SUB-TOTAL		6030	3090	938	4028	2002
SHORTLEAF	1920	10	10		10	
	1930	112	89	4	93	19
	1950	177	156		156	21
SUB-TOTAL		299	255	4	259	40
PINE-HDWD	1910	86	36		36	50
	1920	504	121	77	198	306
	1930	910	236	38	274	636
	1940	127	39	0	39	88
	1950	0			0	
	1960	300	297		297	3
	1970	118	93		93	25
	1980	0			0	
	1990	0			0	
SUB-TOTAL		2045	822	115	937	1108
HARDWOOD	1900	149	34	19	53	96
	1910	207	91	52	143	64
	1920	521	118	32	150	371
	1930	1812	292	223	515	1297
	1940	700	98	72	170	530
	1950	174	3	27	30	144
	1960	149	9	72	81	68
	1970	88		1	1	87
	1980	13			0	13
	1990	0			0	
SUB-TOTAL		3813	645	498	1143	2670
UN-DRAINED FLATWOODS	1990	27	10		10	17
	TOTAL	30506	11953	5974	17927	12579

ALTERNATE 3A SPECIES/AGE

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	0			0	
	1920	83	50	12	62	21
	1930	1086	493	178	671	415
	1940	525	46	229	275	250
	1950	153	21	111	132	21
	1960	922	142	464	606	316
	1970	263	36	93	129	134
	1980	32	26		26	6
	1990	72	12	26	38	34
	OPEN LAND	1537	810	340	1150	387
SUB-TOTAL		4673	1636	1453	3089	1584
LOBLOLLY	1910	75	75		75	
	1920	0			0	
	1930	183	96	17	113	70
	1940	561	357	83	440	121
	1950	459	76	178	254	205
	1960	14			0	14
	1970	37			0	37
	1980	59	46	11	57	2
	1990	35	11		11	24
SUB-TOTAL		1423	661	289	950	473
SLASH	1920	0			0	
	1930	0			0	
	1940	64			0	64
	1950	0			0	
	1960	0			0	
	1970	302	82	179	261	41
	1980	0			0	
	1990	0			0	
	OPEN LAND	615	188	114	302	313
SUB-TOTAL		981	270	293	563	418
SHORTLEAF	1910	25	1		1	24
	1920	129	48		48	81
	1930	164	114	46	160	4
	1950	125	30		30	95
	1980	34		30	30	4
SUB-TOTAL		477	193	76	269	208
PINE-HDWD	1900	230	100	11	111	119
	1910	68			0	68
	1920	100	4		4	96
	1930	102	43	59	102	
	1940	0			0	
	1950	0			0	
	1960	1046	656	266	922	124
	1970	107	12		12	95
	1980	99	99		99	
	1990	0			0	
SUB-TOTAL		1752	914	336	1250	502
HARDWOOD	1900	16	1		1	15
	1910	84			0	84
	1920	172	45		45	127
	1930	459	169	35	204	255
	1940	177	25	32	57	120
	1950	30		1	1	29
	1960	97	21	27	48	49
	1970	0			0	
	1980	0			0	
	1990	0			0	
SUB-TOTAL		1035	261	95	356	679
TOTAL		10341	3935	2542	6477	3864

ALTERNATE 3B SPECIES/AGE

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	47			0	47
	1920	889	89	228	317	572
	1930	3860	595	1639	2234	1626
	1940	1372	119	640	759	613
	1950	402	60	207	267	135
	1960	1216	142	579	721	495
	1970	412	36	93	129	283
	1980	32	26		26	6
	1990	79	12	26	38	41
	OPEN LAND	1889	810	454	1264	625
SUB-TOTAL		10198	1889	3866	5755	4443
LOBLOLLY	1910	75	75		75	
	1920	0			0	
	1930	257	138	17	155	102
	1940	908	554	151	705	203
	1950	1043	86	403	489	554
	1960	81	48		48	33
	1970	37			0	37
	1980	82	62	11	73	9
	1990	36	11	1	12	24
SUB-TOTAL		2519	974	583	1557	962
SLASH	1910	392		85	85	307
	1920	8	1		1	7
	1930	41		30	30	11
	1940	71			0	71
	1950	80	21		21	59
	1960	0			0	
	1970	682	139	395	534	148
	1980	11			0	11
	1990	0			0	
	OPEN LAND	616	188	114	302	314
SUB-TOTAL		1901	349	624	973	928
SHORTLEAF	1910	25	1		1	24
	1920	129	48		48	81
	1930	164	114	46	160	4
	1950	125	30		30	95
	1960	34		30	30	4
SUB-TOTAL		477	193	76	269	208
PINE-HDWD	1900	229	99	11	110	119
	1910	205			0	205
	1920	100	4		4	96
	1930	270	43	59	102	168
	1940	0			0	
	1950	86	4		4	82
	1960	1046	656	266	922	124
	1970	107	12		12	95
	1980	99	99		99	
	1990	0			0	
SUB-TOTAL		2142	917	336	1253	889
HARDWOOD	1900	15	1		1	14
	1910	84			0	84
	1920	277	45	20	65	212
	1930	1173	196	135	331	842
	1940	177	25	32	57	120
	1950	125	14	1	15	110
	1960	151	21	27	48	103
	1970	79	5	25	30	49
	1980	40			0	40
	1990	13			0	13
SUB-TOTAL		2134	307	240	547	1587
	TOTAL	19371	4629	5725	10354	9017

CURRENT TANK MANEUVER SPECIES/AGE

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	79		79	79	0
	1920	1574		1574	1574	0
	1930	1340		1327	1327	13
	1940	611		610	610	1
	1950	105		105	105	0
	1960	1061	618	396	1014	47
	1970	649	240	391	631	18
	1980	112	67	31	98	14
	1990	310	296	8	304	6
	OPEN LAND	2564	2231	327	2558	6
SUB-TOTAL		8405	3452	4848	8300	105
LOBLOLLY	1910	0			0	
	1920	0			0	
	1930	16		16	16	0
	1940	437		415	415	22
	1950	468		467	467	1
	1960	39		34	34	5
	1970	155		4	4	151
	1980	46	34	12	46	0
	1990	45	45		45	0
SUB-TOTAL		1206	79	948	1027	179
SLASH	1920	208		208	208	0
	1930	2372		2360	2360	12
	1940	62		62	62	0
	1950	0			0	
	1960	118	1	117	118	0
	1970	1089	504	288	792	297
	1980	27	24		24	3
	1990	240	240		240	
	OPEN LAND	0			0	0
SUB-TOTAL		4116	769	3035	3804	312
SHORTLEAF	1910	0			0	0
	1920	0			0	0
	1930	2		2	2	0
	1950	3		3	3	0
	1980	6		6	6	0
SUB-TOTAL		11	0	11	11	0
PINE-HDWD	1900	0			0	
	1910	60		1	1	59
	1920	47		19	19	28
	1930	89		1	1	88
	1940	4		4	4	
	1950	37	35	1	36	1
	1960	751	707	44	751	0
	1970	197	35	162	197	0
	1980	0			0	
	1990	0			0	
SUB-TOTAL		1185	777	232	1009	176
HARDWOOD	1900	22	22		22	0
	1910	0			0	
	1920	327	105	140	245	82
	1930	563		49	49	514
	1940	220	34	13	47	173
	1950	201		48	48	153
	1960	128	58	70	128	0
	1970	125	75	17	92	33
	1980	0			0	
	1990	1	1		1	
SUB-TOTAL		1587	295	337	632	955
TOTAL		16510	5372	9411	14783	1727

T-19&43 SPECIES AGE

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	0			0	
	1920	236	1	235	236	0
	1930	199	0	199	199	0
	1940	0			0	
	1950	0			0	
	1960	0			0	
	1970	0			0	
	1980	3	3		3	0
	1990	16	16		16	0
	OPEN LAND	722	717	5	722	0
SUB-TOTAL		1176	737	439	1176	0
LOBLOLLY	1910	0			0	
	1920	0			0	
	1930	0			0	0
	1940	0			0	
	1950	0			0	
	1960	0			0	
	1970	0			0	0
	1980	0			0	
	1990	0			0	
SUB-TOTAL		0	0	0	0	0
SLASH	1920	0			0	
	1930	0			0	
	1940	0			0	
	1950	0			0	
	1960	0			0	
	1970	4	4		4	0
	1980	0			0	
	1990	0			0	
	OPEN LAND	0			0	
SUB-TOTAL		4	4	0	4	0
SHORTLEAF	1910	0			0	
	1920	0			0	
	1930	0			0	
	1950	0			0	
	1980	0			0	
SUB-TOTAL		0	0	0	0	0
PINE-HDWD	1900	0			0	
	1910	0			0	
	1920	0			0	
	1930	0			0	
	1940	0			0	
	1950	0			0	
	1960	0			0	
	1970	0			0	
	1980	0			0	
	1990	0			0	
SUB-TOTAL		0	0	0	0	0
HARDWOOD	1900	0			0	
	1910	0			0	
	1920	3		3	3	0
	1930	0			0	
	1940	16	16		16	0
	1950	0			0	
	1960	0			0	
	1970	0			0	
	1980	0			0	
	1990	0			0	
SUB-TOTAL		19	16	3	19	0
	TOTAL	1199	757	442	1199	0

ALTERNATIVE 6 SPECIES AGE

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	80			0	80
	1920	1717			0	1717
	1930	5293			0	5293
	1940	652			0	652
	1950	105			0	105
	1960	1019			0	1019
	1970	666			0	666
	1980	144			0	144
	1990	286			0	286
	OPEN LAND	2403			0	2403
	OPEN RANGES	*4733			0	4733
SUB-TOTAL		17098	0	0	0	17098
LOBLOLLY	1910	0			0	
	1920	0			0	
	1930	4			0	4
	1940	434			0	434
	1950	463			0	463
	1960	17			0	17
	1970	178			0	178
	1980	46			0	46
	1990	34			0	34
SUB-TOTAL		1176	0	0	0	1176
SLASH	1920	210			0	210
	1930	2366			0	2366
	1940	63			0	63
	1950	0			0	
	1960	118			0	118
	1970	962			0	962
	1980	28			0	28
	1990	0			0	
	OPEN LAND	235			0	235
SUB-TOTAL		3982	0	0	0	3982
SHORTLEAF	1910	0			0	
	1920	0			0	
	1930	3			0	3
	1950	3			0	3
	1980	1			0	1
SUB-TOTAL		7	0	0	0	7
PINE-HDWD	1900	0			0	
	1910	61			0	61
	1920	47			0	47
	1930	89			0	89
	1940	0			0	
	1950	56			0	56
	1960	749			0	749
	1970	128			0	128
	1980	0			0	
	1990	0			0	
SUB-TOTAL		1130	0	0	0	1130
HARDWOOD	1900	23			0	23
	1910	0			0	
	1920	326			0	326
	1930	565			0	565
	1940	273			0	273
	1950	165			0	165
	1960	107			0	107
	1970	116			0	116
	1980	0			0	
	1990	0			0	
SUB-TOTAL		1575	0	0	0	1575
TOTAL		24968	0	0	0	24968

* WITHOUT MAIN ARTILLERY IMPACT AREA

MPRCH SPECIES/AGE

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	2			0	2
	1920	16	16		16	0
	1930	0			0	0
	1940	2	2		2	0
	1950	0			0	0
	1960	454	94		94	360
	1970	433	344		344	89
	1980	50	23		23	27
	1990	0			0	0
	OPEN LAND	317	259		259	58
SUB-TOTAL		1274	738	0	738	536
LOBLOLLY	1910	0			0	0
	1920	0			0	0
	1930	0			0	0
	1940	0			0	0
	1950	1			0	1
	1960	0			0	0
	1970	0			0	0
	1980	29	26		26	3
	1990	0			0	0
SUB-TOTAL		30	26	0	26	4
SLASH	1920	0			0	0
	1930	0			0	0
	1940	12	11		11	1
	1950	2	1		1	1
	1960	122	80		80	42
	1970	308	113		113	195
	1980	0			0	0
	1990	0			0	0
	OPEN LAND	0			0	0
SUB-TOTAL		444	205	0	205	239
SHORTLEAF	1910	0			0	0
	1920	0			0	0
	1930	0			0	0
	1950	0			0	0
	1980	0			0	0
SUB-TOTAL		0	0	0	0	0
PINE-HDWD	1900	0			0	0
	1910	0			0	0
	1920	0			0	0
	1930	0			0	0
	1940	0			0	0
	1950	10	1		1	9
	1960	0			0	0
	1970	43	43		43	0
	1980	0			0	0
	1990	0			0	0
SUB-TOTAL		53	44	0	44	9
HARDWOOD	1900	0			0	0
	1910	0			0	0
	1920	46	31		31	15
	1930	2	2		2	0
	1940	93	88		88	5
	1950	0			0	0
	1960	246	87		87	159
	1970	75	58		58	17
	1980	0			0	0
	1990	0			0	0
SUB-TOTAL		462	266	0	266	196
	TOTAL	2263	1279	0	1279	984

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Returned Tank Areas by Alternative

TURNBACK SPECIES/AGE ALTERNATIVE 1

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	79		79	79	0
	1920	1272	5	1267	1272	0
	1930	842	41	790	831	11
	1940	361		360	360	1
	1950	79		79	79	0
	1960	692	395	250	645	47
	1970	392	129	258	387	5
	1980	97	63	31	94	3
	1990	218	210	8	218	0
	OPEN LAND	532	254	278	532	0
SUB-TOTAL		4564	1097	3400	4497	67
LOBLOLLY	1910	0			0	
	1920	0			0	
	1930	16		16	16	0
	1940	391	3	371	374	17
	1950	366		365	365	1
	1960	35		31	31	4
	1970	3		3	3	0
	1980	42	34	8	42	0
	1990	24	24		24	0
SUB-TOTAL		877	61	794	855	22
SLASH	1920	106		106	106	0
	1930	1173	132	1032	1164	9
	1940	18	7	11	18	0
	1950	0			0	0
	1960	117		117	117	0
	1970	675	371	213	584	91
	1980	14	10		10	4
	1990	0			0	
	OPEN LAND	109	109		109	0
SUB-TOTAL		2212	629	1479	2108	104
SHORTLEAF	1910	0			0	
	1920	0			0	
	1930	3		3	3	0
	1950	0			0	
	1980	6		6	6	0
SUB-TOTAL		9	0	9	9	0
PINE-HDWD	1900	0			0	
	1910	59			0	59
	1920	36		19	19	17
	1930	1		1	1	0
	1940	4		4	4	0
	1950	37	35	1	36	1
	1960	2		2	2	0
	1970	99	31	68	99	0
	1980	0			0	
	1990	0			0	
SUB-TOTAL		238	66	95	161	77
HARDWOOD	1900	13	13		13	0
	1910	0			0	
	1920	281	75	125	200	81
	1930	318		47	47	271
	1940	127	18	13	31	96
	1950	163		33	33	130
	1960	105	49	56	105	0
	1970	125	75	17	92	33
	1980	0			0	
	1990	0			0	
SUB-TOTAL		1132	230	291	521	611
	TOTAL	9032	2083	6068	8151	881

TURNBACK SPECIES/AGE ALTERNATIVE 2

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	79		79	79	
	1920	1270	5	1265	1270	
	1930	1113	57	1046	1103	10
	1940	367		367	367	
	1950	79		79	79	
	1960	653	358	251	609	44
	1970	526	130	391	521	5
	1980	97	63	31	94	3
	1990	221	213	8	221	
	OPEN LAND	1675	1378	297	1675	
SUB-TOTAL		6080	2204	3814	6018	62
LOBLOLLY	1910	0			0	
	1920	0			0	
	1930	16		16	16	
	1940	428	3	412	415	13
	1950	450		449	449	1
	1960	39		34	34	5
	1970	21	1	4	5	16
	1980	46	34	12	46	
	1990	36	36		36	
SUB-TOTAL		1036	74	927	1001	35
SLASH	1920	106		106	106	
	1930	1173	132	1032	1164	9
	1940	62	11	51	62	
	1950	117		117	117	0
	1960	214	1	213	214	
	1970	318	227		227	91
	1980	14	10		10	4
	1990	0			0	
	OPEN LAND	183	183		183	
SUB-TOTAL		2187	564	1519	2083	104
SHORTLEAF	1910	0			0	0
	1920	0			0	0
	1930	2		2	2	
	1950	3		3	3	
	1980	6		6	6	
SUB-TOTAL		11	0	11	11	0
PINE-HDWD	1900	0			0	
	1910	59			0	59
	1920	19		19	19	
	1930	17			0	17
	1940	4		4	4	
	1950	36	35		35	1
	1960	705	661	44	705	
	1970	193	31	162	193	
	1980	0			0	
	1990	0			0	
SUB-TOTAL		1033	727	229	956	77
HARDWOOD	1900	23	23		23	
	1910	0			0	
	1920	323	117	125	242	81
	1930	441		47	47	394
	1940	58	1	13	14	44
	1950	200		48	48	152
	1960	78	8	70	78	
	1970	125	75	17	92	33
	1980	0			0	
	1990	0			0	
SUB-TOTAL		1248	224	320	544	704
	TOTAL	11595	3793	6820	10613	982

TURNBACK SPECIES/AGE ALTERNATE 3A

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	79		79	79	
	1920	1345	5	1340	1345	
	1930	831	41	779	820	11
	1940	217		217	217	
	1950	105		105	105	
	1960	292		248	248	44
	1970	423	146	258	404	19
	1980	108	63	31	94	14
	1990	292	278	8	286	6
	OPEN LAND	528	250	278	528	
SUB-TOTAL		4220	783	3343	4126	94
LOBLOLLY	1910	0			0	
	1920	0			0	
	1930	16		16	16	
	1940	376	3	359	362	14
	1950	360		359	359	1
	1960	35		31	31	4
	1970	138		3	3	135
	1980	42	34	8	42	
	1990	33	33		33	
SUB-TOTAL		1000	70	776	846	154
SLASH	1920	208		208	208	
	1930	2372	142	2218	2360	12
	1940	2		2	2	
	1950	0			0	
	1960	118	1	117	118	
	1970	881	296	288	584	297
	1980	29	25		25	4
	1990	0			0	0
	OPEN LAND	0			0	0
SUB-TOTAL		3610	464	2833	3297	313
SHORTLEAF	1910	0			0	
	1920	0			0	
	1930	2		2	2	
	1950	0			0	
	1980	6		6	6	
SUB-TOTAL		8	0	8	8	0
PINE-HDWD	1900	0			0	
	1910	60		1	1	59
	1920	47		19	19	28
	1930	89		1	1	88
	1940	4		4	4	
	1950	37	35	1	36	1
	1960	37	35	2	37	
	1970	68		68	68	
	1980	0			0	
	1990	0			0	
SUB-TOTAL		342	70	96	166	176
HARDWOOD	1900	0			0	0
	1910	0			0	
	1920	282	75	125	200	82
	1930	440		49	49	391
	1940	72	1	13	14	58
	1950	51	5	33	38	13
	1960	56		56	56	
	1970	125	75	17	92	33
	1980	0			0	
	1990	0			0	
SUB-TOTAL		1026	156	293	449	577
	TOTAL	10206	1543	7349	8892	1314

TURNBACK SPECIES/AGE ALTERNATIVE 3B

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	79		79	79	
	1920	342	5	337	342	
	1930	136	19	113	132	4
	1940	36		36	36	
	1950	49		49	49	
	1960	262		218	218	44
	1970	413	146	254	400	13
	1980	108	63	31	94	14
	1990	284	278		278	6
	OPEN LAND	329	247	82	329	
SUB-TOTAL		2038	758	1199	1957	81
LOBLOLLY	1910	0			0	
	1920	0			0	
	1930	0			0	0
	1940	44	3	27	30	14
	1950	334		333	333	1
	1960	24		20	20	4
	1970	137		2	2	135
	1980	34	27	7	34	
	1990	33	33		33	
SUB-TOTAL		606	63	389	452	154
SLASH	1920	208		208	208	
	1930	2225	142	2071	2213	12
	1940	2		2	2	
	1950	0			0	0
	1960	118	1	117	118	
	1970	674	111	279	390	284
	1980	29	25		25	4
	1990	0			0	
	OPEN LAND	0			0	0
SUB-TOTAL		3256	279	2677	2956	300
SHORTLEAF	1910	0			0	
	1920	0			0	0
	1930	0			0	0
	1950	0			0	
	1980	0			0	0
SUB-TOTAL		0	0	0	0	0
PINE-HDWD	1900	0			0	
	1910	0			0	
	1920	47		19	19	28
	1930	89		1	1	88
	1940	4		4	4	
	1950	1		1	1	
	1960	2		2	2	
	1970	103	35	68	103	
	1980	0			0	
	1990	0			0	
SUB-TOTAL		246	35	95	130	116
HARDWOOD	1900	0			0	0
	1910	0			0	
	1920	122	27	67	94	28
	1930	191		24	24	167
	1940	73	1	13	14	59
	1950	38		33	33	5
	1960	59	3	56	59	
	1970	92	75	17	92	
	1980	0			0	
	1990	0			0	
SUB-TOTAL		575	106	210	316	259
	TOTAL	6721	1241	4570	5811	910

Returned Tank Acres
for Alternatives 4, 5, and 6
are the same as those shown
in the Proposed Alternatives section
of the Species/Age Tables

New Tank Areas by Alternative

NEW TANK AREA ALTERNATIVE 1 SPECIES/AGE

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	48		36	36	12
	1920	1053	286	428	714	339
	1930	8376	3971	1697	5668	2708
	1940	2817	922	490	1412	1405
	1950	455	150	127	277	178
	1960	190	56	53	109	81
	1970	430	182	56	238	192
	1980	1911	541	435	976	935
	1990	789	236	221	457	332
	OPEN LAND	245	120	6	126	119
SUB-TOTAL		16314	6464	3549	10013	6301
LOBLOLLY	1910	0			0	
	1920	0			0	
	1930	97	27	21	48	49
	1940	186	78	23	101	85
	1950	325	190	72	262	63
	1960	201	3	157	160	41
	1970	115	47	32	79	36
	1980	420	201	63	264	156
	1990	13	2		2	11
SUB-TOTAL		1357	548	368	916	441
SLASH	1920	35	35		35	
	1930	1012	461	92	553	459
	1940	313	138	31	169	144
	1950	278	102	82	184	94
	1960	336	127	75	202	134
	1970	1643	569	328	897	746
	1980	319	204	10	214	105
	1990	105	98	2	100	5
	OPEN LAND	391	85		85	306
SUB-TOTAL		4432	1819	620	2439	1993
SHORTLEAF	1910	0			0	
	1920	10	10		10	
	1930	112	89	4	93	19
	1950	263	156		156	107
	1980	0			0	
SUB-TOTAL		385	255	4	259	126
PINE-HDWD	1900	0			0	
	1910	85	35		35	50
	1920	508	110	77	187	321
	1930	822	192	37	229	593
	1940	127	39		39	88
	1950	0			0	
	1960	306	284		284	22
	1970	114	89		89	25
	1980	0			0	
	1990	0			0	
SUB-TOTAL		1962	749	114	863	1099
HARDWOOD	1900	154	34	19	53	101
	1910	207	91	52	143	64
	1920	638	134	32	166	472
	1930	1893	315	228	543	1350
	1940	518	63	40	103	415
	1950	179	3	26	29	150
	1960	82	14	45	59	23
	1970	88		1	1	87
	1980	13			0	13
	1990	0			0	
SUB-TOTAL		3772	654	443	1097	2675
UN-DRAINED FLATWOODS	1990	27	10		10	17
TOTAL		28249	10499	5098	15597	12652

NEW TANK AREA ALTERNATIVE 2 SPECIES/AGE

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	48		36	36	12
	1920	1034	286	428	714	320
	1930	8198	3940	1549	5489	2709
	1940	2752	923	479	1402	1350
	1950	302	129	16	145	157
	1960	469	143	192	335	134
	1970	430	182	56	238	192
	1980	1910	541	434	975	935
	1990	725	227	197	424	301
	OPEN LAND	4	4		4	
SUB-TOTAL		15872	6375	3387	9762	6110
LOBLOLLY	1910	0			0	
	1920	0			0	
	1930	97	27	21	48	49
	1940	185	56	96	152	33
	1950	252	190		190	62
	1960	189	3	157	160	29
	1970	95	47	32	79	16
	1980	413	201	56	257	156
	1990	2	2		2	
SUB-TOTAL		1233	526	362	888	345
SLASH	1920	41	35		35	6
	1930	1012	461	92	553	459
	1940	293	138	31	169	124
	1950	278	102	82	184	94
	1960	337	127	75	202	135
	1970	1648	568	334	902	746
	1980	319	204	10	214	105
	1990	105	98	2	100	5
	OPEN LAND	84	20	63	83	1
SUB-TOTAL		4117	1753	689	2442	1675
SHORTLEAF	1910	0			0	
	1920	10	10		10	
	1930	112	89	4	93	19
	1950	177	156		156	21
	1980	0			0	
SUB-TOTAL		299	255	4	259	40
PINE-HDWD	1900	0			0	
	1910	85	35		35	50
	1920	493	110	77	187	306
	1930	822	192	37	229	593
	1940	127	39		39	88
	1950	0			0	
	1960	253	250		250	3
	1970	114	89		89	25
	1980	0			0	
	1990	0			0	
SUB-TOTAL		1894	715	114	829	1065
HARDWOOD	1900	149	34	19	53	96
	1910	207	91	52	143	64
	1920	519	117	32	149	370
	1930	1688	254	222	476	1212
	1940	552	84	42	126	426
	1950	173	3	26	29	144
	1960	99	9	58	67	32
	1970	88		1	1	87
	1980	13			0	13
	1990	0	0		0	
SUB-TOTAL		3488	592	452	1044	2444
UN-DRAINED FLATWOODS	1990	27	10		10	17
TOTAL		26930	10226	5008	15234	11696

NEW TANK AREA ALTERNATIVE 3A SPECIES/AGE

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	0			0	
	1920	83	50	12	62	21
	1930	812	413	174	587	225
	1940	131	44	22	66	65
	1950	153	21	111	132	21
	1960	382	137	139	276	106
	1970	36	36	0	36	
	1980	32	26		26	6
	1990	33	9	26	26	33
	OPEN LAND	276	143	6	149	127
SUB-TOTAL		1973	879	490	1369	604
LOBLOLLY	1910	75	75		75	
	1920	0			0	
	1930	183	96	17	113	70
	1940	500	320	73	393	107
	1950	351	73	73	146	205
	1960	12			0	12
	1970	20			0	20
	1980	55	46	7	53	2
	1990	24			0	24
SUB-TOTAL		1220	610	170	780	440
SLASH	1920	0			0	
	1930	0			0	
	1940	20			0	20
	1950	0			0	
	1960	0			0	
	1970	99	82	6	88	11
	1980	0			0	
	1990	0			0	
	OPEN LAND	463	93	63	156	307
SUB-TOTAL		582	175	69	244	338
SHORTLEAF	1910	25	1		1	24
	1920	129	48		48	81
	1930	164	114	46	160	4
	1950	122	30		30	92
	1980	34		30	30	4
SUB-TOTAL		474	193	76	269	205
PINE-HDWD	1900	230	100	11	111	119
	1910	68			0	68
	1920	100	4		4	96
	1930	102	43	59	102	
	1940	0			0	
	1950	0			0	
	1960	296	277		277	19
	1970	13	12		12	1
	1980	100	99		99	1
	1990	0			0	
SUB-TOTAL		909	535	70	605	304
HARDWOOD	1900	6	1		1	5
	1910	84			0	84
	1920	129	16	0	16	113
	1930	336	67	35	102	234
	1940	45	23	3	26	19
	1950	6			0	6
	1960	30	6	13	19	11
	1970	0			0	
	1980	0			0	
	1990	0			0	
SUB-TOTAL		636	113	51	164	472
TOTAL		5794	2505	926	3431	2363

NEW TANK AREA ALTERNATIVE 3B SPECIES/AGE

SPECIES	BAC	BAC ACRES	ACRES CLEAR	ACRES THIN	ACTION TOTAL	NO ACTION
LONGLEAF	1910	47			0	47
	1920	246	50	12	62	184
	1930	3154	489	1418	1907	1247
	1940	916	72	433	505	411
	1950	364	23	207	230	134
	1960	646	138	253	391	255
	1970	189	36	8	44	145
	1980	32	26		26	6
	1990	68	9	26	35	33
	OPEN LAND	518	143	13	156	362
SUB-TOTAL		6180	986	2370	3356	2824
LOBLOLLY	1910	75	75		75	
	1920	0			0	
	1930	241	137	17	154	87
	1940	680	365	126	491	189
	1950	915	73	288	361	554
	1960	69	37		37	32
	1970	20			0	20
	1980	78	62	7	69	9
	1990	24			0	24
SUB-TOTAL		2102	749	438	1187	915
SLASH	1910	392		85	85	307
	1920	8	1		1	7
	1930	41		30	30	11
	1940	27			0	27
	1950	80	21		21	59
	1960	0			0	
	1970	427	110	206	316	111
	1980	11			0	11
	1990	0			0	
	OPEN LAND	463	93	63	156	307
SUB-TOTAL		1449	225	384	609	840
SHORTLEAF	1910	25	1		1	24
	1920	129	48		48	81
	1930	164	114	46	160	4
	1950	122	30		30	92
	1980	34		30	30	4
SUB-TOTAL		474	193	76	269	205
PINE-HDWD	1900	229	99	11	110	119
	1910	146			0	146
	1920	100	4		4	96
	1930	269	43	59	102	167
	1940	0			0	
	1950	49	4		4	45
	1960	296	277		277	19
	1970	13	12		12	1
	1980	99	99		99	
	1990	0			0	
SUB-TOTAL		1201	538	70	608	593
HARDWOOD	1900	6	1		1	5
	1910	84			0	84
	1920	213	16	8	24	189
	1930	946	84	103	187	759
	1940	45	23	3	26	19
	1950	93	6		6	87
	1960	85	7	13	20	65
	1970	46	5		5	41
	1980	40			0	40
	1990	13			0	13
SUB-TOTAL		1571	142	127	269	1302
	TOTAL	12977	2833	3465	6298	6679

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7. Implan Impact Analysis

Introduction

The following tables summarize the Total (Direct, Indirect and Induced) socii-economic effects associated with the sale of 10 MMBF of National Forest timber generated off the Black Creek Ranger District upon the five county economic analysis area . Two separate analysis were made one using the current stumpage values as a basis and another using 1986 stumpage values as a basis. All dollar values displayed are in 1985 Base Year Dollars. The Implan model utilized has a 1985 base year. The stumpage value has increased recently due to existing market conditions. The analysis based upon the 1992 stumpage values reflect the estimated impacts if this trend continues. The analysis based upon the 1986 stumpage value is a more conservative estimate of the anticipated impacts. It reflects impacts that would be expected if timber prices were to drop during the analysis period being studied. The difference between the two analysis gives an indication of the sensitivity of the estimated impacts to stumpage value.

The following assumptions were made in the analysis: 60% of the total volume offered is comprised of Pine Sawtimber and 70% of that volume is processed in the local impact area (5 county impact area). 40% of the total volume offered is Pine Pulpwood and 40% of that volume is processed in the local impact area. Hardwood sawtimber and hardwood roundwood volumes and their associated impacts were not included in this analysis; the value and volume from the hardwood component is not significant enough to include in the analysis. No hardwood sawtimber has been offered on the Black Creek in recent years. The hardwood roundwood stumpage value is four time less that pine pulpwood and volume offered is insignificant compared to the pine volume.

Four tables are displayed. The first two are an aggregation of the more detailed tables that follow.

SHELBY $MM 1985
Scenario CSFEIS : Total Effects per 10 MMBF of Timber Harvest (Based upon 1986 Stumpage Value)

Impact Report #906
2/11/93

Industry	Final Demand (MM$)	TIO (MM$)	Employee Comp Income (MM$)	Property Income (MM$)	Total PoW Income (MM$)	Total Value Added (MM$)	Employment Number of Jobs)
1 Agriculture, Forestry & F	.0017	.0077	.0010	.0015	.0027	.0027	.17
41 Mining	.0001	.0015	.0002	.0007	.0009	.0011	.02
66 Construction	.0000	.0040	.0008	.0007	.0014	.0016	.06
82 Manufacturing	.4839	.7504	.1496	.0646	.2144	.2190	14.21
446 Transportation, Comm. & U	.0144	.0390	.0090	.0099	.0189	.0217	.32
460 Wholesale & Retail Trade	.0537	.0720	.0267	.0110	.0377	.0476	1.60
464 Finance, Insurance & Real	.0468	.0601	.0069	.0314	.0383	.0435	.60
471 Services	.0675	.0748	.0249	.0130	.0381	.0433	2.01
516 Govt. Enterprise & Specia	.0062	.0097	.0036	.0011	.0046	.0046	.25
Total	.6743	1.0192	.2227	.1339	.3570	.3851	19.24
Change in Population = 53.							

SHELBY $MM 1985
Scenario CSEIS : Total Effects per 10 MMBF of Timber Harvest (Based upon 1992 Stumpage Value)

Impact Report #906
2/11/93

Industry	Final Demand (MM$)	TIO (MM$)	Employee Comp Income (MM$)	Property Income (MM$)	Total PoW Income (MM$)	Total Value Added (MM$)	Employment Number of Jobs)
1 Agriculture, Forestry & F	.0030	.0151	.0028	.0032	.0060	.0062	.41
41 Mining	.0002	.0024	.0003	.0011	.0014	.0017	.02
66 Construction	.0000	.0051	.0010	.0008	.0018	.0019	.08
82 Manufacturing	1.1280	1.1843	.2126	.1056	.3181	.3216	22.55
446 Transportation, Comm. & U	.0235	.0377	.0075	.0105	.0179	.0206	.28
460 Wholesale & Retail Trade	.0872	.1020	.0378	.0154	.0530	.0667	2.33
464 Finance, Insurance & Real	.0763	.0941	.0103	.0499	.0604	.0686	.92
471 Services	.1100	.1219	.0412	.0209	.0618	.0700	3.28
516 Govt. Enterprise & Specia	.0099	.0131	.0049	.0015	.0063	.0063	.35
Total	1.4381	1.5757	.3184	.2089	.5267	.5636	30.22
Change in Population = 83.							

SHELBY $MM 1985 Impact Report #906
Scenario CSFEIS : Total Effects per 10 MMBF of Timber Harvest (Based upon 1986 Stumpage Values) 2/11/93

	Industry	Final Demand (MM$)	TIO (MM$)	Employee Comp Income (MM$)	Property Income (MM$)	Total PoW Income (MM$)	Total Value Added (MM$)	Employment Number of Jobs)
1	DAIRY FARM PRODUCTS	.0000	.0000	.0000	.0000	.0000	.0000	.00
2	POULTRY AND EGGS	.0004	.0026	.0001	.0005	.0006	.0006	.03
3	RANCH FED CATTLE	.0000	.0005	.0000	.0001	.0001	.0001	.00
4	RANGE FED CATTLE	.0000	.0001	.0000	.0000	.0000	.0000	.00
5	CATTLE FEEDLOTS	.0000	.0001	.0000	.0000	.0000	.0000	.00
7	HOGS, PIGS AND SWINE	.0000	.0004	.0000	.0001	.0001	.0001	.00
8	OTHER MEAT ANIMAL PRODUCT	.0000	.0001	.0000	.0000	.0000	.0000	.00
9	MISCELLANEOUS LIVESTOCK	.0001	.0001	.0000	.0000	.0000	.0000	.00
11	FOOD GRAINS	.0000	.0000	.0000	.0000	.0000	.0000	.00
12	FEED GRAINS	.0000	.0000	.0000	.0000	.0000	.0000	.00
13	HAY AND PASTURE	.0000	.0000	.0000	.0000	.0000	.0000	.00
16	FRUITS	.0000	.0000	.0000	.0000	.0000	.0000	.00
17	TREE NUTS	.0001	.0001	.0000	.0000	.0000	.0000	.00
18	VEGETABLES	.0006	.0008	.0000	.0003	.0004	.0004	.03
21	OIL BEARING CROPS	.0000	.0000	.0000	.0000	.0000	.0000	.00
23	GREENHOUSE AND NURSERY PR	.0004	.0005	.0000	.0002	.0002	.0002	.01
24	FORESTRY PRODUCTS	.0000	.0001	.0000	.0000	.0000	.0000	.00
25	COMMERCIAL FISHING	.0000	.0000	.0000	.0000	.0000	.0000	.00
26	AGRICULTURAL, FORESTRY, F	.0000	.0001	.0000	.0000	.0000	.0000	.00
27	LANDSCAPE AND HORTICULTUR	.0001	.0022	.0009	.0003	.0013	.0013	.10
41	NATURAL GAS	.0001	.0007	.0001	.0003	.0004	.0005	.01
42	CRUDE PETROLEUM	.0000	.0008	.0001	.0004	.0005	.0006	.01
48	CONSTRUCTION SAND AND GRA	.0000	.0000	.0000	.0000	.0000	.0000	.00
55	NONMETALLIC MINERALS (EXC	.0000	.0000	.0000	.0000	.0000	.0000	.00
58	MISC. NONMETALLIC MINERAL	.0000	.0000	.0000	.0000	.0000	.0000	.00
66	NEW RESIDENTIAL STRUCTURE	.0000	.0000	.0000	.0000	.0000	.0000	.00
67	NEW INDUSTRIAL AND COMMER	.0000	.0000	.0000	.0000	.0000	.0000	.00
68	NEW UTILITY STRUCTURES	.0000	.0000	.0000	.0000	.0000	.0000	.00
69	NEW HIGHWAYS AND STREETS	.0000	.0000	.0000	.0000	.0000	.0000	.00
70	NEW FARM STRUCTURES	.0000	.0000	.0000	.0000	.0000	.0000	.00
71	NEW MINERAL EXTRACTION FA	.0000	.0000	.0000	.0000	.0000	.0000	.00
72	NEW GOVERNMENT FACILITIES	.0000	.0000	.0000	.0000	.0000	.0000	.00
73	MAINTENANCE AND REPAIR, R	.0000	.0019	.0003	.0003	.0006	.0007	.02
74	MAINTENANCE AND REPAIR OT	.0000	.0020	.0005	.0004	.0008	.0009	.04
75	MAINTENANCE AND REPAIR OI	.0000	.0001	.0000	.0000	.0000	.0000	.00
82	MEAT PACKING PLANTS	.0007	.0009	.0001	.0000	.0001	.0001	.00
83	SAUSAGES AND OTHER PREPAR	.0004	.0005	.0001	.0000	.0001	.0001	.00
84	POULTRY DRESSING PLANTS	.0027	.0028	.0003	.0001	.0004	.0004	.02
90	FLUID MILK	.0019	.0022	.0002	.0003	.0005	.0005	.01
103	PREPARED FEEDS, N.E.C	.0000	.0000	.0000	.0000	.0000	.0000	.00
116	BOTTLED AND CANNED SOFT D	.0001	.0001	.0000	.0000	.0000	.0000	.00
151	APPAREL MADE FROM PURCHAS	.0052	.0059	.0018	.0003	.0021	.0021	.16
160	LOGGING CAMPS AND LOGGING	.0000	.2126	.0389	.0194	.0583	.0587	4.19
161	SAWMILLS AND PLANING MILL	.4604	.4899	.1046	.0420	.1466	.1499	9.70

165 WOOD KITCHEN CABINETS	.0000	.0000	.0000	.0000	.0000	.0000	.00
166 VENEER AND PLYWOOD	.0000	.0031	.0006	.0003	.0009	.0009	.05
167 STRUCTURAL WOOD MEMBERS,	.0000	.0000	.0000	.0000	.0000	.0000	.00
169 WOOD PRESERVING	.0000	.0006	.0001	.0000	.0001	.0001	.01
170 WOOD PALLETS AND SKIDS	.0000	.0002	.0000	.0000	.0001	.0001	.01
172 WOOD PRODUCTS, N.E.C	.0000	.0001	.0000	.0000	.0000	.0000	.00
187 PULP MILLS	.0000	.0047	.0010	.0007	.0017	.0018	.02
188 PAPER MILLS, EXCEPT BUILD	.0000	.0000	.0000	.0000	.0000	.0000	.00
191 SANITARY PAPER PRODUCTS	.0000	.0000	.0000	.0000	.0000	.0000	.00
193 PAPER COATING AND GLAZING	.0003	.0005	.0001	.0001	.0002	.0002	.00
199 PAPERBOARD CONTAINERS AND	.0000	.0004	.0001	.0000	.0001	.0001	.00
200 NEWSPAPERS	.0001	.0002	.0001	.0000	.0001	.0001	.00
201 PERIODICALS	.0001	.0001	.0000	.0000	.0000	.0000	.00
205 COMMERCIAL PRINTING	.0000	.0000	.0000	.0000	.0000	.0000	.00
210 ENGRAVING AND PLATE PRINT	.0000	.0000	.0000	.0000	.0000	.0000	.00
211 BOOKBINDING AND RELATED W	.0000	.0000	.0000	.0000	.0000	.0000	.00
222 PRINTING INK	.0000	.0000	.0000	.0000	.0000	.0000	.00
225 PLASTICS MATERIALS AND RE	.0001	.0013	.0002	.0001	.0003	.0003	.01
229 DRUGS	.0001	.0002	.0001	.0000	.0001	.0001	.00
230 SOAP AND OTHER DETERGENTS	.0002	.0002	.0000	.0000	.0001	.0001	.00
231 POLISHES AND SANITATION G	.0001	.0001	.0000	.0000	.0000	.0000	.00
235 PETROLEUM REFINING	.0110	.0225	.0011	.0011	.0022	.0030	.02
237 PETROLEUM AND COAL PRODUC	.0000	.0000	.0000	.0000	.0000	.0000	.00
238 PAVING MIXTURES AND BLOCK	.0000	.0000	.0000	.0000	.0000	.0000	.00
244 MISCELLANEOUS PLASTICS PR	.0000	.0000	.0000	.0000	.0000	.0000	.00
252 WOMENS HANDBAGS AND PURSE	.0001	.0001	.0000	.0000	.0000	.0000	.00
267 CONCRETE BLOCK AND BRICK	.0000	.0000	.0000	.0000	.0000	.0000	.00
268 CONCRETE PRODUCTS, N.E.C	.0000	.0000	.0000	.0000	.0000	.0000	.00
269 READY-MIXED CONCRETE	.0000	.0000	.0000	.0000	.0000	.0000	.00
272 CUT STONE AND STONE PRODU	.0000	.0000	.0000	.0000	.0000	.0000	.00
285 IRON AND STEEL FOUNDRIES	.0000	.0000	.0000	.0000	.0000	.0000	.00
304 METAL BARRELS, DRUMS AND	.0000	.0000	.0000	.0000	.0000	.0000	.00
310 FABRICATED PLATE WORK (BO	.0000	.0000	.0000	.0000	.0000	.0000	.00
311 SHEET METAL WORK	.0000	.0000	.0000	.0000	.0000	.0000	.00
329 FABRICATED METAL PRODUCTS	.0000	.0000	.0000	.0000	.0000	.0000	.00
353 PUMPS AND COMPRESSORS	.0000	.0000	.0000	.0000	.0000	.0000	.00
361 MACHINERY, EXCEPT ELECTRI	.0000	.0000	.0000	.0000	.0000	.0000	.00
368 REFRIGERATION AND HEATING	.0002	.0005	.0001	.0001	.0002	.0002	.01
372 TRANSFORMERS	.0000	.0001	.0000	.0000	.0000	.0000	.00
382 ELECTRIC HOUSEWARES AND F	.0002	.0004	.0001	.0001	.0001	.0001	.00
395 ELECTRONIC COMPONENTS, N.	.0000	.0000	.0000	.0000	.0000	.0000	.00
404 MOTOR VEHICLE PARTS AND A	.0000	.0002	.0000	.0000	.0001	.0001	.00
420 SURGICAL APPLIANCES AND S	.0000	.0000	.0000	.0000	.0000	.0000	.00
421 DENTAL EQUIPMENT AND SUPP	.0000	.0000	.0000	.0000	.0000	.0000	.00
433 SPORTING AND ATHLETIC GOO	.0000	.0000	.0000	.0000	.0000	.0000	.00
438 ARTIFICIAL TREES AND FLOW	.0000	.0000	.0000	.0000	.0000	.0000	.00
441 BROOMS AND BRUSHES	.0000	.0000	.0000	.0000	.0000	.0000	.00
446 RAILROADS AND RELATED SER	.0002	.0060	.0030	.0004	.0034	.0036	.07
447 LOCAL, INTERURBAN PASSENG	.0004	.0005	.0002	.0001	.0003	.0003	.01
448 MOTOR FREIGHT TRANSPORT A	.0005	.0036	.0012	.0010	.0022	.0023	.08
451 PIPE LINES, EXCEPT NATURA	.0004	.0009	.0001	.0004	.0004	.0005	.00
453 ARRANGEMENT OF PASSENGER	.0002	.0003	.0001	.0001	.0002	.0002	.01
454 COMMUNICATIONS, EXCEPT RA	.0036	.0048	.0016	.0015	.0030	.0035	.05
455 RADIO AND TV BROADCASTING	.0001	.0001	.0000	.0000	.0001	.0001	.00
456 ELECTRIC SERVICES	.0054	.0153	.0022	.0052	.0074	.0089	.07
457 GAS PRODUCTION AND DISTRI	.0032	.0067	.0005	.0011	.0016	.0020	.02

458	WATER SUPPLY AND SEWERAGE	.0003	.0003	.0001	.0001	.0002	.0002	.01
459	SANITARY SERVICES AND STE	.0001	.0002	.0000	.0000	.0001	.0001	.00
460	RECREATIONAL RELATED WHOL	.0000	.0000	.0000	.0000	.0000	.0000	.00
461	OTHER WHOLESALE TRADE	.0139	.0296	.0111	.0049	.0160	.0208	.53
462	RECREATIONAL RELATED RETA	.0011	.0012	.0003	.0003	.0006	.0007	.03
463	OTHER RETAIL TRADE	.0387	.0412	.0153	.0058	.0211	.0261	1.04
464	BANKING	.0024	.0055	.0019	.0008	.0027	.0029	.09
465	CREDIT AGENCIES	.0006	.0017	.0013	.0001	.0014	.0015	.07
466	SECURITY AND COMMODITY BR	.0011	.0011	.0003	.0002	.0005	.0007	.01
467	INSURANCE CARRIERS	.0058	.0071	.0019	.0001	.0018	.0028	.08
468	INSURANCE AGENTS AND BROK	.0005	.0016	.0005	.0005	.0010	.0010	.04
469	OWNER-OCCUPIED DWELLINGS	.0203	.0203	.0000	.0138	.0138	.0152	.00
470	REAL ESTATE	.0161	.0228	.0010	.0161	.0171	.0194	.31
471	HOTELS AND LODGING PLACES	.0021	.0026	.0009	.0004	.0013	.0015	.08
472	LAUNDRY, CLEANING AND SHO	.0011	.0014	.0004	.0005	.0009	.0009	.07
473	FUNERAL SERVICE AND CREMA	.0009	.0009	.0002	.0001	.0004	.0004	.02
474	PORTRAIT AND PHOTOGRAPHIC	.0003	.0003	.0001	.0001	.0002	.0002	.03
475	ELECTRICAL REPAIR SERVICE	.0002	.0003	.0001	.0001	.0002	.0002	.01
476	WATCH, CLOCK, JEWELRY AND	.0000	.0000	.0000	.0000	.0000	.0000	.00
477	BEAUTY AND BARBER SHOPS	.0003	.0003	.0001	.0002	.0003	.0003	.03
478	MISCELLANEOUS REPAIR SHOP	.0000	.0000	.0000	.0000	.0000	.0000	.00
479	SERVICES TO BUILDINGS	.0000	.0000	.0000	.0000	.0000	.0000	.00
480	PERSONNEL SUPPLY SERVICES	.0000	.0000	.0000	.0000	.0000	.0000	.00
481	COMPUTER AND DATA PROCESS	.0000	.0000	.0000	.0000	.0000	.0000	.00
482	MANAGEMENT AND CONSULTING	.0000	.0000	.0000	.0000	.0000	.0000	.00
483	DETECTIVE AND PROTECTIVE	.0000	.0000	.0000	.0000	.0000	.0000	.00
484	EQUIPMENT REPAIR AND LEAS	.0000	.0000	.0000	.0000	.0000	.0000	.00
485	PHOTOFINISHING, COMMERCIA	.0000	.0000	.0000	.0000	.0000	.0000	.00
486	OTHER BUSINESS SERVICES	.0000	.0000	.0000	.0000	.0000	.0000	.00
487	ADVERTISING	.0000	.0000	.0000	.0000	.0000	.0000	.00
488	LEGAL SERVICES	.0000	.0000	.0000	.0000	.0000	.0000	.00
489	ENGINEERING, ARCHITECTURA	.0000	.0000	.0000	.0000	.0000	.0000	.00
490	ACCOUNTING, AUDITING AND	.0001	.0002	.0000	.0001	.0001	.0001	.00
491	EATING AND DRINKING PLACE	.0159	.0184	.0031	.0021	.0052	.0096	.44
492	AUTOMOBILE RENTAL AND LEA	.0009	.0020	.0002	.0007	.0008	.0010	.02
493	AUTOMOBILE REPAIR AND SER	.0030	.0043	.0007	.0011	.0018	.0019	.07
494	AUTOMOBILE PARKING AND CA	.0007	.0007	.0001	.0002	.0003	.0003	.02
495	MOTION PICTURES	.0002	.0003	.0001	.0000	.0001	.0001	.01
498	BOWLING ALLEYS AND POOL H	.0001	.0001	.0000	.0000	.0000	.0000	.00
501	MEMBERSHIP SPORTS AND REC	.0009	.0010	.0003	.0000	.0003	.0003	.04
502	AMUSEMENT AND RECREATION	.0001	.0001	.0000	.0000	.0000	.0001	.00
503	DOCTORS AND DENTISTS	.0124	.0125	.0051	.0039	.0090	.0091	.18
504	HOSPITALS	.0099	.0099	.0045	.0010	.0055	.0055	.23
505	NURSING AND PROTECTIVE CA	.0054	.0054	.0026	.0008	.0034	.0034	.25
506	OTHER MEDICAL AND HEALTH	.0035	.0040	.0015	.0009	.0024	.0024	.09
507	ELEMENTARY AND SECONDARY	.0010	.0010	.0003	.0001	.0005	.0005	.04
508	COLLEGES, UNIVERSITIES, S	.0010	.0012	.0007	.0001	.0007	.0007	.05
509	OTHER EDUCATIONAL SERVICE	.0007	.0011	.0005	.0000	.0006	.0006	.04
510	BUSINESS ASSOCIATIONS	.0001	.0001	.0000	.0000	.0000	.0001	.00
511	LABOR AND CIVIC ORGANIZAT	.0011	.0011	.0005	.0001	.0006	.0006	.03
512	RELIGIOUS ORGANIZATIONS	.0024	.0024	.0013	.0002	.0015	.0015	.10
513	OTHER NONPROFIT ORGANIZAT	.0003	.0003	.0001	.0001	.0002	.0002	.01
514	RESIDENTIAL CARE	.0001	.0001	.0000	.0000	.0001	.0001	.00
515	SOCIAL SERVICES, N.E.C.	.0028	.0028	.0015	.0002	.0017	.0017	.15
516	U.S. POSTAL SERVICE	.0009	.0024	.0017	-.0002	.0015	.0015	.05
518	OTHER FEDERAL GOVERNMENT	.0004	.0007	.0002	-.0000	.0001	.0001	.01

519 LOCAL GOVERNMENT PASSENGE	.0000	.0000	.0000	-.0000	.0000	.0000	.00
520 STATE AND LOCAL ELECTRIC	.0000	.0000	.0000	.0000	.0000	.0000	.00
521 OTHER STATE AND LOCAL GOV	.0038	.0055	.0012	.0007	.0019	.0019	.11
525 GOVERNMENT INDUSTRY	.0000	.0000	.0000	.0000	.0000	.0000	.00
527 HOUSEHOLD INDUSTRY	.0011	.0011	.0005	.0006	.0011	.0011	.08
TOTAL	.6749	1.0195	.2236	.1337	.3573	.3855	19.30
Change in Population = 53.							

SHELBY $MM 1985 Impact Report #906
Scenario CSEIS : Total Effects per 10 MMBF of Timber Harvest (Based upon 1992 Stumpage Values) 2/11/93

	Industry	Final Demand (MM$)	TIO (MM$)	Employee Comp Income (MM$)	Property Income (MM$)	Total PoW Income (MM$)	Total Value Added (MM$)	Employment Number of Jobs
1	DAIRY FARM PRODUCTS	.0001	.0001	.0000	.0000	.0000	.0000	.00
2	POULTRY AND EGGS	.0007	.0042	.0001	.0009	.0010	.0010	.04
3	RANCH FED CATTLE	.0000	.0008	.0000	.0001	.0001	.0002	.01
4	RANGE FED CATTLE	.0000	.0002	.0000	.0000	.0000	.0000	.00
5	CATTLE FEEDLOTS	.0000	.0002	.0000	.0000	.0000	.0000	.00
7	HOGS, PIGS AND SWINE	.0000	.0006	.0000	.0001	.0001	.0001	.00
8	OTHER MEAT ANIMAL PRODUCT	.0000	.0001	.0000	.0000	.0000	.0000	.00
9	MISCELLANEOUS LIVESTOCK	.0002	.0003	.0000	.0001	.0001	.0001	.00
11	FOOD GRAINS	.0000	.0000	.0000	.0000	.0000	.0000	.00
12	FEED GRAINS	.0000	.0000	.0000	.0000	.0000	.0000	.00
13	HAY AND PASTURE	.0000	.0000	.0000	.0000	.0000	.0000	.00
16	FRUITS	.0000	.0000	.0000	.0000	.0000	.0000	.00
17	TREE NUTS	.0002	.0002	.0000	.0001	.0001	.0001	.01
18	VEGETABLES	.0010	.0012	.0001	.0005	.0006	.0006	.05
21	OIL BEARING CROPS	.0000	.0000	.0000	.0000	.0000	.0000	.00
23	GREENHOUSE AND NURSERY PR	.0006	.0008	.0000	.0003	.0003	.0003	.02
24	FORESTRY PRODUCTS	.0000	.0004	.0000	.0002	.0002	.0002	.00
25	COMMERCIAL FISHING	.0001	.0001	.0000	.0000	.0000	.0000	.00
26	AGRICULTURAL, FORESTRY, F	.0000	.0002	.0001	.0000	.0001	.0001	.01
27	LANDSCAPE AND HORTICULTUR	.0001	.0057	.0025	.0009	.0034	.0035	.27
41	NATURAL GAS	.0002	.0010	.0001	.0005	.0006	.0007	.01
42	CRUDE PETROLEUM	.0000	.0014	.0002	.0006	.0008	.0010	.01
48	CONSTRUCTION SAND AND GRA	.0000	.0000	.0000	.0000	.0000	.0000	.00
55	NONMETALLIC MINERALS (EXC	.0000	.0000	.0000	.0000	.0000	.0000	.00
58	MISC. NONMETALLIC MINERAL	.0000	.0000	.0000	.0000	.0000	.0000	.00
66	NEW RESIDENTIAL STRUCTURE	.0000	.0000	.0000	.0000	.0000	.0000	.00
67	NEW INDUSTRIAL AND COMMER	.0000	.0000	.0000	.0000	.0000	.0000	.00
68	NEW UTILITY STRUCTURES	.0000	.0000	.0000	.0000	.0000	.0000	.00
69	NEW HIGHWAYS AND STREETS	.0000	.0000	.0000	.0000	.0000	.0000	.00
70	NEW FARM STRUCTURES	.0000	.0000	.0000	.0000	.0000	.0000	.00
71	NEW MINERAL EXTRACTION FA	.0000	.0000	.0000	.0000	.0000	.0000	.00
72	NEW GOVERNMENT FACILITIES	.0000	.0000	.0000	.0000	.0000	.0000	.00
73	MAINTENANCE AND REPAIR, R	.0000	.0029	.0005	.0004	.0009	.0010	.04
74	MAINTENANCE AND REPAIR OT	.0000	.0021	.0005	.0004	.0009	.0009	.04
75	MAINTENANCE AND REPAIR OI	.0000	.0001	.0000	.0000	.0000	.0000	.00
82	MEAT PACKING PLANTS	.0011	.0015	.0001	.0000	.0002	.0002	.01
83	SAUSAGES AND OTHER PREPAR	.0007	.0008	.0001	.0000	.0001	.0001	.01
84	POULTRY DRESSING PLANTS	.0043	.0046	.0005	.0002	.0007	.0007	.04
90	FLUID MILK	.0031	.0035	.0004	.0004	.0008	.0008	.02
103	PREPARED FEEDS, N.E.C	.0000	.0000	.0000	.0000	.0000	.0000	.00
116	BOTTLED AND CANNED SOFT D	.0001	.0002	.0000	.0000	.0000	.0000	.00
151	APPAREL MADE FROM PURCHAS	.0085	.0097	.0030	.0005	.0034	.0035	.26
160	LOGGING CAMPS AND LOGGING	1.0897	1.1165	.2045	.1018	.3064	.3083	22.03
161	SAWMILLS AND PLANING MILL	.0000	.0035	.0007	.0003	.0010	.0011	.07
165	WOOD KITCHEN CABINETS	.0000	.0000	.0000	.0000	.0000	.0000	.00
166	VENEER AND PLYWOOD	.0000	.0004	.0001	.0000	.0001	.0001	.01
167	STRUCTURAL WOOD MEMBERS,	.0000	.0000	.0000	.0000	.0000	.0000	.00
169	WOOD PRESERVING	.0000	.0001	.0000	.0000	.0000	.0000	.00
170	WOOD PALLETS AND SKIDS	.0000	.0001	.0000	.0000	.0000	.0000	.00

	[illegible] PRODUCTS, N.E.C	.0000	01	.0000	.0000	.0000	.0[illegible]	.00
187	PULP MILLS	.0000	07	.0001	.0001	.0002	.0002	.00
188	PAPER MILLS, EXCEPT BUILD	.0000	.0000	.0000	.0000	.0000	.0000	.00
191	SANITARY PAPER PRODUCTS	.0000	.0001	.0000	.0000	.0000	.0000	.00
193	PAPER COATING AND GLAZING	.0006	.0008	.0002	.0001	.0003	.0003	.01
199	PAPERBOARD CONTAINERS AND	.0000	.0005	.0001	.0001	.0002	.0002	.01
200	NEWSPAPERS	.0002	.0003	.0001	.0000	.0001	.0001	.01
201	PERIODICALS	.0001	.0001	.0000	.0000	.0000	.0000	.00
205	COMMERCIAL PRINTING	.0000	.0001	.0000	.0000	.0000	.0000	.00
210	ENGRAVING AND PLATE PRINT	.0000	.0000	.0000	.0000	.0000	.0000	.00
211	BOOKBINDING AND RELATED W	.0000	.0000	.0000	.0000	.0000	.0000	.00
222	PRINTING INK	.0000	.0000	.0000	.0000	.0000	.0000	.00
225	PLASTICS MATERIALS AND RE	.0002	.0006	.0001	.0000	.0001	.0001	.00
229	DRUGS	.0002	.0003	.0001	.0000	.0001	.0001	.00
230	SOAP AND OTHER DETERGENTS	.0004	.0004	.0001	.0001	.0001	.0001	.00
231	POLISHES AND SANITATION G	.0001	.0001	.0000	.0000	.0000	.0000	.00
235	PETROLEUM REFINING	.0179	.0365	.0018	.0017	.0035	.0048	.04
237	PETROLEUM AND COAL PRODUC	.0000	.0000	.0000	.0000	.0000	.0000	.00
238	PAVING MIXTURES AND BLOCK	.0000	.0000	.0000	.0000	.0000	.0000	.00
244	MISCELLANEOUS PLASTICS PR	.0000	.0000	.0000	.0000	.0000	.0000	.00
252	WOMENS HANDBAGS AND PURSE	.0001	.0001	.0000	.0000	.0000	.0000	.00
267	CONCRETE BLOCK AND BRICK	.0000	.0000	.0000	.0000	.0000	.0000	.00
268	CONCRETE PRODUCTS, N.E.C	.0000	.0000	.0000	.0000	.0000	.0000	.00
269	READY-MIXED CONCRETE	.0000	.0000	.0000	.0000	.0000	.0000	.00
272	CUT STONE AND STONE PRODU	.0000	.0000	.0000	.0000	.0000	.0000	.00
285	IRON AND STEEL FOUNDRIES	.0000	.0000	.0000	.0000	.0000	.0000	.00
304	METAL BARRELS, DRUMS AND	.0000	.0000	.0000	.0000	.0000	.0000	.00
310	FABRICATED PLATE WORK (BO	.0000	.0000	.0000	.0000	.0000	.0000	.00
311	SHEET METAL WORK	.0000	.0000	.0000	.0000	.0000	.0000	.00
329	FABRICATED METAL PRODUCTS	.0000	.0000	.0000	.0000	.0000	.0000	.00
353	PUMPS AND COMPRESSORS	.0000	.0000	.0000	.0000	.0000	.0000	.00
361	MACHINERY, EXCEPT ELECTRI	.0000	.0000	.0000	.0000	.0000	.0000	.00
368	REFRIGERATION AND HEATING	.0003	.0011	.0003	.0001	.0004	.0004	.01
372	TRANSFORMERS	.0000	.0001	.0000	.0000	.0000	.0000	.00
382	ELECTRIC HOUSEWARES AND F	.0004	.0008	.0002	.0002	.0003	.0003	.01
395	ELECTRONIC COMPONENTS, N.	.0000	.0001	.0000	.0000	.0000	.0000	.00
404	MOTOR VEHICLE PARTS AND A	.0000	.0005	.0001	.0000	.0001	.0002	.01
420	SURGICAL APPLIANCES AND S	.0000	.0001	.0000	.0000	.0000	.0000	.00
421	DENTAL EQUIPMENT AND SUPP	.0000	.0000	.0000	.0000	.0000	.0000	.00
433	SPORTING AND ATHLETIC GOO	.0000	.0000	.0000	.0000	.0000	.0000	.00
438	ARTIFICIAL TREES AND FLOW	.0000	.0000	.0000	.0000	.0000	.0000	.00
441	BROOMS AND BRUSHES	.0000	.0000	.0000	.0000	.0000	.0000	.00
446	RAILROADS AND RELATED SER	.0003	.0011	.0006	.0001	.0006	.0007	.01
447	LOCAL, INTERURBAN PASSENG	.0006	.0008	.0003	.0002	.0005	.0005	.02
448	MOTOR FREIGHT TRANSPORT A	.0009	.0033	.0011	.0009	.0020	.0021	.07
451	PIPE LINES, EXCEPT NATURA	.0006	.0014	.0001	.0006	.0008	.0008	.00
453	ARRANGEMENT OF PASSENGER	.0004	.0004	.0002	.0001	.0003	.0003	.01
454	COMMUNICATIONS, EXCEPT RA	.0059	.0074	.0024	.0022	.0046	.0053	.08
455	RADIO AND TV BROADCASTING	.0002	.0002	.0000	.0001	.0001	.0001	.00
456	ELECTRIC SERVICES	.0088	.0137	.0020	.0047	.0067	.0080	.06
457	GAS PRODUCTION AND DISTRI	.0052	.0086	.0007	.0014	.0020	.0025	.02
458	WATER SUPPLY AND SEWERAGE	.0005	.0006	.0001	.0001	.0002	.0002	.01
459	SANITARY SERVICES AND STE	.0001	.0002	.0000	.0001	.0001	.0001	.00
460	RECREATIONAL RELATED WHOL	.0000	.0000	.0000	.0000	.0000	.0000	.00
461	OTHER WHOLESALE TRADE	.0226	.0318	.0119	.0053	.0171	.0223	.56
462	RECREATIONAL RELATED RETA	.0018	.0019	.0005	.0005	.0009	.0012	.05

463	OTHER RETAIL TRADE	.0628	.06	.0254	.0096	.0350	.0432	1.72
464	BANKING	.0040	.007	.0026	.0011	.0037	.0040	.13
465	CREDIT AGENCIES	.0010	.0024	.0018	.0001	.0020	.0022	.10
466	SECURITY AND COMMODITY BR	.0018	.0018	.0006	.0003	.0009	.0011	.02
467	INSURANCE CARRIERS	.0095	.0109	.0029	-.0002	.0027	.0043	.12
468	INSURANCE AGENTS AND BROK	.0008	.0025	.0008	.0007	.0016	.0016	.06
469	OWNER-OCCUPIED DWELLINGS	.0330	.0330	.0000	.0224	.0224	.0247	.00
470	REAL ESTATE	.0262	.0360	.0016	.0255	.0271	.0307	.49
471	HOTELS AND LODGING PLACES	.0034	.0041	.0015	.0007	.0021	.0025	.13
472	LAUNDRY, CLEANING AND SHO	.0018	.0021	.0006	.0007	.0013	.0013	.11
473	FUNERAL SERVICE AND CREMA	.0015	.0015	.0004	.0002	.0006	.0006	.04
474	PORTRAIT AND PHOTOGRAPHIC	.0005	.0005	.0001	.0002	.0003	.0003	.04
475	ELECTRICAL REPAIR SERVICE	.0003	.0004	.0001	.0001	.0002	.0002	.02
476	WATCH, CLOCK, JEWELRY AND	.0001	.0001	.0000	.0000	.0000	.0000	.00
477	BEAUTY AND BARBER SHOPS	.0006	.0006	.0002	.0003	.0004	.0005	.04
478	MISCELLANEOUS REPAIR SHOP	.0000	.0000	.0000	.0000	.0000	.0000	.00
479	SERVICES TO BUILDINGS	.0000	.0000	.0000	.0000	.0000	.0000	.00
480	PERSONNEL SUPPLY SERVICES	.0000	.0000	.0000	.0000	.0000	.0000	.00
481	COMPUTER AND DATA PROCESS	.0000	.0000	.0000	.0000	.0000	.0000	.00
482	MANAGEMENT AND CONSULTING	.0000	.0000	.0000	.0000	.0000	.0000	.00
483	DETECTIVE AND PROTECTIVE	.0000	.0000	.0000	.0000	.0000	.0000	.00
484	EQUIPMENT REPAIR AND LEAS	.0000	.0000	.0000	.0000	.0000	.0000	.00
485	PHOTOFINISHING, COMMERCIA	.0000	.0000	.0000	.0000	.0000	.0000	.00
486	OTHER BUSINESS SERVICES	.0000	.0000	.0000	.0000	.0000	.0000	.00
487	ADVERTISING	.0000	.0000	.0000	.0000	.0000	.0000	.00
488	LEGAL SERVICES	.0000	.0000	.0000	.0000	.0000	.0000	.00
489	ENGINEERING, ARCHITECTURA	.0000	.0000	.0000	.0000	.0000	.0000	.00
490	ACCOUNTING, AUDITING AND	.0002	.0003	.0000	.0002	.0002	.0002	.01
491	EATING AND DRINKING PLACE	.0259	.0283	.0048	.0033	.0080	.0148	.67
492	AUTOMOBILE RENTAL AND LEA	.0014	.0041	.0003	.0013	.0016	.0019	.05
493	AUTOMOBILE REPAIR AND SER	.0048	.0073	.0012	.0018	.0030	.0032	.12
494	AUTOMOBILE PARKING AND CA	.0011	.0011	.0001	.0003	.0005	.0005	.04
495	MOTION PICTURES	.0003	.0004	.0001	.0000	.0001	.0001	.01
498	BOWLING ALLEYS AND POOL H	.0001	.0001	.0000	.0000	.0000	.0000	.00
501	MEMBERSHIP SPORTS AND REC	.0015	.0016	.0005	.0001	.0005	.0005	.06
502	AMUSEMENT AND RECREATION	.0002	.0002	.0001	.0000	.0001	.0001	.01
503	DOCTORS AND DENTISTS	.0202	.0202	.0083	.0063	.0145	.0147	.29
504	HOSPITALS	.0161	.0161	.0074	.0016	.0090	.0090	.37
505	NURSING AND PROTECTIVE CA	.0087	.0087	.0042	.0012	.0055	.0056	.40
506	OTHER MEDICAL AND HEALTH	.0057	.0065	.0025	.0014	.0039	.0039	.14
507	ELEMENTARY AND SECONDARY	.0016	.0016	.0005	.0002	.0007	.0007	.07
508	COLLEGES, UNIVERSITIES, S	.0017	.0017	.0010	.0001	.0011	.0011	.07
509	OTHER EDUCATIONAL SERVICE	.0012	.0032	.0015	.0001	.0016	.0017	.13
510	BUSINESS ASSOCIATIONS	.0001	.0002	.0001	.0000	.0001	.0001	.00
511	LABOR AND CIVIC ORGANIZAT	.0017	.0017	.0008	.0001	.0009	.0009	.05
512	RELIGIOUS ORGANIZATIONS	.0040	.0040	.0021	.0003	.0024	.0024	.15
513	OTHER NONPROFIT ORGANIZAT	.0005	.0005	.0002	.0001	.0003	.0003	.01
514	RESIDENTIAL CARE	.0002	.0002	.0001	.0000	.0001	.0001	.01
515	SOCIAL SERVICES, N.E.C.	.0046	.0046	.0025	.0003	.0028	.0028	.24
516	U.S. POSTAL SERVICE	.0014	.0032	.0023	-.0003	.0019	.0019	.07

518 OTHER FEDERAL GOVERNMENT	.0006	.0009	.0002	-.0000	.0002	.0002	.01
519 LOCAL GOVERNMENT PASSENGE	.0001	.0001	.0000	-.0000	.0000	.0000	.00
520 STATE AND LOCAL ELECTRIC	.0000	.0000	.0000	.0000	.0000	.0000	.00
521 OTHER STATE AND LOCAL GOV	.0061	.0072	.0016	.0009	.0025	.0025	.14
525 GOVERNMENT INDUSTRY	.0000	.0000	.0000	.0000	.0000	.0000	.00
527 HOUSEHOLD INDUSTRY	.0017	.0017	.0008	.0009	.0017	.0017	.13
TOTAL	1.4382	1.5757	.3188	.2090	.5278	.5647	30.24
Change in Population =	83.						

Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix P

Summary of Public Scoping Activities

SCOPING MEETINGS REPORT AND SUMMARY
CAMP SHELBY SPECIAL USE PERMIT AND LAND INTERCHANGE
ENVIRONMENTAL IMPACT STATEMENT

NOTICE OF INTENT

A Notice of Intent, published in the Federal Register on January 4, 1990, announced that the Department of the Army as lead agency and with the U.S. Forest Service and the Mississippi Army National Guard as cooperating agencies, would develop an Environmental Impact Statement (EIS) relating to activities at Camp Shelby Training Site, Mississippi. The proposed Federal actions (at that time) were: (1) the interchange of 16,700 acres of Department of Army land at Pinon Canyon Maneuver Site, Colorado for 32,000 acres of U.S. Forest Service DeSoto National Forest, Mississippi and (2) the issuance of a special use permit by the U.S. Forest Service to the Mississippi Army National Guard for the use of 116,000 acres of DeSoto National Forest.

PUBLIC NOTIFICATION

The Mobile District, U.S. Army Corps of Engineers, prepared press releases announcing proposed scoping meetings in Mississippi to which the public was invited (Figure P-1), and distributed this notice in late December, 1989 to 18 daily and weekly newspapers and 28 radio and television stations and networks in Mississippi. Numerous articles based on this release appeared in local and statewide newspapers. Examples of coverage are shown by clippings from such newspapers (Figure P-2 and P-3).

A substantially similar release was prepared in mid-January to announce a later meeting, and was similarly distributed. Examples of the press coverage resulting from this release are shown in Figures P-4 and P-5. The public notification of the scoping session in Colorado was handled in a similar manner by the Omaha District of the U.S. Army Corps of Engineers.

SCOPING SESSIONS

Four scoping sessions were held during the period January 9 through January 24, 1990 to receive public input on issues determining the scope of the EIS. Three sessions were held in Mississippi and one was held in Colorado.

information

mobile district, u.s. army corps of engineers
public affairs office, p.o. box 2288, mobile, al 36628-0001

further information contact:
E. Patrick Mahaffey
(205) 690-2505

December 27, 1989
89-67

CAMP SHELBY EIS SCOPING MEETING TO BE HELD JANUARY 11

MOBILE, ALA. – The U.S. Army Corps of Engineers, Mobile District, will conduct a public scoping meeting on Thursday, January 11, 1990 at 7:00 p.m. in the Jackie D. Sherrill Community Center, West Front Street, Hattiesburg, Mississippi, as part of the process of preparing an Environmental Impact Statement (EIS) for a proposed interchange of land and an extension of the U.S. Forest Service special use permit to the Mississippi National Guard.

The Department of the Army proposes to exchange with the U.S. Forest Service about 16,000 acres of land presently in the Pinon Canyon Maneuver Site near Ft. Carson, Colorado, for approximately 32,000 acres of land presently in the DeSoto National Forest near Hattiesburg, Mississippi. The environmental effects of the land interchange and activities to be conducted on the interchanged lands will be assessed in the EIS. Additionally, the environmental effects of issuing a U.S. Forest Service special use permit to the Mississippi National Guard for activities conducted on 116,199 acres of the DeSoto National Forest will also be assessed in the EIS.

MORE

CAMP SHELBY EIS SCOPING MEETING
2-2-2

The scoping sessions provide a means for agencies, organizations, and individuals to: (1) assist in defining the scope of the EIS, (2) identify significant environmental and social issues and impacts for consideration and analysis in the EIS; (3) provide useful information such as published or unpublished data, as well as personal knowledge of relevant issues; and (4) recommend mitigative measures associated with the proposed actions.

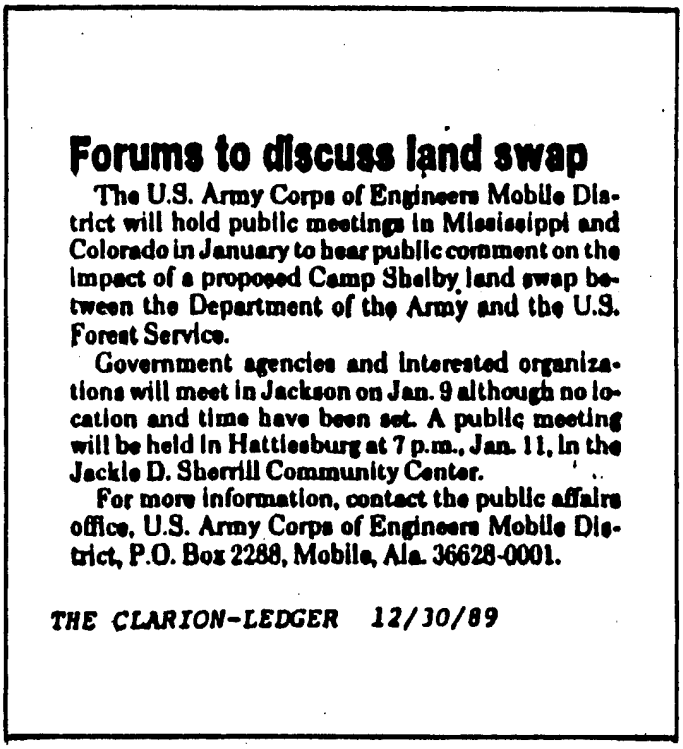
The public is invited and encouraged to attend this meeting to help define the EIS scope. Both oral and written comments will be compiled at the scoping session. Another scoping session for agencies and interested organizations will be held in Jackson, Miss. on January 9 and a public scoping session will also be held near Pinon Canyon, Colo. in early January. The public record for all the scoping sessions will be held open for receipt of written comments until January 26, 1990, but the lead agency (U.S. Army) and cooperating agencies (Miss. National Guard and U.S. Forest Service) will accept comments on the proposed actions throughout the preparation of the Draft Environmental Impact Statement (DEIS).

The DEIS is expected to be filed with the Environmental Protection Agency and to be available for public review by August 1990. A Notice of Availability (NOA) of the DEIS will be published in the Federal Register and the DEIS will be available for public comment for 45 days after the NOA appears. Comments received will be considered in preparation of the Final EIS which is to be available for public review by November 1990.

Any questions concerning the scoping meetings should be addressed to the Chief, Public Affairs, U.S. Army Corps of Engineers, Mobile District, P.O. Box 2288, Mobile, AL 36628-0001 (205) 690-2505.

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Figure P-1. December 27, 1989 Press Release



Forums to discuss land swap

The U.S. Army Corps of Engineers Mobile District will hold public meetings in Mississippi and Colorado in January to hear public comment on the impact of a proposed Camp Shelby land swap between the Department of the Army and the U.S. Forest Service.

Government agencies and interested organizations will meet in Jackson on Jan. 9 although no location and time have been set. A public meeting will be held in Hattiesburg at 7 p.m., Jan. 11, in the Jackie D. Sherrill Community Center.

For more information, contact the public affairs office, U.S. Army Corps of Engineers Mobile District, P.O. Box 2288, Mobile, Ala. 36628-0001.

THE CLARION-LEDGER 12/30/89

Figure P-2. Clarion-Ledger News Story, Dec. 30, 1989

January 9, 1990

The first session was held on January 9, 1990 from 1:30 pm to 3:335 pm in the McCoy Federal Building, Jackson, Mississippi. Interested organizations and agencies were invited, by letter, to attend this meeting. Organizations and agencies individually invited included the U.S. Fish and Wildlife Service, the U.S. Soil Conservation Service, the office of the Governor of Mississippi, the Mississippi Forestry Commission, the Mississippi Forestry Association, the Mississippi Department of Wildlife, Fisheries, and Parks, the Mississippi Wildlife Federation, the Audubon Society, the Sierra Club, the Citizens Against the Land Swap, the Hattiesburg Chamber of Commerce, the Forrest County Board of Supervisors, and the Perry County Board of Supervisors.

LTC Louis J. Martinez, Mobile District Office, Deputy District Engineer (Military), chaired the session and summarized the proposed actions as a proposed interchange of 16,700 acres of Department of Army land in Colorado for 32,000 acres of DeSoto National Forest land in Mississippi and a proposed issuance of a special use permit by the U.S. Forest Service to the Mississippi Army National Guard for use of approximately 116,000 acres of

MAGNOLIA
CLIPPING SERVICE
P.O. BOX 12463
JACKSON, MS 39236
RICHTON DISPATCH
Richton, Mississippi
WEEKLY

JAN-4--90

Camp Shelby EIS Scoping Meeting Set For January 11

The U. S. Army Corps of Engineers, Mobile District, will conduct a public scoping meeting on Thursday, January 11, 1990 at 7:00 p.m. in the Jackie D. Sherill Community Center, West Front Street, Hattiesburg, Mississippi, as part of the process of preparing an Environmental Impact Statement (EIS) for a proposed interchange of land and an extension of the U. S. Forest Service special use permit to the Mississippi National Guard.

The Department of the Army proposes to exchange with the U.S. Forest Service about 16,000 acres of land presently in the Pinon Canyon Maneuver Site near Ft. Carson, Colorado, for approximately 32,000 acres of land presently in the DeSoto National Forest near Hattiesburg, Mississippi. The environmental effects of the land interchange and activities to be conducted on the interchanged lands will be assessed in the EIS. Additionally, the environmental effects of issuing a U.S. Forest Service special use permit to the Mississippi National Guard for activities conducted on 116,199 acres of the DeSoto National Forest will also be assessed in the EIS.

The scoping sessions provide a means for agencies, organizations, and individuals to: (1) assist in defining the scope of the EIS; (2) identify significant environmental and social issues and impacts for consideration and analysis in the EIS; (3) provide useful information such as published or unpublished data, as well as personal knowledge of relevant issues; and (4) recommend mitigative measures associated with the proposed actions.

The public is invited and encouraged to attend this meeting to help define the EIA scope. Both oral and written comments will be accepted at the scoping session. Another scoping session for agencies and interested organizations will be held in Jackson, Miss. on January 9 and a public scoping session will also be held near Pinon Canyon, Colo. in early January. The public record for all the scoping sessions will be held open for receipt of written comments until January 26, 1990, but the lead agency (U. S. Army) and cooperating agencies (Miss. National Guard and U.S. Forest Service) will accept comments on the proposed actions throughout the preparation of the Draft Environmental Impact Statement (DEIS).

The DEIS is expected to be filed with the Environmental Protection Agency and to be available for public review by August 1990. A Notice of Availability (NOA) of the DEIS will be published in the Federal Register and the DEIS will be available for public comment for 45 days after the NOA appears. Comments received will be considered in preparation of the Final EIS which is to be available for public review by November 1990.

Any questions concerning the scoping meetings should be addressed to the Chief, Public Affairs, U. S. Army Corps of Engineers, Mobile District, P. O. Box 2288, Mobile, AL 36628-0001 (205) 690-2505.

Figure P-3. News Story from Richton, MS Dispatch, Jan. 4, 1990

DeSoto National Forest. He stressed that the intent of the meeting was to seek concerns or issues which should be addressed in the EIS. He stated that both oral and written comments would be welcomed and should be addressed to the Mobile District Office by 8 February 1990.

Thomas Craven, an ecologist with the Mobile District Office, described the environmental impact statement process under the National Environmental Policy Act; the schedule for the EIS; and provided information on the lands in Colorado and Mississippi proposed for interchange. Brigadier General Arthur Farmer, Adjutant General, Mississippi National Guard, and COL Mayo, Chief of Staff, provided information on the mission and the changing training needs of the Guard. Kenneth Johnson, Forest Supervisor, U.S. Forest Service, gave an overview of DeSoto National Forest land use by the Guard under memoranda of understandings and special use permits with the U.S. Forest Service.

Forty people registered at the meeting. Ten gave oral comments. Written comments were also received from some participants at the meeting.

January 11, 1990

The second session was held on January 11, 1990 from 7:00 pm to 1:15 am on January 12, 1990 in the Jackie D. Sherrill Community Center in Hattiesburg, Mississippi.

Presentations by the Corps staff, the Mississippi National Guard, and the U.S. Forest Service were the same as summarized for the January 9, 1990 meeting in Jackson, Mississippi.

Two hundred ninety one people registered for the meeting. Oral comments were given by 48 people and additional written comments were received from people at the time of the meeting.

January 22, 1990

The Mississippi Air National Guard Permanent Field Training Site in Gulfport, Mississippi was the site of the third public scoping session. This session was held on January 22, 1990, from 7:00 pm to 11:05 pm.

The meeting was chaired by N. D. McClure, Chief, Planning and Environment Division, Mobile District Office. Mr. McClure summarized the proposed actions as a proposed interchange of 16,700 acres of Department of Army land in Colorado for 32,000 acres of DeSoto National Forest land in Mississippi and a proposed issuance of a special use permit by the U.S. Forest Service to the

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JAN-18-90

Hearing set Monday on Shelby land swap

GULFPORT — Gulf Coast residents will have a chance to air their views Monday on a proposal to swap DeSoto National Forest land in South Mississippi.

A public meeting will be conducted by the Corps of Engineers at 7 p.m. at Building 154 at the Air National Guard facility here.

Comments will be taken from the audience and be placed into the record being compiled by the Corps of Engineers for the environmental impact study.

Building 154 may be reached by taking Hewes Avenue to the old Pepsi plant, turning east on 27th Street. Take a left turn on Adams Avenue and go two blocks to Building 154.

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JAN-19-90

Land swap hearing to be held Monday

■ The U.S. Army Corps of Engineers will hold a public meeting in Gulfport at 7 p.m. Monday on the proposed swap of 32,000 acres of DeSoto National Forest at Camp Shelby for federal grasslands in Colorado. The meeting will be at the Air National Guard Training Facility, Building 154, off Hewes Avenue. It is designed to get public input in defining the scope of an environmental impact statement on the proposed swap of the DeSoto Forest land for 16,000 acres of Department of Defense grasslands in Colorado and the continued use of more than 116,000 acres of the forest under a special use permit. The National Guard wants to use the DeSoto Forest land for expanded training. Both oral and written comments on the proposed swap will be taken at the meeting.

Figure P-4. News Articles from the Jan. 18 Mississippi Press and the Jan. 19 Biloxi Sun-Herald

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JAN-22-90

Your land swap ideas will be heard tonight

Before the hotly debated Camp Shelby land swap can take place, an environmental impact study must be made to determine whether the swap — or, actually, the resulting use of the land — will significantly damage the environment.

And before that study can be made, the U.S. Army Corps of Engineers must decide what aspects will be included in the scope of the study.

For a number of reasons, we have editorialized against the exchange of titles: 32,000 acres of DeSoto National Forest for Department of Defense grasslands in Colorado. The unnecessary loss of wildlife and prime Mississippi timberland to tank maneuvers is but a single concern. The dubious benefits of the exchange; the Army's admitted desire, aborted, for now, for a much larger land grab; the Army's tactics surrounding the whole deal and the possibility, even if remote, of a nuclear waste repository are others.

None of these objections has slowed the approaching tanks.

At this point, it appears that the only thing that might stop the land swap would be an adverse environmental impact statement. Broadening the scope of the study can increase the chances that negative environmental impacts will outweigh any benefits of the swap.

Tonight, in Gulfport, Mississippians can tell the Corps what areas they think should be evaluated. The public meeting will be held at 7 p.m. at the Air National Guard Training Facility, Building 154, off Hewes Avenue.

Figure P-5. News Article from the Jan. 22 Biloxi Sun-Herald

Mississippi Army National Guard for use of approximately 116,000 acres of DeSoto National Forest. He stressed that the intent of the meeting was to seek concerns or issues which should be addressed in the EIS. Mr. McClure stated that both oral and written comments would be welcomed and should be addressed to the Mobile District Office by 8 February 1990.

Thomas Craven, an ecologist with the Mobile District Office, described the environmental impact statement process under the National Environmental Policy Act; the schedule for the EIS; and provided information on the lands in Colorado and Mississippi proposed for interchange. COL Mayo, Chief of Staff, Mississippi National Guard provided information on the mission and the changing training needs of the Guard. Kenneth Johnson, Forest Supervisor, U.S. Forest Service, gave an overview of DeSoto National Forest land use by the Guard under memoranda of understandings and special use permits with the U.S. Forest Service. Douglas Williams, Public Affairs, U.S. Forest Service, gave a summary of the features of the Black Creek Ranger District of the DeSoto National Forest.

Two hundred and eighty seven people registered for the scoping session. Forty people presented oral comments and written comments were also received from the participants.

January 24, 1990

The fourth and last public scoping session began at 7:00 pm on January 24, 1990, at the Pinon Canyon Maneuver Site Headquarters Building, near Trinidad, Colorado. This session was announced through press releases and letters to interested parties.

The meeting was chaired by Richard Gorton, Chief, Environmental Analysis Branch, Planning Division, Omaha District Office. Robert Nebel, Environmental Resource Specialist, Omaha District Office, gave information on the proposed actions being evaluated in the EIS, on the currently identified issues for examination, and the schedule for EIS development. Thomas Craven presented the historical and current land use at Camp Shelby Training Site, Mississippi.

There were 63 people present at the session of whom 45 were registered attendees. Oral comments were received from 31 of the participants during the session. There were 20 scoping comment letters received during the comment period.

ISSUES

Issues identified prior to scoping sessions

Prior to the scoping sessions, the Corps, the Mississippi Army National Guard, and the U.S. Forest Service identified several issues that should be included for inclusion in the EIS. This material was included in the handout material presented at the scoping sessions. These issues were:

Cultural/historical resource preservation
Dinosaur track protection
Grassland direction goals
Mineral rights on interchanged lands
Noise levels
Ordnance disposal/impact areas
Public access
Socio-economic impact
    Impact on jobs
    Impacts on payments to counties
Soil erosion
Threatened and endangered species
Timber management
    Wildfire protection
    Harvesting
Track vehicle maneuvering
Training requirement
Use of roads
Water quality
Wildlife management

Issues identified from scoping process

Issues identified during the scoping process from both oral and written comments are presented below. These issues are summarized for the Mississippi and Colorado scoping sessions separately.

Issues identified during scoping process in Mississippi

Access Issues

* Use of public roads by heavy equipment and concomitant damage Who will pay? How will it be assessed and paid?
* Lack of access to public roads while being used by tanks and other military equipment
* Provisions for public safety in both the interchange and special use permit areas while military is also using lands and roads
* Protection of private lands adjoining both interchange and special use permit areas from intrusion and trespass by military equipment and personnel

* What agency will be responsible for maintenance and repair of roads and bridges in both the interchange and special use permit areas
* Public access into both the interchange and special use permit areas for all pursuits will be limited. How will this affect recreationists, naturalists, recreationally oriented businesses, adjacent land owners, educational and other users? How will loss of access be mitigated?

Aesthetics

* Noise levels from increased activity on interchanged lands
* Visual quality changes after military gets interchanged lands in Mississippi
* Airplane/overflights and associated noise levels over private lands, over wildlife management areas, and over the two wilderness areas near Camp Shelby

Air Quality Resources

* Air quality effects with increased activity on the interchange area

Botanical Resources

* Wetlands need to be inventoried, delimited, and protected from intrusion or disturbance
* Floodplains/riparian areas associated with wetlands
* Destruction of natural vegetative communities in both the interchange and special use permit areas
* Reduction of long leaf pine acreage
* Botanical survey of all flora should be conducted
* Effects of lasers sighting weaponry on flora
* Provide mitigation for wetlands loss at Camp Shelby Training Site

Cultural/Historic Resources

* Cultural/historical resources preservation
* Many small cemeteries in both the interchange and special use permit areas need to be located and mapped

Economic Resources

* Discuss effects on existing investments in area, particularly long term investments
* Provide 5-year, monthly sales tax analysis for 10 counties in the national forest area and county seats
* Effects of interchange on number of USFS jobs at Black Creek Ranger District
* Condemnation of private lands in the interchange area

* Socio-economic impacts (jobs, recreation, payments to counties, timber industry, tourism)
* How will lost tax revenues and payments to counties from timber sales be made up? Will DOD or National Guard commit to always provide these?
* Real estate values (effects on values because of military use; effects on values because of proposed interchange)
* Maintenance and repair of roads and bridges -who will bear costs?
* Effects of lasers on timber stands, on recreationally sought wildlife, and other wildlife

Geology and Soils

* Ordnance impact/disposal areas
* Soil erosion, compaction, and associated effects on environment from activities on interchange area. Also concern over soil erosion on special use permit areas from military use
* Track vehicle maneuvering and its effects on soils and soil erosion
* Wildfire suppression on impact areas and its effects on soils
* Discuss how ground vibrations from military activities will affect the fault that runs through Mississippi
* Discuss soil erosion plan at Camp Shelby and how it will be funded
* Describe soil erosion potentials on current tank maneuver areas and on proposed maneuver areas in interchange area, assess impact to Black Creek watershed

Land Issues

* Differences in use of interchange lands by Forest Service and National Guard
* Guarantee that no land will be acquired from unwilling sellers
* US Forest Service change in land management practices and associated costs as a result of the interchange of land
* Discuss Department of Defense current and long term plans for further land acquisitions
* Analyze effect to property owners within and adjacent to interchange area as well as all of Camp Shelby
* Discuss acquisition of private lands if interchange is done
* Discuss purpose of DOD acquisition of 7,500 acres
* Discuss differences in appraisal values of lands proposed for interchange
* Discuss financial and environment efficiency of DOD management of interchanged land

Military Training Issues

* Track vehicle maneuvering requirements/standards/support jobs
* Ordnance impact/disposal areas
* Military training requirements

* Change in land use
* Creation of live fire areas and concomitant effects
* Describe training activities to be done and number of troops to train on both interchange and special use permit areas
* Justification of need for access to additional acreage by National Guard
* Use area north and west of Forest Service Road 303 for task force maneuver area
* Limit training to 5 days per week and exclude weekends
* Use tank maneuver simulators to train rather that actual tank maneuvering on land
* Discuss closure of Camp Shelby if interchange is not done
* Discuss availability of training at other facilities to meet training needs
* Discuss Mississippi National Guard training and mission requirements resulting from reduction of number of active military forces
* Discuss impact on training at Camp Shelby if interchange and/or special use permit is not done
* Reconfigure maneuver areas within Desoto National Forest to maximize use thereof but to minimize the need for additional lands
* Include assessment of construction and operation of multipurpose range complex - heavy

Mineral Resources

* Mineral rights on interchanged lands - who has the mineral rights?
* Mineral development and exploration - how will it be handled on the interchange area?
* How would revenues from oil and gas leases be administered for interchange area

Noise Issues

* Aerial overflights affect recreational use of area and adjacent landowners
* Effects of military training noise on environment

Procedural Issues

* Master agreement (DOA/DOD) assessment that no other lands are available for use - where is it?
* Analysis that Camp Shelby is the top choice for interchange of lands - where is it? What other facilities were evaluated?
* Analysis of Mississippi National Guard land needs should be done
* Cumulative effects (e.g., current training activity DEIS and land exchange EIS) of all proposed actions and ongoing Mississippi National Guard actions needs to be addressed
* DeSoto National Forest management plan/direction goals - how will these be affected by interchange?

* Professional staffing/monitoring/mitigation that will be needed - will National Guard commit to staffing these?
* Land interchange process between Federal agencies
* Incorporate the Training Facilities EIS into land interchange/special use permit EIS
* Follow National Environmental Policy Act procedures to evaluate proposed actions
* Redefine "No Action" alternative since it is major change in direction for both the Forest Service and National Guard
* Examine interchange of 32,000 acres of Army land for 32,000 acres of National Forest land
* Discuss how Public Law 70-656 will be met with interchange
* Comply with existing environmental regulations and monitor to ensure compliance
* Discuss how use of land will comply with the Multiple Use Sustained Yield Act and the Mississippi Enabling Act
* Provide alternative which exchanges land in Colorado for military installation with limited public access and is slated for closure
* Provide regulations to penalize for environmental damage or violations
* Provide mechanism to deal with environmental damage including immediate reparation and continued maintenance
* Provide complete copy of special use permit
* Evaluate activities on entire 132,000 acres of Camp Shelby
* Discuss interchange of land versus use under special use permit
* How will multipurpose use of land continue after interchange? As it relates to Public Law 98-407
* Examine interchanging the Forest Service land for DOD land in Mississippi
* Examine interchanging National Forest lands for FmHA lands near or adjacent to existing Forest Service lands in Mississippi
* Clarify the interrelationship of the proposed maneuver area to the consolidated and other tank maneuver areas on the interchange area
* Discuss pesticide use at Camp Shelby
* Have task force evaluate land, water, and wildlife on area of national forest and compare to area under permit for military use

* Why was Forest Service selected to receive management control of Pinon Canyon Maneuver Site excess lands?
* Describe the financial and budget requirements for Environmental and Natural Resources Program as result of proposed actions

Recreation Resources

* Public access for recreation on both interchange and special use permit areas - how will effects be mitigated?
* Hunting access - how will it be effected and if adversely, how will it be mitigated
* Wilderness areas and wild and scenic river - how will all National Guard activity on both interchange and special use permit

areas affect these areas and their use? What protection plans will be developed for these areas?

Solid/Hazardous Wastes

* Ordnance impact/disposal areas - what types of ordnance will be used on both the interchange and special use permit area and how will any hazardous material used, if any, be handled?
* Solid/hazardous wastes - what precludes Department of Defense from forcing nuclear waste storage at Camp Shelby when it receives title to the interchange area? Concern that DOD will be able to do anything they want on interchanged land and Mississippi will be powerless to stop it.

Threatened and Endangered Species

* Effects on the several threatened and endangered species that occur in the interchange and special use permit areas
* Who will monitor compliance with laws and requirements for protection of these species? What penalties will be assessed when violations are found? Who ultimately will pay those penalties?
* Provide mitigation plans for impact to threatened and endangered species
* Provide protection plans for threatened and endangered species in interchange area
* Discuss possible relocation of red cockaded woodpeckers
* Discuss how proposed actions affect the red cockaded woodpecker augmentation plan for DeSoto National Forest
* Survey and complete biological assessments for red cockaded woodpecker, gopher tortoise, eastern indigo snake, and Louisiana black bear for areas under proposed actions. Use USFWS guidelines for red cockaded woodpecker survey and assessment
* Develop program for volunteers to monitor and maintain colony sites on Camp Shelby

Timber Management Practices

* Timber management practices (wildfire protection, harvesting) on the interchange lands and presently owned DOD lands. Military activities will render timber worthless and unsalable, also who will determine the timber practices on the interchange area?
* Clearcutting/harvesting practices/plans - Military activities will force virtual clearcutting of large areas
* Prescription burning plans - who will determine these plans for the interchange area?
* Wildfire suppression on impact areas - who's responsible and who will pay for fire control activities?
* Tree thinning and removal will affect regeneration rate of timber
* Provide plan for candidate cavity trees in timber management plan for interchange area

* Provide alternative of 32,000 acres of timberland in southern Mississippi for interchange of DeSoto National Forest land
* Provide protection for Erambert Seed Orchard from Camp Shelby activities
* Provide unbiased monitors for mitigation actions
* Discuss how adherence to procedures will be monitored
* Discuss effects of proposed actions on local timber supply and long term timber yields of DeSoto National Forest to overall timber supply
* Discuss specific management objectives within timber sale program at DeSoto to achieve non-timber uses of interchange area
* Discuss timber production of DOD 7,500 acres at Camp Shelby
* Discuss cumulative impact of actions as result of reducing timber supply to include reduction resulting from threatened and endangered species management on DeSoto National Forest
* Develop alternative to purchase private forest and marginal farm lands outside of and adjacent to Camp Shelby
* Discuss revenues from initial harvests to construct maneuver areas in interchange area

Water Resources

* Water quality will be effected by changes in activities and increased activities on interchange area. These effects will be felt downstream into the Mississippi Sound.
* Wetlands - disturbances and military activities will alter groundwater recharge and other water resource protection features of wetlands
* Groundwater resources, quantity and quality will be effected if timber and other vegetation is removed on interchange and special use permit areas
* Floodplains/riparian areas associated with wetlands - how protected?
* Spill prevention/containment/control plans - who will develop and monitor effectiveness and compliance with plans? Also same issues for soil erosion plans.
* Track vehicle maneuvering will increase soil loss from an already highly erodible area

Wildlife Resources

* Effects of lasers and noise on fauna
* Wildlife management plans - who will develop for interchange area and how will effectiveness and compliance be monitored?
* Habitat evaluation procedure (HEP) analysis should be done for Colorado and Mississippi lands and used to provide for equitable interchange and to look outside Leaf River Wildlife Management Area

* Timber loss effects on nongame neotropical migratory birds
* Effects of interchange on wildlife
* Effects of land clearing on wildlife

* Conduct wildlife survey at Camp Shelby, include invertebrates of Whiskey Creek

Issues identified during scoping process in Colorado

Access Issues

* Access to dinosaur trackway needs to be improved
* Access and recreational use changes and their impacts on remnant lands and adjacent private lands
* Scientific access and use

Miscellaneous Issues

* Maintenance of primitive roads to 3 USGS streamflow gaging stations
* Protection against storage of hazardous or radioactive material
* Human safety from flash floods needs to be considered
* Impacts to native American use of lands

Mitigation Issues

* Effective mitigation of DeSoto National Forest impacts
* Mitigation of loss of jeep use of area
* Mitigation of fish and wildlife impacts

Natural Resources

* Multiple-use impacts on natural resources
* US Forest Service management of natural resource values
  - on parcels not adjoining USFS property in particular
  - management of wildlife resources in particular
* Impacts caused by exclusion of grazing
* Preservation of historical and geological resources
* Preservation of natural aesthetics at dinosaur trackway
* Improved access impacts on fishery
* Impacts to threatened and endangered species and to candidate threatened and endangered species
* Impacts to bighorn sheep
* Status of mineral rights

Procedural Issues

* Consider the alternative of acquiring additional lands in Pinon Canyon area to make a more manageable unit and acquiring additional lands in Mississippi to compensate for impacts
* Detail of geology section of EIS
* Detail of vegetation section of EIS
* Thoroughness of EIS

DEPARTMENT OF THE ARMY
MOBILE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2288
MOBILE, ALABAMA 36628-0001

May 20, 1994

REPLY TO
ATTENTION OF:

Inland Environment Section
Planning and Environmental Division

To Those Interested in Camp Shelby Military Use Plans:

We wish to update you on the status of the Environmental Impact Statement (EIS) for Military Training Use of National Forest Lands at Camp Shelby, Mississippi, and also to update our mailing list. The Draft EIS was circulated for comment to agencies and the public in November 1991, and public meetings were conducted in January 1992. Comments on the Draft EIS were received from 321 agencies, interested organizations, and individuals, with over 2,200 questions, issues or concerns identified.

Since that time the National Guard (lead agency); U.S. Forest Service (cooperating agency); and the U.S. Army Corps of Engineers (EIS management and resource specialists) have been working to address these comments; to conduct added studies and evaluate additional data; and to prepare the Final EIS. These activities have now been completed and the Final EIS will be distributed during the summer of 1994, to be followed after about a month by the Records of Decision (ROD) of the National Guard and the U.S. Forest Service.

As you will recall, the purpose of the EIS is to provide full and fair discussion of significant environmental impacts and to inform decisionmakers and the public of the reasonable alternatives considered; however, it is not the final decision of either the National Guard or the U.S. Forest Service. The ROD will be prepared based on the information contained in the Final EIS and information received throughout the public review process. Under appropriate regulations, the ROD may select any of the alternatives examined or be comprised of components of several different alternatives.

(*over*)

The Final EIS, which includes responses to all comments, will be printed in three volumes, totaling about 2,400 pages. We will provide copies of the entire Final EIS to appropriate federal, state, and local agencies, as well as those organizations and individuals who provided comments on the Draft EIS through letters, comment forms, or oral statements at the January 1992 public meetings. Copies of the Final EIS will be available for review at numerous Mississippi public libraries, including those in Jackson, Hattiesburg, Pascagoula, Gulfport, Biloxi, Bay St. Louis, Wiggins, Beaumont, McLain, New Augusta, and Laurel.

At this time our comprehensive Camp Shelby mailing list contains 1,060 addresses. In an effort to reduce paperwork and expenditures, the Executive Summary of the contents and findings of the Final EIS will be sent to those who do not wish to receive the entire 2,400 page document. Since printing and mailing of the full EIS will cost more than $50 per copy, we encourage you to receive the summary and examine the larger document in your local library. On the attached sheet we ask you to: 1) verify the accuracy of your address as printed on the label and 2) indicate your preference regarding receipt of the Executive Summary, the entire Final EIS document, or neither. Please return your noted preference by June 15, 1994.

Sincerely,



Encl

N.D. McClure IV
Chief, Planning and
Environment Division

ADDRESS CONFIRMATION
FINAL ENVIRONMENTAL IMPACT STATEMENT
MILITARY TRAINING USE OF NATIONAL FOREST LANDS
CAMP SHELBY, MISSISSIPPI

INSTRUCTIONS: Please detach this sheet from the letter; correct the address on the reverse side of this sheet if necessary; check your preference for receipt of the Executive Summary, entire Final EIS, or neither; fold and fasten (tape or staple) this sheet with this side out--exposing the U.S. Army Corps of Engineers, Mobile District address, below; and mail (no postage required). If this address confirmation is not returned by June 15, 1994, we must assume no further mailings are desired, and the addressee will be dropped from our mailing list. Thank you for your assistance in this matter.

- ☐ I wish to receive only the Executive Summary for the Final EIS.
- ☐ I wish to have my name removed from the mailing list and do not wish to receive either the Executive Summary or the entire Final EIS.
- ☐ I wish to receive the entire Final EIS document, consisting of three volumes with approximately 2,400 pages.

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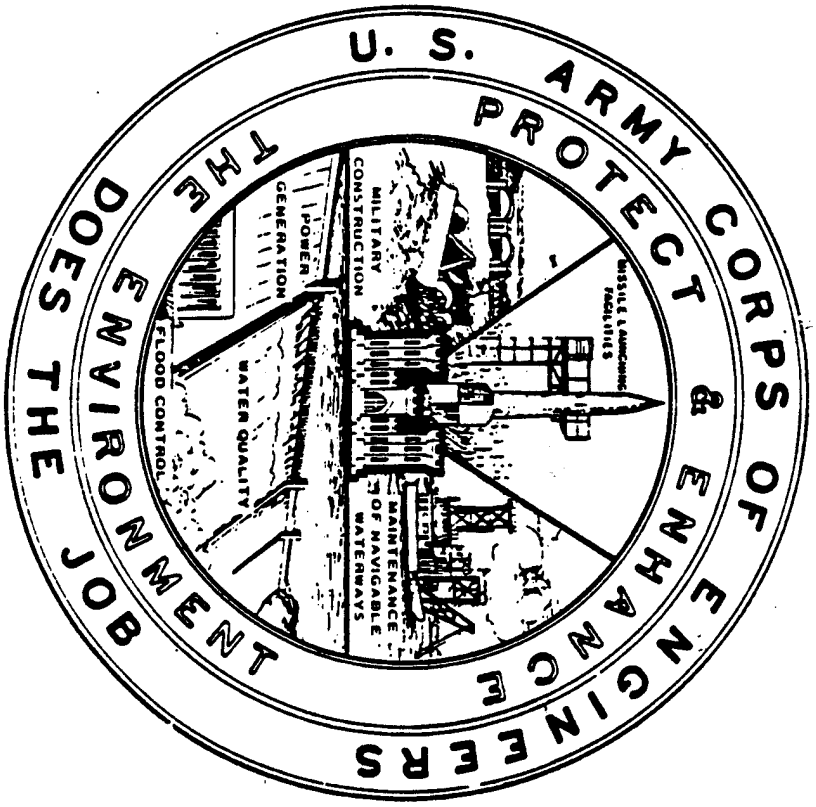
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Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix Q

Lists of Plant and Animal Species from Camp Shelby and Surrounding Areas

Appendix Q

TABLE OF CONTENTS

1. PLANTS OF THE CAMP SHELBY/DESOTO NATIONAL FOREST AREA

   Floristic survey conducted by:

   Patricia Douglas, plant taxonomist
   Colorado State University

2. FISH OF THE CAMP SHELBY/DESOTO NATIONAL FOREST AREA
   (compiled from various texts - See "SOURCES" at section end).

3. BIRDS OF THE CAMP SHELBY/DESOTO NATIONAL FOREST AREA

   These species were studied extensively by the U.S. Army Corps of Engineers and documented during the Land Condition-Trend Analysis small mammal survey (Fall/Winter of 1990 and 1992).

4. MAMMALS OF THE CAMP SHELBY/DESOTO NATIONAL FOREST AREA

   These species were studied extensively by the U.S. Army Corps of Engineers and documented during the Land Condition-Trend Analysis small mammal survey (Fall/Winter of 1990 and 1992).

5. AMPHIBIANS AND REPTILES OF THE CAMP SHELBY/DESOTO NATIONAL FOREST AREA
   (compiled from various texts - See "SOURCES" at section end).

6. BIRD DATA SUMMARY BY STAND TYPE AND AGE CLASS BASED ON 1991 AND 1992 LCTA DATA
   (compiled from various texts - See "SOURCES" at section end).

PLANTS OF THE CAMP SHELBY/DESOTO NATIONAL FOREST AREA

ACERACEAE
- Acer rubrum L.

ALISMATACEAE
- Sagittaria graminea Michaux

AMARANTHACEAE
- Amaranthus spinosus L.
- Amaranthus viridis L.

ANACARDIACEAE
- Rhus copallina L.
- Rhus radicans L.
- Rhus toxicodendron L.
- Rhus vernix L.

APIACEAE
- Centella asiatica (L.) Urban
- Eryngium integrifolium Walter
- Eryngium yuccifolium Michaux var. yuccifolium
- Oxypolis filiformis (Walter) Britton
- Oxypolis rigidior (L.) Raf.

AQUIFOLIACEAE
- Ilex coriacea (Pursh) Chapman
- Ilex glabra (L.) Gray
- Ilex opaca Aiton
- Ilex vomitoria Aiton

ARISTOLOCHIACEAE
- Hexastylis arifolia (Michaux) Small
- Hexastylis virginica (L.) Small

ASPIDIACEAE
- Polystichum acrostichoides (Michaux) Schott

ASTERACEAE
- Ambrosia artemisiifolia L.
- Aster adnatus Nutt.
- Aster concolor L.
- Aster dumosus L.
- Aster infirmus Michaux
- Aster linariifolius L.
- Aster paludosus Aiton
- Aster patens Aiton
- Aster sericocarpoides (Small) K. Schum.
- Aster subulatus Michaux
- Aster tortifolius Michaux
- Baccharis halimifolia L.
- Balduina uniflora Nuttall
- Bidens frondosa L.
- Brintonia discoidea (Ell.) Greene
- Cacalia elliottii (Harper) Shinners
- Carphephorus odoratissimus (J. F. Gmel.) Hebert
- Carphephorus pseudo-liatris Cass.
- Chondrophora nudata (Michaux) Britton
- Conyza canadensis (L.) Cronquist
- Coreopsis grandiflora Hogg
- Coreopsis helianthoides Beadle
- Coreopsis major Walter
- Coreopsis major Walter var. stellata (Nuttall) Robinson
- Coreopsis tripteris L.
- Elephantopus carolinianus Willd.
- Elephantopus nudatus Gray
- Elephantopus tomentosus L.
- Erigeron strigosus Muhl. ex Willd.
- Eupatorium album L.
- Eupatorium altissimum L.
- Eupatorium coelestinum L.
- Eupatorium compositifolium Walter
- Eupatorium fistulosum Barratt
- Eupatorium perfoliatum L.
- Eupatorium pilosum Walter
- Eupatorium recurvans Small
- Eupatorium rotundifolium L.
- Eupatorium semiserratum DC.
- Eupatorium serotinum Michaux
- Eupatorium sp.
- Gnaphalium obtusifolium L.
- Haplopappus divaricatus (Nuttall) Gray
- Helenium amarum (Raf.) H. Rock
- Helianthus angustifolius L.
- Helianthus heterophyllus Nuttall
- Helianthus radula (Pursh) T. & G.
- Helianthus strumosus L.
- Heterotheca graminifolia (Michaux) Shinners
- Heterotheca mariana (L.) Shinners
- Heterotheca scabrella T. & G.
- Lactuca floridana (L.) Gaertner
- Liatris gracilis Pursh
- Liatris spicata (L.) Willd.
- Liatris squarrosa (L.) Michaux
- Pluchea camphorata (L.) DC.
- Pluchea foetida (L.) DC.
- Pluchea purpurascens (Swartz) DC.
- Prenanthes serpentaria Pursh
- Senecio obovatus Muhl. ex Willd.
- Silphium asteriscus L.
- Solidago rugosa Miller
- Solidago microcephala (Greene) Bush
- Solidago odora Aiton

BETULACEAE
Alnus serrulata (Aiton) Willd.

BIGNONIACEAE
Campsis radicans (L.) Seemann

BLECHNACEAE
Woodwardia areolata (L.) Moore

CAMPANULACEAE
Lobelia brevifolia Nutt. ex A. DC.
Lobelia puberula Michaux

CAPRIFOLIACEAE
Viburnum dentatum L.
Viburnum nudum L.

CELASTRACEAE
Euonymus americanus L.

CISTACEAE
Lechea tenuifolia Michaux

COMMELINACEAE
Commelina diffusa Burman

CONVOLVULACEAE
Calystegia sepium (L.) R. Brown
Cuscuta compacta Jussieu
Ipomoea coccinea L.
Ipomoea quamoclit L.
Jacquemontia tamnifolia (L.) Grisebach

CORNACEAE
Cornus florida L.
Cornus stricta Lam.

CUPRESSACEAE
Juniperus silicicola (Small) Bailey

CYPERACEAE
Carex glaucescens Ell.
Cyperus globulosus Aubl.
Cyperus haspan L.
Cyperus pseudovegetus Steudel
Cyperus retrorsus Chapman
Dichromena latifolia Baldwin
Dulichium arundinaceum (L.) Britton
Eleocharis microcarpa Torrey
Eleocharis obtusa (Willd.) Schultes
Eleocharis tenuis (Willd.) Schultes
Eleocharis tuberculosa (Michaux) R. & S.
Fimbristylis tomentosa Vahl
Fuirena squarrosa Michaux
Rhynchospora cephalantha Gray
Rhynchospora chalarocephala Fernald & Gale
Rhynchospora corniculata (Lam.) Gray
Rhynchospora globularis (Chapman) Small
Rhynchospora glomerata (L.) Vahl
Rhynchospora gracilenta Gray
Rhynchospora inexpansa (Michaux) Vahl
Rhynchospora plumosa Ell.
Rhynchospora spp.
Scirpus cyperinus (L.) Kunth

CYRILLACEAE
Cliftonia monophylla (Lam.) Britt. ex Sarg.
Cyrilla racemiflora L.

DROSERACEAE
Drosera intermedia Hayne

EBENACEAE
Diospyros virginiana L.

ERICACEAE
Gayllussacia mosieri (Small) Small
Lyonia lucida (Lam.) K. Koch
Oxydendrum arboreum (L.) DC.
Vaccinium amoenum Aiton
Vaccinium arboreum Marshall
Vaccinium darrowi Camp
Vaccinium elliottii Chapman
Vaccinium stamineum L.

ERIOCAULACEAE
Eriocaulon decangulare L.

EUPHORBIACEAE
Croton capitatus Michaux
Croton glandulosus L. var. septentrionalis Muell-Arg.
Euphorbia corollata L.
Sapium sebiferum (L.) Roxb.

FABACEAE
Albizia julibrissin Durazzini
Baptisia lactea (Raf.) Thieret
Cassia fasciculata Michaux
Cassia nictitans L.
Cassia obtusifolia L.
Crotalaria spectabilis Roth
Desmodium ciliare (Muhl. ex Willd.) DC.
Desmodium laevigatum (Nutt.) DC.
Desmodium rotundifolium DC.
Desmodium tortuosum (Swartz) DC.
Erythrina herbacea L.

Galactia volubilis (L.) Britton
Lespedeza capitata Michaux
Lespedeza cuneata (Dumont) G. Don
Lespedeza hirta (L.) Hornemann
Lespedeza repens (L.) Barton
Lespedeza striata (Thunberg) H. & A.
Lespedeza virginica (L.) Britton
Rhynchosia reniformis DC.
Strophostyles umbellata (Muhl. ex Willd.) Britton
Stylosanthes biflora (L.) BSP.
Tephrosia florida (Dietrich) C. E. Wood
Tephrosia virginiana (L.) Persoon
Trifolium lappaceum L.

FAGACEAE
Castanea pumila (L.) Miller
Fagus grandifolia Ehrhart
Quercus alba L.
Quercus austrina Small
Quercus falcata Michaux
Quercus incana Bartr.
Quercus laevis Walter
Quercus laurifolia Michaux
Quercus lyrata Walter
Quercus margaretta Ashe
Quercus marilandica Muenchh.
Quercus nigra L.
Quercus stellata Wang.
Quercus virginiana Miller

GENTIANACEAE
Gentiana villosa L.

HAEMODORACEAE
Lachnanthes caroliniana (Lam.) Dandy

HALORAGACEAE
Proserpinaca palustris L.
Proserpinaca pectinata Lam.

HAMAMELIDACEAE
Hamamelis virginiana L.
Liquidambar styraciflua L.

HIPPOCASTANACEAE
Aesculus pavia L.

HYPERICACEAE
Hypericum brachyphyllum (Spach) Steud.
Hypericum drummondii (Grev. & Hooker) T. & G.
Hypericum gentianoides (L.) BSP.
Hypericum hypericoides (L.) Crantz
Hypericum reductum P. Adams
Hypericum setosum L.
Hypericum stans (Michaux) P. Adams & Robson

ILLICIACEAE
Illicium floridanum Ellis

JUGLANDACEAE
Carya cordiformis (Wang.) K. Koch
Carya illinoensis (Wang.) K. Koch
Carya tomentosa (Poiret) Nuttall
Juglans cinerea L.

JUNCACEAE
Juncus polycephalus Michaux
Juncus repens Michaux
Juncus tenuis Willd.

LAMIACEAE
Lycopus rubellus Moench
Lycopus virginicus L.
Monarda punctata L.
Pycnanthemum incanum (L.) Michaux
Salvia azurea Lam.
Scutellaria elliptica Muhl.
Trichostema dichotomum L.

LAURACEAE
Persea palustris (Raf.) Sarg.
Sassafras albidum (Nuttall) Nees

LILIACEAE
Aletris aurea Walt.
Allium bivalve (L.) Kuntze
Lilium catesbaei Walt.
Tofieldia racemosa (Walter) BSP.
Yucca filamentosa L.
Zigadenus glaberrimus Michx.

LINACEAE
Linum virginianum L.

LOGANIACEAE
Cynoctonum sessilifolium Walter ex J. F. Gmelin
Gelsemium rankinii Small
Polypremum procumbens L.

LYCOPODIACEAE
Lycopodium alopecuroides L.

LYTHRACEAE
Cuphea carthagensis (Jacquin) Macbride
Lagerstroemia indica L.

MAGNOLIACEAE
Liriodendron tulipifera L.
Magnolia grandiflora L.

Magnolia macrophylla Michaux
Magnolia virginiana L.

MALVACEAE
Hibiscus aculeatus Walter
Sida rhombifolia L.

MELASTOMATACEAE
Rhexia alifanus Walter
Rhexia petiolata Walter
Rhexia ventricosa Fernald & Griscom
Rhexia virginica L.

MYRICACEAE
Myrica cerifera L.
Myrica heterophylla Raf.
Myrica pensylvanica Loisel.

NYSSACEAE
Nyssa sylvatica Marshall var. biflora (Walter) Sargent

OLEACEAE
Chionanthus virginicus L.
Ligustrum japonicum Thunberg.
Osmanthus americana (L.) Gray

ONAGRACEAE
Gaura angustifolia Michx.
Gaura biennis L.
Ludwigia alternifolia L.
Ludwigia decurrens Walter
Ludwigia linearis Walter
Ludwigia pilosa Walter
Oenothera parviflora L.

ORCHIDACEAE
Habenaria sp.

OSMUNDACEAE
Osmunda cinnamomea L.
Osmunda regalis L. var. spectabilis (Willd.) Gray

OXALIDACEAE
Oxalis dillenii Jacquin.
Oxalis stricta L.

PASSIFLORACEAE
Passiflora incarnata L.
Passiflora lutea L.

PHYTOLACCACEAE
Phytolacca americana L.

PINACEAE
Pinus echinata Miller
Pinus glabra Walter
Pinus palustris Miller
Pinus taeda L.

POACEAE
Andropogon elliottii Chapman
Andropogon gerardii Vitman
Andropogon ternarius Michaux
Andropogon virginicus L.
Anthaenantia rufa (Ell.) Schultes
Anthaenantia villosa (Michaux) Beauvois
Aristida dichotoma Michaux
Aristida longespica Poiret
Aristida longespica Poir. var. geniculata (Raf.) Fern.
Aristida oligantha Michaux
Aristida purpurascens Poiret
Aristida virgata Trinius
Arundinaria gigantea (Walter) Muhl.
Chasmanthium laxum (L.) H. Yates
Ctenium aromaticum (Walter) Wood
Dactyloctenium aegyptium (L.) Beauvois
Dichanthelium aciculare (Desv. ex Poir.) Gould & C. A. Clark
Dichanthelium scoparium (Lam.) Gould
Dichanthelium sphaerocarpon (Ell.) Gould var. sphaerocarpon
Digitaria ischaemum (Schreber) Schreber ex Muhl.
var. violascens
Digitaria sanguinalis (L.) Scopoli
Eragrostis capillaris (L.) Nees
Eragrostis elliottii Watson
Eragrostis pilosa (L.) Beauvois
Eragrostis refracta (Muhl.) Scribner
Eragrostis spectabilis (Pursh) Steudel
Erianthus brevibarbis Michaux
Erianthus giganteus (Walter) Muhl.
Erianthus strictus Baldwin
Gymnopogon ambiguus (Michaux) BSP.
Gymnopogon brevifolius Trinius
Manisuris rugosa (Nuttall) Kuntze
Muhlenbergia expansa (DC.) Trinius
Panicum agrostoides Sprengel.
Panicum anceps Michx. var. rhizomatum
(A. Hitchc. and Chase) Fernald
Panicum brachyanthum Steud.
Panicum commutatum Schultes
Panicum lancearium Trinius
Panicum longifolium Torrey
Panicum scoparium Lam.
Panicum verrucosum Muhl.
Panicum virgatum L.
Paspalum floridanum Michaux
Paspalum notatum Flugge var. saurae Parodi
Paspalum setaceum Michaux
Paspalum urvillei Steudel
Schizachyrium scoparium (Michx.) Nash

Setaria geniculata (Lam.) Beauvois
Setaria glauca (L.) Beauvois
Sorghastrum elliottii (Mohr) Nash
Sorghastrum nutans (L.) Nash
Sporobolus clandestinus (Biehler) Hitchcock
Sporobolus junceus (Michaux) Kunth
Tridens ambiguus (Ell.) Schultes
Tridens flava (L.) Hitchc.
Tridens strictus (Nuttall) Nash

POLEMONIACEAE
Phlox carolina L.

POLYGALACEAE
Polygala cruciata L.
Polygala incarnata L.
Polygala lutea L.
Polygala mariana Miller
Polygala nana (Michaux) DC.

POLYGONACEAE
Polygonum punctatum Ell.

POLYPODIACEAE
Polypodium polypodioides (L.) Watt

POTAMOGETONACEAE
Potamogeton diversifolius Raf.

PTERIDACEAE
Pteridium aquilinum (L.) Kuhn

RANUNCULACEAE
Clematis virginiana L.

RHAMNACEAE
Berchemia scandens (Hill) K. Koch

ROSACEAE
Aronia arbutifolia (L.) Elliott
Crataegus marshallii Eggl.
Malus angustifolia (Aiton) Michaux
Malus coronaria (L.) Miller
Prunus serotina Ehrhart
Rubus allegheniensis Porter
Rubus trivialis Michaux

RUBIACEAE
Cephalanthus occidentalis L.
Diodia teres Walter
Diodia virginiana L.
Mitchella repens L.
Oldenlandia corymbosa L.
Oldenlandia uniflora L.
Richardia scabra L.

SARRACENIACEAE
Sarracenia alata (Wood) Wood
Sarracenia psittacina Michaux

SCHIZAEACEAE
Lygodium japonicum (Thunberg) Swartz

SCROPHULARIACEAE
Agalinis fasciculata (Ell.) Raf.
Agalinis tenella Pennell
Aureolaria flava (L.) Farwell
Aureolaria pectinata (Nuttall) Pennell
Mecardonia acuminata (Walter) Small
Seymeria cassioides (J. F. Gmelin) Blake

SMILACACEAE
Smilax bona-nox L.
Smilax glauca Walter
Smilax herbacea L.
Smilax laurifolia L.
Smilax pumila Walter
Smilax rotundifolia L.
Smilax smallii Morong
Smilax walteri Pursh

SOLANACEAE
Solanum carolinense L.

SPARGANIACEAE
Sparganium americanum Nuttall

STYRACACEAE
Halesia carolina L.

SYMPLOCACEAE
Symplocos tinctoria (L.) L'Her.

THEACEAE
Gordonia lasianthus (L.) Ellis

VERBENACEAE
Callicarpa americana L.
Verbena brasiliensis Vellozo
Verbena carnea Medicus
Verbena rigida Sprengel

VITACEAE
Vitis aestivalis Michaux
Vitis cinerea Engelm. ex Millardet
Vitis rotundifolia Michaux
Vitis vulpina L.

XYRIDACEAE
Xyris caroliniana Walter
Xyris elliottii Chapman
Xyris iridifolia Chapman

FISH OF THE CAMP SHELBY/DESOTO NATIONAL FOREST AREA

PETROMYZONTIDAE
- Southern brook lamprey (*Icthyomyzon gagei*)
- Least brook lamprey (*Lampetra aepyptera*)

ANGUILLIDAE
- American eel (*Anguilla rostrata*)

ESOCIDAE
- Redfin pickeral (*Esox americanus*)

CYPRINIDAE
- Silverjaw minnow (*Ericymba buccata*)
- Silvery minnow (*Hybognathus nuchalis*)
- Speckled chub (*Hybopsis aestivalis*)
- Silver chub (*H. storeriana*)
- Clear chub (*H. winchelli*)
- Bluehead chub (*Nocomis leptocephalus*)
- Longnose shiner (*Notropis longirostris*)
- Cherryfin shiner (*N. roseipinnis*)
- Flagfin shiner (*N. signipinnis*)
- Weed shiner (*N. texanus*)
- Blacktail shiner (*N. venustus*)
- Mimic shiner (*N. volucellus*)
- Pugnose minnow (*Opsopoeodus emiliae*)
- Bullhead minnow (*Pimephales vigilax*)

CATOSTOMIDAE
- Quillback carpsucker (*Carpoides cyprinus*)
- Lake chubsucker (*Erimyzon sucetta*)
- Sharpfin chubsucker (*E. tenuis*)
- Northern hogsucker (*Hypentelium nigricans*)
- Blacktail redhorse (*Moxostoma poecilurum*)

ICTALURIDAE
- Yellow bullhead (*Ictalurus natalis*)
- Channel catfish (*I. punctatus*)
- Black madtom (*Noturus funebris*)
- Speckled madtom (*N. leptacanthos*)
- Flathead catfish (*Pylodictis olivaris*)

APHREDODERIDAE
- Pirate pirch (*Aphredoderus sayanus*)

CYPRINODONTIDAE
Blackstripe topminnow (*Fundulus notatus*)
Starhead topminnow (*F. notti*)
Blackspotted topminnow (*F. olivaceous*)

ATHERINIDAE
Brook silverside (*Labidesthes sicculus*)

POECILIIDAE
Mosquitofish (*Gambusia affinis*)

CENTRARCHIDAE
Banded pygmy sunfish (*Elassoma zonatum*)
Green sunfish (*Lepomis cyanellus*)
Warmouth (*L. gulosis*)
Orangespotted sunfish (*L. humilis*)
Bluegill (*L. macrochirus*)
Dollar sunfish (*L. marginatus*)
Longear sunfish (*L. megalotis*)
Redear sunfish (*L. microlophus*)
Spotted sunfish (*L. punctatus*)
Spotted bass (*Micropterus punctulatus*)
Largemouth bass (*M. salmoides*)

CLUPEIDAE
Skipjack herring (*Alosa chrysochloris*)

PERCIDAE
Naked sand darter (*Ammocrypta beani*)
Cypress darter (*Etheostoma proeliare*)
Speckled darter (*E. stigmaeum*)
Gulf darter (*E. swaini*)
Blackbanded darter (*Percina nigrofaciata*)

SOURCES:
Mississippi Museum of Natural History, records of fish collected from Perry and Forrest counties as of April 15, 1991.

Seehorn, M. E. 1976. Fishes of the Southeastern National Forests. Proc. Annu. Conference SE Association Game and Fish Comm., 29:10-27.

Pearson, H. H., J. L. Wolfe, and R. R. Lohoefenner. 1987. Fish diversity and abundance in streams of the DeSoto National Forest in Mississippi. Pages 179-185 In Ecological, Physical, and Socioeconomic Relationships within Southern National Forests. USDA, Forest Serv., Southern Forest Exp. Sta., Gen. Tech. Rep. SO-68, 293pp.

BIRDS OF THE CAMP SHELBY/DESOTO NATIONAL FOREST AREA

Those species marked with an asterisk (*) were studied extensively by the U.S. Army Corps of Engineers and documented during the Land Condition-Trend Analysis small mammal survey (Fall/Winter of 1990 and 1992). Class A Neotropical migrants are marked with an (A) and class B Neotropical migrants are marked with a (B). Common names, scientific names, and family classification are based on Banks et. al (1987).

ARDEIDAE
- Great blue heron* (*Ardea herodias*)
- Cattle egret* (*Bubulcus ibis*)
- Green-backed heron* (*Butorides striatus*)
- Great egret* (*Casmerodius albus*)
- Little blue heron (*Egretta caerulea*)
- Least bittern (*Ixobrychus exilis*)
- Yellow-crowned night heron (*Nycticorax violacea*)

ANATIDAE
- Wood duck* (*Aix sponsa*)
- Mallard (*Anas platyrhynchos*)

CATHARTIDAE
- Turkey vulture*B (*Cathartes aura*)

ACCIPITRIDAE
- Red-tailed hawk*B (*Buteo jamaicensis*)
- Red-shouldered hawk*B (*B. lineatus*)
- Broad-winged hawk*A (*B. platypterus*)
- American swallow-tailed kite*A (*Elanoides forficatus*)
- Mississippi kite*A (*Ictinia mississippiensis*)

FALCONIDAE
- American kestrel*B (*Falco sparverius*)

PHASIANIDAE
- Northern bobwhite* (*Colinus virginianus*)
- Wild turkey* (*Meleagris gallopavo*)

CHARADRIIDAE
- Killdeer^B (*Charadrius vociferus*)

SCOLOPACIDAE
- Common snipe (*Capella gallinago*)

COLUMBIDAE

Mourning dove*B (*Zenaida macroura*)

CUCULIDAE
Yellow-billed cuckoo*A (*Coccyzus americanus*)

STRIGIDAE
Eastern screech-owl (*Otus asio*)
Barred owl* (*Strix varia*)

CAPRIMULGIDAE
Chuck-will's widow*A (*Caprimulgus carolinensis*)
Common nighthawk*A (*Chordeiles minor*)

APODIDAE
Chimney swift*A (*Chaetura pelagica*)

TROCHILIDAE
Ruby-throated hummingbird*A (*Archilochus colubris*)

ALCEDINIDAE
Belted kingfisherB (*Ceryle alcyon*)

PICIDAE
Northern flicker*B (*Colaptes auratus*)
Pileated woodpecker* (*Dryocopus pileatus*)
Red-bellied woodpecker* (*Melanerpes carolinus*)
Red-headed woodpecker* (*M. erythrocephalus*)
Red-cockaded woodpecker (*Picoides borealis*)
Downy woodpecker* (*P. pubescens*)
Hairy woodpecker* (*P. villosus*)

TYRANNIDAE
Eastern wood-pewee*A (*Contopus virens*)
Acadian flycatcher*A (*Empidonax virescens*)
Great crested flycatcher*A (*Myiarchus crinitus*)
Eastern phoebeB (*Sayornis phoebe*)
Eastern kingbird*A (*Tyrannus tyrannus*)

HIRUNDINIDAE
Barn swallow*A (*Hirundo rustica*)
Purple martin*A (*Progne subis*)
Bank swallowA (*Riparia riparia*)
Northern rough-winged swallowA (*Stelgidopteryx serripennis*)

CORVIDAE
American crow* (*Corvus brachyrhynchos*)
Fish crow* (*C. ossifragus*)
Blue jay* (*Cyanocitta cristata*)

PARIDAE
Tufted titmouse* (*Parus bicolor*)
Carolina chickadee* (*P. carolinensis*)

SITTIDAE
White-breasted nuthatch (*Sitta carolinensis*)
Brown-headed nuthatch* (*S. pusilla*)

CERTHIIDAE
Brown creeper[B] (*Certhia americana*)

TROGLODYTIDAE
Carolina wren* (*Thryothorus ludovicianus*)

MUSCICAPIDAE
Hermit thrush[B] (*Catharus guttatus*)
Wood thrush*[A] (*Hylocichla mustelina*)
Blue-gray gnatcatcher*[A] (*Polioptila caerulea*)
Ruby-crowned kinglet[B] (*Regulus calendula*)
Eastern bluebird*[B] (*Sialia sialis*)
American robin[B] (*Turdus migratorius*)

MIMIDAE
Northern mockingbird*[B] (*Mimus polyglottos*)
Brown thrasher* (*Toxostoma rufum*)

LANIIDAE
Loggerhead shrike*[B] (*Lanius ludovicianus*)

VIREONIDAE
Yellow-throated vireo[A] (*Vireo flavifrons*)
White-eyed vireo*[A] (*V. griseus*)
Red-eyed vireo*[A] (*V. olivaceus*)

EMBERIZIDAE
Red-winged blackbird*[B] (*Agelaius phoeniceus*)
Bachman's sparrow* (*Aimophila aestivalis*)
Northern cardinal* (*Cardinalis cardinalis*)
Yellow-rumped warbler (*Dendroica coronata*)
Prairie warbler*[A] (*D. discolor*)

Chestnut-sided warbler*A (*D. pensylvanica*)
Pine warbler* (*D. pinus*)
Common yellowthroat*A (*Geothlypis trichas*)
Blue grosbeak*A (*Guiraca caerulea*)
Yellow-breasted chat*A (*Icteria virens*)
Northern oriole*A (*Icterus galbula*)
Orchard oriole*A (*I. spurius*)
Swainson's warblerA (*Limnothlypis swainsonii*)
Brown-headed cowbird*B (*Molothrus ater*)
Kentucky warblerA (*Oporornis formosus*)
Indigo bunting*A (*Passerina cyanea*)
Rufous-sided towhee*B (*Pipilo erythrophthalmus*)
Summer tanager*A (*Piranga rubra*)
Prothonotary warblerA (*Prothonotaria citrea*)
Common grackle* (*Quiscalus quiscula*)
Chipping sparrow*A (*Spizella passerina*)
Field sparrow* (*S. pusilla*)
Eastern meadowlark*B (*Sturnella magna*)
Hooded warbler*A (*Wilsonia citrina*)
White-throated sparrowB (*Zonotrichia albicollis*)

FRINGILLIDAE
American goldfinchB (*Carduelis tristis*)

SOURCES:

Weatherford McDade, LTD. 1990. Camp Shelby Environmental Impact Statement. Appendix 10-5, Table E, pages 10-336 to 10-341.

Johnson, M. K. 1987. Inventory of Mammals and Birds on Bigfoot and Aireyu Grazing Allotments of the DeSoto National Forest, Mississippi. Pages 165-170 In Ecological, Physical and Socioeconomic Relationships within Southern National Forests. USDA, Forest Service, Southern Experiment Station Gen. Tech. Rep. SO-68, 293 pp.

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Partners in Flight 1991 Annual Report Vol. 2 No. 1. Page 30.

MAMMALS OF THE CAMP SHELBY/DESOTO NATIONAL FOREST AREA

Those species marked with an asterisk (*) were studied extensively by the U.S. Army Corps of Engineers and documented during the Land Condition-Trend Analysis small mammal survey (Fall/Winter of 1990 and 1992).

DIDELPHIDAE
- Virginia opossum* (*Didelphis virginiana*)

SORICIDAE
- Southern short-tailed shrew* (*Blarina carolinensis*)
- Least shrew* (*Cryptotis parva*)
- Southeastern Shrew (*Sorex longirostris*)

TALIPIDAE
- Eastern mole (*Scalopus aquaticus*)

VESPERTILIONIDAE
- Big brown bat (*Eptesicus fuscus*)
- Red bat (*Lasiurus borealis*)
- Hoary bat (*L. cinereus*)
- Seminole bat (*L. seminolus*)
- Evening bat (*Nycticeius humeralis*)
- Eastern pipistrell (*Pipistrellus subflavus*)
- Rafinesque's big-eared bat (*Plecotus rafinesquii*)

MOLOSSIDAE
- Brazilian free-tailed bat (*Tadarida brasiliensis*)

DASYPODIDAE
- Nine-banded armadillo* (*Dasypus novencinctus*)

LEPORIDAE
- Swamp rabbit (*Sylvilagus. aquaticus*)
- Eastern cottontail* (*S. floridanus*)

SCIURIDAE
- Southern flying squirrel* (*Glaucomys volans*)
- Gray squirrel* (*Sciurus carolinensis*)
- Fox squirrel* (*S. niger*)
- Eastern chipmunk* (*Tamias striatus*)

CASTORIDAE
- Beaver* (*Castor canadensis*)

CRICETIDAE
- Woodland vole (*Microtus pinetorum*)
- Eastern woodrat* (*Neotoma floridana*)
- Golden mouse* (*Ochrotomys nuttalli*)
- Muskrat* (*Ondatra zibethicus*)
- Marsh rice rat (*Oryzomys palustris*)
- Cotton mouse* (*Peromyscus gossypinus*)
- White-footed mouse (*P. leucopus*)
- Eastern harvest mouse* (*Reithrodontomys humulis*)
- Fulvous harvest mouse (*R. fulvescens*)
- Hispid cotton rat* (*Sigmodon hispidus*)

MURIDAE
- House mouse (*Mus musculus*)
- Norway rat (*Rattus norvegicus*)
- Black rat (*R. rattus*)

MYOCASTORIDAE
- Nutria (*Myocastor coypus*)

CANIDAE
- Coyote* (*Canis latrans*)
- Gray fox (*Urocyon cinereoargenteus*)
- Red fox (*Vulpes vulpes*)

PROCYONIDAE
- Raccoon* (*Procyon lotor*)

MUSTELIDAE
- River otter (*Lutra canadensis*)
- Striped skunk* (*Mephitis mephitis*)
- Long-tailed weasel (*Mustela frenata*)
- Mink (*M. vison*)
- Eastern spotted skunk (*Spilogale putorius*)

FELIDAE
- Bobcat (*Felis rufus*)

CERVIDAE
- White-tailed deer* (*Odocoileus virginianus*)

SOURCES:

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AMPHIBIANS AND REPTILES OF THE CAMP SHELBY/DESOTO NATIONAL FOREST AREA

Class: AMPHIBIA

Order: CAUDATA

Family: PLETHODONTIDAE

- Southern dusky salamander (*Desmognathus ariculatus*) (1)
- Long-tailed salamander (*Eurycea longicauda*) (1)
- Dwarf salamander (*E. quadridigitatus*)
- Slimy salamander (*Plethodon glutinosus*) (1)

SALAMADRIDAE

- Central newt (*Notophthalmus viridescens*)

BUFONIDAE

- Southern toad (*Bufo terrestris*) (1)
- Common toad (*B. woodhousei*) (1)

HYLIDAE

- Southern cricket frog (*Acris gryllus*) (1)
- Bird voiced tree frog (*Hyla avivoca*) (1)
- Green tree frog (*H. cinerea*) (1)
- Peeper tree frog (*H. crucifer*) (1)
- Pine woods tree frog (*H. fermoralis*) (1)
- Barking tree frog (*H. gratiosa*) (1)
- Squirrel tree frog (*H. squirella*) (1)
- Gray tree frog (*H. versicolor*) (1)
- Southern chorus frog (*Pseudacris nagrita*) (1)
- Chorus frog (*P. triseriata*) (1)

MICROHYLIDAE

- Eastern narrow-mouthed toad (*Gastrophryne carolinensis*) (1)

PELOBATIDAE

- Eastern spadefoot toad (*Scaphiopus holbrooki*)

RANIDAE

- Gopher frog (*Rana areolata*)
- Dusky gopher frog (*R. a. sevosa*) (2)
- Green frog (*R. clamitans*) (1)
- Southern leopard frog (*R. sphenocephala*) (1)

Class: REPTILIA
Order: TESTUDINATA
Family: CHELYDRIDAE
Snapping turtle (*Chelydra serpentina*)

EMYDIDAE
Cooters & Sliders (*Chrysemys spp.*)
Chicken turtle (*Deirochelys reticularia*) (2)
Eastern box turtle (*Terrapene carolina*)

KINOSTERNIDAE
Yellow-blotched map turtle (*Graptemys flavimaculata*)
Eastern mud turtle (*Kinosternon subrubrum*)
Diamondback terrapin (*Malaclemys terrapin*) (2)
Stinkpot turtle (*Sternotherus odoratus*)

TESTUDINIDAE
Gopher tortoise (*Gopherus polyphemus*)

Order: SQUAMATA
Suborder: LACERTILIA
Family: ANGUIDAE
Eastern glass lizard (*Ophisaurus ventralis*)

IQUANIDAE
Green anole (*Anolis carolinensis*)
Fence lizard (*Sceloporus undulatus*)

SCINCIDAE
Coal skink (*Eumeces anthracinus*)
Five-lined skink (*E. fasciatus*)
Southeastern skink (*E. inexpectatus*)
Broad-headed skink (*E. laticeps*)
Ground skink (*Scincella lateralis*)

TEIDAE
Six-lined racerunner (*Cnemidophorus sexlineatus*)

Suborder: SERPENTES
Family: COLUBRIDAE
Eastern worm snake (*Carphophis amoenus*)
Scarlet snake (*Cemophora coccinea*)
Black racer (*Coluber constrictor*) (1)
Southern ringneck snake (*Diadophis punctatus*) (1)

Eastern indigo snake (*Drymarchon corais couperi*)
Corn snake (*Elaphe guttata*)
Gray rat snake (*E. obsoleta*) (1)
Mud snake (*Farancia abacura*) (1)
Rainbow snake (*F. erytrogramma*) (2)
Eastern hognose snake (*Heterodon platyrhinos*) (1)
Southern hognose snake (*H. simus*)
Mole snake (*Lampropeltis calligaster rhombomaculata*) (2)
Eastern kingsnake (*L. getulus*) (1)
Eastern milksnake (*L. triangulum*)
Scarlet kingsnake (*L. t. elapsoides*)
Eastern coachwhip (*Masticophis flagellum*)
Gulf salt marsh snake (*Natrix fasciata clarki*)
Banded water snake (*Nerodia fasciata*) (1)
Rough green snake (*Opheodrys aestivus*) (1)
Black pine snake (*Pituophis melanoleucus*)
Glossy water snake (*Regina rigida*) (1)
Pine woods snake (*Rhadinaea flavilata*) (1)
Southern brown snake (*Storeria dekayi*) (1)
Southeastern crown snake (*Tantilla coronata*) (1)
Eastern ribbon snake (*Thamnophis sauritus*)
Eastern garter snake (*T. sirtalis*)
Rough earth snake (*Virginia striatus*)
Smooth earth snake (*V. valeriae*)

ELAPHIDAE
Eastern coral snake (*Micrurus fulvius*)

VIPERIDAE
Eastern cottonmouth (*Agkistrodon piscivorus*)

SOURCES:

(1) Documented in wetland/stream habitats during spring-summer 1988 surveys.

(2) Ken Gordon, Mississippi Museum of Natural Science.

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BIRD DATA SUMMARY BY STAND TYPE AND AGE CLASS BASED ON 1991 AND 1992 LCTA DATA

TYPE	AGE	VERTID	COMMON	NEO	SUM
Hardwood-Pine	30-50 Years	AISP	Wood Duck	No	2
Hardwood-Pine	30-50 Years	ARHE	Great Blue Heron	No	2
Hardwood-Pine	30-50 Years	BUST	Green-Backed Heron	No	1
Hardwood-Pine	30-50 Years	CACA4	Northern Cardinal	No	6
Hardwood-Pine	30-50 Years	CHMI	Common Nighthawk	A	2
Hardwood-Pine	30-50 Years	COAM	Yellow-Billed Cuckoo	A	1
Hardwood-Pine	30-50 Years	COOS	Fish Crow	No	3
Hardwood-Pine	30-50 Years	CYCR	Blue Jay	No	5
Hardwood-Pine	30-50 Years	DEPI	Pine Warbler	No	1
Hardwood-Pine	30-50 Years	DRPI	Pileated Woodpecker	No	1
Hardwood-Pine	30-50 Years	ICVE	Yellow-Breasted Chat	A	1
Hardwood-Pine	30-50 Years	MECA	Red-Bellied Woodpecker	No	3
Hardwood-Pine	30-50 Years	MEER	Red-Headed Woodpecker	No	1
Hardwood-Pine	30-50 Years	MEGA	Wild Turkey	No	1
Hardwood-Pine	30-50 Years	MYCR	Great Crested Flycatcher	A	1
Hardwood-Pine	30-50 Years	PABI	Tufted Titmouse	No	4
Hardwood-Pine	30-50 Years	PIER	Rufous-Sided Towhee	B	6
Hardwood-Pine	30-50 Years	PIRU	Summer Tanager	A	1
Hardwood-Pine	30-50 Years	TYTY	Eastern Kingbird	A	2
Hardwood-Pine	30-50 Years	VIGR	White-Eyed Vireo	A	4
Hardwood-Pine	30-50 Years	WICI	Hooded Warbler	A	4
Loblolly Pine	30-50 Years	CAAU	Turkey Vulture	B	2
Loblolly Pine	30-50 Years	CACA4	Northern Cardinal	No	1
Loblolly Pine	30-50 Years	COAM	Yellow-Billed Cuckoo	A	1
Loblolly Pine	30-50 Years	CYCR	Blue Jay	No	2
Loblolly Pine	30-50 Years	DEPI	Pine Warbler	No	5
Loblolly Pine	30-50 Years	DRPI	Pileated Woodpecker	No	1
Loblolly Pine	30-50 Years	GUCA	Blue Grosbeak	A	1
Loblolly Pine	30-50 Years	HIRU	Barn Swallow	A	3
Loblolly Pine	30-50 Years	ICVI	Yellow-Breasted Chat	A	1
Loblolly Pine	30-50 Years	MECA	Red-Bellied Woodpecker	No	2
Loblolly Pine	30-50 Years	MEER	Red-Headed Woodpecker	No	1
Loblolly Pine	30-50 Years	MEGA	Wild Turkey	No	1
Loblolly Pine	30-50 Years	MYCR	Great Crested Flycatcher	A	7
Loblolly Pine	30-50 Years	PACA2	Carolina Chickadee	No	2
Loblolly Pine	30-50 Years	PACY	Indigo Bunting	A	1
Loblolly Pine	30-50 Years	PIER	Rufous-Sided Towhee	B	6
Loblolly Pine	30-50 Years	PIRU	Summer Tanager	A	1
Loblolly Pine	30-50 Years	POCA	Blue-Gray Gnatcatcher	A	4
Loblolly Pine	30-50 Years	THLU	Carolina Wren	No	6
Loblolly Pine	30-50 Years	TORU	Brown Thrasher	No	1
Loblolly Pine	30-50 Years	VIGR	White-Eyed Vireo	A	6
Loblolly Pine	30-50 Years	WICI	Hooded Warbler	A	2
Loblolly Pine	50-70 Years	AIAE	Bachman's Sparrow	No	1
Loblolly Pine	50-70 Years	CACA4	Northern Cardinal	No	15
Loblolly Pine	50-70 Years	COAM	Yellow-Billed Cuckoo	A	4

TYPE	AGE	VERTID	COMMON	NEO	SUM
Loblolly Pine	50-70 Years	COBR1	American Crow	No	1
Loblolly Pine	50-70 Years	CYCR	Blue Jay	No	6
Loblolly Pine	50-70 Years	DEPI	Pine Warbler	No	11
Loblolly Pine	50-70 Years	DRPI	Pileated Woodpecker	No	4
Loblolly Pine	50-70 Years	HYMU	Wood Thrush	A	3
Loblolly Pine	50-70 Years	ICMI	Mississippi Kite	A	1
Loblolly Pine	50-70 Years	MECA	Red-Bellied Woodpecker	No	13
Loblolly Pine	50-70 Years	MEER	Red-Headed Woodpecker	No	1
Loblolly Pine	50-70 Years	MYCR	Great Crested Flycatcher	A	4
Loblolly Pine	50-70 Years	PABI	Tufted Titmouse	No	5
Loblolly Pine	50-70 Years	PACA2	Carolina Chickadee	No	7
Loblolly Pine	50-70 Years	PIER	Rufous-Sided Towhee	B	18
Loblolly Pine	50-70 Years	PIRU	Summer Tanager	A	10
Loblolly Pine	50-70 Years	POCA	Blue-Gray Gnatcatcher	A	2
Loblolly Pine	50-70 Years	PRSU	Purple Martin	A	3
Loblolly Pine	50-70 Years	SIPU	Brown-Headed Nuthatch	No	2
Loblolly Pine	50-70 Years	THLU	Carolina Wren	No	3
Loblolly Pine	50-70 Years	TORU	Brown Thrasher	No	3
Loblolly Pine	50-70 Years	VIGR	White-Eyed Vireo	A	12
Loblolly Pine	50-70 Years	VIOL	Red-Eyed Vireo	A	1
Loblolly Pine	50-70 Years	WICI	Hooded Warbler	A	11
Loblolly Pine	50-70 Years	ZEMA	Mourning Dove	B	2
Loblolly Pine-Hardwood	10-20 Years	CACA4	Northern Cardinal	No	2
Loblolly Pine-Hardwood	10-20 Years	CHPE	Chimney Swift	A	2
Loblolly Pine-Hardwood	10-20 Years	CYCR	Blue Jay	No	1
Loblolly Pine-Hardwood	10-20 Years	DEPI	Pine Warbler	No	4
Loblolly Pine-Hardwood	10-20 Years	HYMU	Wood Thrush	A	1
Loblolly Pine-Hardwood	10-20 Years	MECA	Red-Bellied Woodpecker	No	1
Loblolly Pine-Hardwood	10-20 Years	MEGA	Wild Turkey	No	3
Loblolly Pine-Hardwood	10-20 Years	MYCR	Great Crested Flycatcher	A	1
Loblolly Pine-Hardwood	10-20 Years	PABI	Tufted Titmouse	No	1
Loblolly Pine-Hardwood	10-20 Years	PACA2	Carolina Chickadee	No	4
Loblolly Pine-Hardwood	10-20 Years	PIER	Rufous-Sided Towhee	B	3
Loblolly Pine-Hardwood	10-20 Years	PIRU	Summer Tanager	A	1
Loblolly Pine-Hardwood	10-20 Years	SIPU	Brown-Headed Nuthatch	No	3
Loblolly Pine-Hardwood	10-20 Years	VIGR	White-Eyed Vireo	A	1
Longleaf Pine	Open/Grass	AGPH	Red-Winged Blackbird	B	25
Longleaf Pine	Open/Grass	AIAE	Bachman's Sparrow	No	4
Longleaf Pine	Open/Grass	ARCO	Ruby-Throated Hummingbird	A	3
Longleaf Pine	Open/Grass	CACA4	Northern Cardinal	No	5
Longleaf Pine	Open/Grass	CHMI	Common Nighthawk	A	6
Longleaf Pine	Open/Grass	CHPE	Chimney Swift	A	4
Longleaf Pine	Open/Grass	COAM	Yellow-Billed Cuckoo	A	1
Longleaf Pine	Open/Grass	COAU	Northern Flicker	B	1
Longleaf Pine	Open/Grass	COOS	Fish Crow	No	1
Longleaf Pine	Open/Grass	COVI	Northern Bobwhite	No	20
Longleaf Pine	Open/Grass	CYCR	Blue Jay	No	5
Longleaf Pine	Open/Grass	DEDI	Prairie Warbler	A	22
Longleaf Pine	Open/Grass	DEPI	Pine Warbler	No	23

Species Lists for Camp Shelby

TYPE	AGE	VERTID	COMMON	NEO	SUM
Longleaf Pine	Open/Grass	DRPI	Pileated Woodpecker	No	2
Longleaf Pine	Open/Grass	EMVI	Acadian Flycatcher	A	1
Longleaf Pine	Open/Grass	GETR	Common Yellowthroat	A	4
Longleaf Pine	Open/Grass	GUCA	Blue Grosbeak	A	2
Longleaf Pine	Open/Grass	ICGA	Northern Oriole	A	1
Longleaf Pine	Open/Grass	ICSP	Orchard Oriole	A	7
Longleaf Pine	Open/Grass	ICVI	Yellow-Breasted Chat	A	20
Longleaf Pine	Open/Grass	LALU	Loggerhead Shrike	B	3
Longleaf Pine	Open/Grass	MECA	Red-Bellied Woodpecker	No	3
Longleaf Pine	Open/Grass	MEGA	Wild Turkey	No	1
Longleaf Pine	Open/Grass	MIPO	Northern Mockingbird	B	4
Longleaf Pine	Open/Grass	MOAT	Brown-Headed Cowbird	B	2
Longleaf Pine	Open/Grass	PABI	Tufted Titmouse	No	3
Longleaf Pine	Open/Grass	PACA2	Carolina Chickadee	No	4
Longleaf Pine	Open/Grass	PACY	Indigo Bunting	A	8
Longleaf Pine	Open/Grass	PIER	Rufous-Sided Towhee	B	18
Longleaf Pine	Open/Grass	PIRU	Summer Tanager	A	15
Longleaf Pine	Open/Grass	PIVI	Hairy Woodpecker	No	1
Longleaf Pine	Open/Grass	POCA	Blue-Gray Gnatcatcher	A	8
Longleaf Pine	Open/Grass	QUQU	Common Grackle	No	2
Longleaf Pine	Open/Grass	SIPU	Brown-Headed Nuthatch	No	8
Longleaf Pine	Open/Grass	SISI	Eastern Bluebird	B	1
Longleaf Pine	Open/Grass	SPPA2	Chipping Sparrow	A	1
Longleaf Pine	Open/Grass	STMA2	Eastern Meadowlark	B	8
Longleaf Pine	Open/Grass	THLU	Carolina Wren	No	2
Longleaf Pine	Open/Grass	TORU	Brown Thrasher	No	2
Longleaf Pine	Open/Grass	TYTY	Eastern Kingbird	A	13
Longleaf Pine	Open/Grass	VIGR	White-Eyed Vireo	A	8
Longleaf Pine	Open/Grass	VIOL	Red-Eyed Vireo	A	1
Longleaf Pine	Open/Grass	ZEMA	Mourning Dove	B	4
Longleaf Pine	5-10 Years	CACA4	Northern Cardinal	No	3
Longleaf Pine	5-10 Years	COAM	Yellow-Billed Cuckoo	A	1
Longleaf Pine	5-10 Years	COVI	Northern Bobwhite	No	5
Longleaf Pine	5-10 Years	CYCR	Blue Jay	No	2
Longleaf Pine	5-10 Years	DEDI	Prairie Warbler	A	6
Longleaf Pine	5-10 Years	DEPI	Pine Warbler	No	4
Longleaf Pine	5-10 Years	GUCA	Blue Grosbeak	A	1
Longleaf Pine	5-10 Years	ICVI	Yellow-Breasted Chat	A	7
Longleaf Pine	5-10 Years	MECA	Red-Bellied Woodpecker	No	2
Longleaf Pine	5-10 Years	MEGA	Wild Turkey	No	1
Longleaf Pine	5-10 Years	PACY	Indigo Bunting	A	4
Longleaf Pine	5-10 Years	PIER	Rufous-Sided Towhee	B	4
Longleaf Pine	5-10 Years	PIRU	Summer Tanager	A	2
Longleaf Pine	5-10 Years	POCA	Blue-Gray Gnatcatcher	A	1
Longleaf Pine	5-10 Years	VIGR	White-Eyed Vireo	A	5
Longleaf Pine	5-10 Years	WICI	Hooded Warbler	A	1
Longleaf Pine	10-20 Years	AIAE	Bachman's Sparrow	No	3
Longleaf Pine	10-20 Years	BULI	Red-Shouldered Hawk	B	1

TYPE	AGE	VERTID	COMMON	NEO	SUM
Longleaf Pine	10-20 Years	CAAU	Turkey Vulture	B	1
Longleaf Pine	10-20 Years	CACA4	Northern Cardinal	No	5
Longleaf Pine	10-20 Years	COAM	Yellow-Billed Cuckoo	A	1
Longleaf Pine	10-20 Years	COBR1	American Crow	No	1
Longleaf Pine	10-20 Years	CYCR	Blue Jay	No	8
Longleaf Pine	10-20 Years	DEDI	Prairie Warbler	A	1
Longleaf Pine	10-20 Years	DEPE	Chestnut-Sided Warbler	A	3
Longleaf Pine	10-20 Years	DEPI	Pine Warbler	No	3
Longleaf Pine	10-20 Years	GUCA	Blue Grosbeak	A	1
Longleaf Pine	10-20 Years	ICVE	Yellow-Breasted Chat	A	2
Longleaf Pine	10-20 Years	MECA	Red-Bellied Woodpecker	No	4
Longleaf Pine	10-20 Years	MEGA	Wild Turkey	No	3
Longleaf Pine	10-20 Years	PABI	Tufted Titmouse	No	3
Longleaf Pine	10-20 Years	PACA2	Carolina Chickadee	No	2
Longleaf Pine	10-20 Years	PACY	Indigo Bunting	A	3
Longleaf Pine	10-20 Years	PIER	Rufous-Sided Towhee	B	1
Longleaf Pine	10-20 Years	PIRU	Summer Tanager	A	4
Longleaf Pine	10-20 Years	PIVI	Hairy Woodpecker	No	1
Longleaf Pine	10-20 Years	SISI	Eastern Bluebird	B	1
Longleaf Pine	10-20 Years	TYTY	Eastern Kingbird	A	1
Longleaf Pine	10-20 Years	VIGR	White-Eyed Vireo	A	6
Longleaf Pine	10-20 Years	VIOL	Red-Eyed Vireo	A	2
Longleaf Pine	10-20 Years	WICI	Hooded Warbler	A	6
Longleaf Pine	20-30 Years	BUJA	Red-Tailed Hawk	B	1
Longleaf Pine	20-30 Years	CACA3	Chuck-Will's-Widow	A	3
Longleaf Pine	20-30 Years	CACA4	Northern Cardinal	No	1
Longleaf Pine	20-30 Years	CYCR	Blue Jay	No	1
Longleaf Pine	20-30 Years	DEDI	Prairie Warbler	A	2
Longleaf Pine	20-30 Years	DEPI	Pine Warbler	No	2
Longleaf Pine	20-30 Years	GETR	Common Yellowthroat	A	2
Longleaf Pine	20-30 Years	ICVI	Yellow-Breasted Chat	A	1
Longleaf Pine	20-30 Years	MYCR	Great Crested Flycatcher	A	1
Longleaf Pine	20-30 Years	PABI	Tufted Titmouse	No	2
Longleaf Pine	20-30 Years	PACA2	Carolina Chickadee	No	1
Longleaf Pine	20-30 Years	PIER	Rufous-Sided Towhee	B	3
Longleaf Pine	20-30 Years	PIRU	Summer Tanager	A	2
Longleaf Pine	20-30 Years	SIPU	Brown-Headed Nuthatch	No	1
Longleaf Pine	20-30 Years	THLU	Carolina Wren	No	2
Longleaf Pine	20-30 Years	TYTY	Eastern Kingbird	A	1
Longleaf Pine	20-30 Years	VIGR	White-Eyed Vireo	A	4
Longleaf Pine	30-50 Years	AIAE	Bachman's Sparrow	No	4
Longleaf Pine	30-50 Years	BUJA	Red-Tailed Hawk	B	1
Longleaf Pine	30-50 Years	BULI	Red-Shouldered Hawk	B	1
Longleaf Pine	30-50 Years	CACA4	Northern Cardinal	No	15
Longleaf Pine	30-50 Years	CHPE	Chimney Swift	A	4
Longleaf Pine	30-50 Years	COAM	Yellow-Billed Cuckoo	A	4
Longleaf Pine	30-50 Years	COBR1	American Crow	No	10
Longleaf Pine	30-50 Years	COVI	Northern Bobwhite	No	4
Longleaf Pine	30-50 Years	COVI1	Eastern Wood-Pewee	A	9

TYPE	AGE	VERTID	COMMON	NEO	SUM
Longleaf Pine	30-50 Years	CYCR	Blue Jay	No	12
Longleaf Pine	30-50 Years	DEDI	Prairie Warbler	A	26
Longleaf Pine	30-50 Years	DEPE	Chestnut-Sided Warbler	A	1
Longleaf Pine	30-50 Years	DEPI	Pine Warbler	No	41
Longleaf Pine	30-50 Years	DRPI	Pileated Woodpecker	No	5
Longleaf Pine	30-50 Years	EMVI	Acadian Flycatcher	A	1
Longleaf Pine	30-50 Years	GETR	Common Yellowthroat	A	6
Longleaf Pine	30-50 Years	GUCA	Blue Grosbeak	A	10
Longleaf Pine	30-50 Years	ICMI	Mississippi Kite	A	2
Longleaf Pine	30-50 Years	ICVI	Yellow-Breasted Chat	A	23
Longleaf Pine	30-50 Years	MECA	Red-Bellied Woodpecker	No	11
Longleaf Pine	30-50 Years	MEER	Red-Headed Woodpecker	No	3
Longleaf Pine	30-50 Years	MYCR	Creat Crested Flycatcher	A	1
Longleaf Pine	30-50 Years	PABI	Tufted Titmouse	No	2
Longleaf Pine	30-50 Years	PACA2	Carolina Chickadee	No	9
Longleaf Pine	30-50 Years	PACY	Indigo Bunting	A	5
Longleaf Pine	30-50 Years	PIER	Rufous-Sided Towhee	B	39
Longleaf Pine	30-50 Years	PIRU	Summer Tanager	A	16
Longleaf Pine	30-50 Years	PIVI	Hairy Woodpecker	No	1
Longleaf Pine	30-50 Years	POCA	Blue-Gray Gnatcatcher	A	2
Longleaf Pine	30-50 Years	PRSU	Purple Martin	A	3
Longleaf Pine	30-50 Years	SIPU	Brown-Headed Nuthatch	No	11
Longleaf Pine	30-50 Years	SPPU1	Field Sparrow	No	1
Longleaf Pine	30-50 Years	THLU	Carolina Wren	No	3
Longleaf Pine	30-50 Years	TORU	Brown Thrasher	No	3
Longleaf Pine	30-50 Years	VIGR	White-Eyed Vireo	A	23
Longleaf Pine	30-50 Years	VIOL	Red-Eyed Vireo	A	1
Longleaf Pine	30-50 Years	WICI	Hooded Warbler	A	12
Longleaf Pine	50-70 Years	AIAE	Bachman's Sparrow	No	16
Longleaf Pine	50-70 Years	AISP	Wood Duck	No	2
Longleaf Pine	50-70 Years	ARCO	Ruby-Throated Hummingbird	A	1
Longleaf Pine	50-70 Years	BUJA	Red-Tailed Hawk	B	2
Longleaf Pine	50-70 Years	BULI	Red-Shouldered Hawk	B	1
Longleaf Pine	50-70 Years	CAAL2	Great Egret	No	1
Longleaf Pine	50-70 Years	CAAU	Turkey Vulture	B	1
Longleaf Pine	50-70 Years	CACA3	Chuck-Will's-Widow	A	1
Longleaf Pine	50-70 Years	CACA4	Northern Cardinal	No	31
Longleaf Pine	50-70 Years	CHIM	Common Nighthawk	A	2
Longleaf Pine	50-70 Years	CHPE	Chimney Swift	A	8
Longleaf Pine	50-70 Years	COAM	Yellow-Billed Cuckoo	A	7
Longleaf Pine	50-70 Years	COBR1	American Crow	No	9
Longleaf Pine	50-70 Years	COVI	Northern Bobwhite	No	11
Longleaf Pine	50-70 Years	COVI1	Eastern Wood-Pewee	A	10
Longleaf Pine	50-70 Years	CYCR	Blue Jay	No	33
Longleaf Pine	50-70 Years	DEDI	Prairie Warbler	A	48
Longleaf Pine	50-70 Years	DEPI	Pine Warbler	No	54
Longleaf Pine	50-70 Years	DRPI	Pileated Woodpecker	No	6
Longleaf Pine	50-70 Years	ELFO	American Swallow-Tailed Kite	A	1
Longleaf Pine	50-70 Years	FASP	American Kestrel	B	2
Longleaf Pine	50-70 Years	GETR	Common Yellowthroat	A	7

Species Lists for Camp Shelby

TYPE	AGE	VERTID	COMMON	NEO	SUM
Longleaf Pine	50-70 Years	GUCA	Blue Grosbeak	A	12
Longleaf Pine	50-70 Years	HIRU	Barn Swallow	A	2
Longleaf Pine	50-70 Years	HYMU	Wood Thrush	A	3
Longleaf Pine	50-70 Years	ICGA	Northern Oriole	A	2
Longleaf Pine	50-70 Years	ICSP	Orchard Oriole	A	4
Longleaf Pine	50-70 Years	ICVI	Yellow-Breasted Chat	A	33
Longleaf Pine	50-70 Years	MECA	Red-Bellied Woodpecker	No	13
Longleaf Pine	50-70 Years	MEER	Red-Headed Woodpecker	No	9
Longleaf Pine	50-70 Years	MEGA	Wild Turkey	No	3
Longleaf Pine	50-70 Years	MIPO	Northern Mockingbird	B	5
Longleaf Pine	50-70 Years	MOAT	Brown-Headed Cowbird	B	1
Longleaf Pine	50-70 Years	MYCR	Great Crested Flycatcher	A	6
Longleaf Pine	50-70 Years	PABI	Tufted Titmouse	No	6
Longleaf Pine	50-70 Years	PACA2	Carolina Chickadee	No	13
Longleaf Pine	50-70 Years	PACY	Indigo Bunting	A	14
Longleaf Pine	50-70 Years	PIER	Rufous-Sided Towhee	B	47
Longleaf Pine	50-70 Years	PIRU	Summer Tanager	A	20
Longleaf Pine	50-70 Years	POCA	Blue-Gray Gnatcatcher	A	4
Longleaf Pine	50-70 Years	SIPU	Brown-Headed Nuthatch	No	14
Longleaf Pine	50-70 Years	SPPU1	Field Sparrow	No	5
Longleaf Pine	50-70 Years	THLU	Carolina Wren	No	7
Longleaf Pine	50-70 Years	TORU	Brown Thrasher	No	12
Longleaf Pine	50-70 Years	TYTY	Eastern Kingbird	A	5
Longleaf Pine	50-70 Years	VIGR	White-Eyed Vireo	A	16
Longleaf Pine	50-70 Years	VIOL	Red-Eyed Vireo	A	8
Longleaf Pine	50-70 Years	WICI	Hooded Warbler	A	2
Longleaf Pine	50-70 Years	ZEMA	Mourning Dove	No	1
Longleaf Pine	70-100 Years	CACA4	Northern Cardinal	No	1
Longleaf Pine	70-100 Years	CHPE	Chimney Swift	A	2
Longleaf Pine	70-100 Years	COAM	Yellow-Billed Cuckoo	A	1
Longleaf Pine	70-100 Years	CYCR	Blue Jay	No	1
Longleaf Pine	70-100 Years	DEPI	Pine Warbler	No	2
Longleaf Pine	70-100 Years	ICVI	Yellow-Breasted Chat	A	3
Longleaf Pine	70-100 Years	PABI	Tufted Titmouse	No	2
Longleaf Pine	70-100 Years	PACA2	Carolina Chickadee	No	2
Longleaf Pine	70-100 Years	PIER	Rufous-Sided Towhee	B	5
Longleaf Pine	70-100 Years	POCA	Blue-Gray Gnatcatcher	A	2
Longleaf Pine	70-100 Years	SIPU	Brown-Headed Nuthatch	No	1
Longleaf Pine	70-100 Years	VIGR	White-Eyed Vireo	A	4
Longleaf Pine	70-100 Years	VIOL	Red-Eyed Vireo	A	2
Pine-Hardwood	20-30 Years	CACA4	Northern Cardinal	No	2
Pine-Hardwood	20-30 Years	COAM	Yellow-Billed Cuckoo	A	2
Pine-Hardwood	20-30 Years	COBR1	American Crow	No	1
Pine-Hardwood	20-30 Years	COVI	Northern Bobwhite	No	1
Pine-Hardwood	20-30 Years	CYCR	Blue Jay	No	2
Pine-Hardwood	20-30 Years	DEPI	Pine Warbler	No	4
Pine-Hardwood	20-30 Years	HYMU	Wood Thrush	A	1
Pine-Hardwood	20-30 Years	ICVI	Yellow-Breasted Chat	A	1
Pine-Hardwood	20-30 Years	MECA	Red-Bellied woodpecker	No	3

TYPE	AGE	VERTID	COMMON	NEO	SUM
Pine-Hardwood	20-30 Years	MEGA	Wild Turkey	No	1
Pine-Hardwood	20-30 Years	MYCR	Great Crested Flycatcher	A	1
Pine-Hardwood	20-30 Years	PABI	Tufted Titmouse	No	1
Pine-Hardwood	20-30 Years	PIER	Rufous-Sided Towhee	B	4
Pine-Hardwood	20-30 Years	PIRU	Summer Tanager	A	2
Pine-Hardwood	20-30 Years	POCA	Blue-Gray Gnatcatcher	A	2
Pine-Hardwood	20-30 Years	STVA	Barred Owl	No	1
Pine-Hardwood	20-30 Years	TORU	Brown Thrasher	No	1
Slash Pine	10-20 Years	AIAE	Bachman's Sparrow	No	1
Slash Pine	10-20 Years	BUIB	Cattle Egret	No	3
Slash Pine	10-20 Years	BULI	Red-Shouldered Hawk	B	1
Slash Pine	10-20 Years	CACA4	Northern Cardinal	No	9
Slash Pine	10-20 Years	COAM	Yellow-Billed Cuckoo	A	3
Slash Pine	10-20 Years	COBR1	American Crow	No	3
Slash Pine	10-20 Years	COVI	Northern Bobwhite	No	2
Slash Pine	10-20 Years	CYCR	Blue Jay	No	14
Slash Pine	10-20 Years	DEPI	Pine Warbler	No	5
Slash Pine	10-20 Years	GETR	Common Yellowthroat	A	3
Slash Pine	10-20 Years	GYMU	Wood Thrush	A	1
Slash Pine	10-20 Years	ICVI	Yellow-Breasted Chat	A	2
Slash Pine	10-20 Years	MECA	Red-Bellied Woodpecker	No	3
Slash Pine	10-20 Years	MEGA	Wild Turkey	No	1
Slash Pine	10-20 Years	MYCR	Great Crested Flycatcher	A	3
Slash Pine	10-20 Years	PABI	Tufted Titmouse	Mo	1
Slash Pine	10-20 Years	PACY	Indigo Bunting	A	2
Slash Pine	10-20 Years	PIER	Rufous-Sided Towhee	B	8
Slash Pine	10-20 Years	PIRU	Summer Tanager	A	3
Slash Pine	10-20 Years	PIVI	Hairy Woodpecker	No	1
Slash Pine	10-20 Years	POCA	Blue-Gray Gnatcatcher	A	2
Slash Pine	10-20 Years	SIPU	Brown-Headed Nuthatch	No	4
Slash Pine	10-20 Years	THLU	Carolina Wren	No	1
Slash Pine	10-20 Years	VIGR	White-Eyed Vireo	A	2
Slash Pine	10-20 Years	VIOL	Red-Eyed Vireo	A	2
Slash Pine	10-20 Years	WICI	Hooded Warbler	A	2
Slash Pine	10-20 Years	ZEMA	Mourning Dove	B	1
Slash Pine	20-30 Years	AIAE	Bachman's Sparrow	No	2
Slash Pine	20-30 Years	BUJA	Red-Tailed Hawk	B	1
Slash Pine	20-30 Years	CACA4	Northern Cardinal	No	5
Slash Pine	20-30 Years	CHPE	Chimney Swift	A	2
Slash Pine	20-30 Years	DEDI	Prairie Warbler	A	6
Slash Pine	20-30 Years	DEPI	Pine Warbler	No	1
Slash Pine	20-30 Years	GETR	Common Yellowthroat	A	1
Slash Pine	20-30 Years	GUCA	Blue Grosbeak	A	1
Slash Pine	20-30 Years	ICGA	Northern Oriole	A	1
Slash Pine	20-30 Years	ICVI	Yellow-Breasted Chat	A	3
Slash Pine	20-30 Years	MICA	Red-Bellied Woodpecker	No	2
Slash Pine	20-30 Years	MIPO	Northern Mockingbird	B	2
Slash Pine	20-30 Years	MOAT	Brown-Headed Cowbird	B	3
Slash Pine	20-30 Years	MYCR	Great Crested Flycatcher	A	1

TYPE	AGE	VERTID	COMMON	NEO	SUM
Slash Pine	20-30 Years	PACY	Indigo Bunting	A	5
Slash Pine	20-30 Years	PIER	Rufous-Sided Towhee	B	4
Slash Pine	20-30 Years	THLU	Carolina Wren	No	1
Slash Pine	20-30 Years	TORU	Brown Thrasher	No	1
Slash Pine	20-30 Years	TYTY	Eastern Kingbird	A	2
Slash Pine	20-30 Years	VIGR	White-Eyed Vireo	A	2
Slash Pine	20-30 Years	VIOL	Red-Eyed Vireo	A	1
Slash Pine	30-50 Years	BUJA	Red-Tailed Hawk	B	1
Slash Pine	30-50 Years	CACA4	Northern Cardinal	No	2
Slash Pine	30-50 Years	COAM	Yellow-Billed Cuckoo	A	1
Slash Pine	30-50 Years	COVI	Northern Bobwhite	No	2
Slash Pine	30-50 Years	COVI1	Eastern Wood-Pewee	A	1
Slash Pine	30-50 Years	CYCR	Blue Jay	No	2
Slash Pine	30-50 Years	DEPI	Pine Warbler	No	5
Slash Pine	30-50 Years	MECA	Red-Bellied Woodpecker	No	1
Slash Pine	30-50 Years	PIER	Rufous-Sided Towhee	B	1
Slash Pine	30-50 Years	PIRU	Summer Tanager	A	1
Slash Pine	30-50 Years	SIPU	Brown-Headed Nuthatch	No	5
Slash Pine	30-50 Years	THLU	Carolina Wren	No	2
Slash Pine	30-50 Years	VIGR	White-Eyed Vireo	A	2
Slash Pine	30-50 Years	VIOL	Red-Eyed Vireo	A	2
Slash Pine	30-50 Years	WICI	Hooded Warbler	A	6
Slash Pine	50-70 Years	AIAE	Bachman's Sparrow	No	2
Slash Pine	50-70 Years	BUJA	Red-Tailed Hawk	B	1
Slash Pine	50-70 Years	BUPL	Broad-Winged Hawk	A	2
Slash Pine	50-70 Years	CACA3	Chuck-Will's-Widow	A	1
Slash Pine	50-70 Years	CACA4	Northern Cardinal	No	13
Slash Pine	50-70 Years	CHPE	Chimney Swift	A	5
Slash Pine	50-70 Years	COAM	Yellow-Billed Cuckoo	A	4
Slash Pine	50-70 Years	COBR1	American Crow	No	4
Slash Pine	50-70 Years	COVI	Northern Bobwhite	No	5
Slash Pine	50-70 Years	CYCR	Blue Jay	No	8
Slash Pine	50-70 Years	DEDI	Prairie Warbler	A	14
Slash Pine	50-70 Years	DEPI	Pine Warbler	No	20
Slash Pine	50-70 Years	DRPI	Pileated Woodpecker	No	4
Slash Pine	50-70 Years	GETR	Common Yellowthroat	A	4
Slash Pine	50-70 Years	GUCA	Blue Grosbeak	A	3
Slash Pine	50-70 Years	ICVI	Yellow-Breasted Chat	A	9
Slash Pine	50-70 Years	MECA	Red-Bellied Woodpecker	No	2
Slash Pine	50-70 Years	MEER	Red-Headed Woodpecker	No	4
Slash Pine	50-70 Years	MIPO	Northern Mockingbird	B	2
Slash Pine	50-70 Years	MYCR	Great Crested Flycatcher	A	3
Slash Pine	50-70 Years	PABI	Tufted Titmouse	No	1
Slash Pine	50-70 Years	PACA2	Carolina Chickadee	No	4
Slash Pine	50-70 Years	PACY	Indigo Bunting	A	5
Slash Pine	50-70 Years	PIER	Rufous-Sided Towhee	B	20
Slash Pine	50-70 Years	PIRU	Summer Tanager	A	4
Slash Pine	50-70 Years	SPPU1	Field Sparrow	No	1
Slash Pine	50-70 Years	THLU	Carolina Wren	No	7

Species Lists for Camp Shelby

TYPE	AGE	VERTID	COMMON	NEO	SUM
Slash Pine	50-70 Years	TORU	Brown Thrasher	No	4
Slash Pine	50-70 Years	TYTY	Eastern Kingbird	A	1
Slash Pine	50-70 Years	VIGR	White-Eyed Vireo	A	10
Slash Pine	50-70 Years	WICI	Hooded Warbler	A	5
Slash Pine	50-70 Years	ZEMA	Mourning Dove	B	1
Sweet Gum-Nuttail Oak-Willow Oak	50-70 Years	CACA4	Northern Cardinal	No	2
Sweet Gum-Nuttail Oak-Willow Oak	50-70 Years	COVI	Northern Bobwhite	No	1
Sweet Gum-Nuttail Oak-Willow Oak	50-70 Years	CYCR	Blue Jay	No	1
Sweet Gum-Nuttail Oak-Willow Oak	50-70 Years	DEPI	Pine Warbler	No	6
Sweet Gum-Nuttail Oak-Willow Oak	50-70 Years	DRPI	Pileated Woodpecker	No	1
Sweet Gum-Nuttail Oak-Willow Oak	50-70 Years	ICVI	Yellow-Breasted Chat	A	1
Sweet Gum-Nuttail Oak-Willow Oak	50-70 Years	MECA	Red-Bellied Woodpecker	No	1
Sweet Gum-Nuttail Oak-Willow Oak	50-70 Years	MEER	Red-Headed Woodpecker	No	1
Sweet Gum-Nuttail Oak-Willow Oak	50-70 Years	VIOL	Red-Eyed Vireo	A	1
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	AGPH	Red-Winged Blackbird	B	5
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	CACA4	Northern Cardinal	No	2
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	COAM	Yellow-Billed Cuckoo	A	1
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	CYCR	Blue Jay	No	1
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	DEDI	Prairie Warbler	A	1
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	DRPI	Pileated Woodpecker	No	1
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	ICVI	Yellow-Breasted Chat	A	3
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	MEER	Red-Headed Woodpecker	No	1
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	MEGA	Wild Turkey	No	1
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	MYCR	Great Crested Flycatcher	A	1
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	PACY	Indigo Bunting	A	2
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	PIER	Rufous-Sided Towhee	B	1
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	STMA2	Eastern Meadowlark	B	1
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	TORU	Brown Thrasher	No	3
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	TYTY	Eastern Kingbird	A	2
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	VIGR	White-Eyed Vireo	A	3
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	VIOL	Red-Eyed Vireo	A	1
White Oak-Black Oak-Yellow Pine	30-50 Years	AIAE	Bachman's Sparrow	No	1
White Oak-Black Oak-Yellow Pine	30-50 Years	CACA4	Northern Cardinal	No	3
White Oak-Black Oak-Yellow Pine	30-50 Years	CHMI	Common Nighthawk	A	1
White Oak-Black Oak-Yellow Pine	30-50 Years	CHPE	Chimney Swift	A	2
White Oak-Black Oak-Yellow Pine	30-50 Years	COBR1	American Crow	No	1
White Oak-Black Oak-Yellow Pine	30-50 Years	CYCR	Blue Jay	No	1
White Oak-Black Oak-Yellow Pine	30-50 Years	DEDI	Prairie Warbler	A	6
White Oak-Black Oak-Yellow Pine	30-50 Years	DRPI	Pileated Woodpecker	No	2
White Oak-Black Oak-Yellow Pine	30-50 Years	GETR	Common Yellowthroat	A	2
White Oak-Black Oak-Yellow Pine	30-50 Years	ICVI	Yellow-Breasted Chat	A	4
White Oak-Black Oak-Yellow Pine	30-50 Years	MICA	Red-Bellied Woodpecker	No	1
White Oak-Black Oak-Yellow Pine	30-50 Years	PABI	Tufted Titmouse	No	2
White Oak-Black Oak-Yellow Pine	30-50 Years	PACA2	Carolina Chickadee	No	2
White Oak-Black Oak-Yellow Pine	30-50 Years	PACY	Indigo Bunting	A	8
White Oak-Black Oak-Yellow Pine	30-50 Years	PIER	Rufous-Sided Towhee	B	5
White Oak-Black Oak-Yellow Pine	30-50 Years	PIPU	Downy Woodpecker	No	1
White Oak-Black Oak-Yellow Pine	30-50 Years	PIVI	Hairy Woodpecker	No	1

TYPE	AGE	VERTID	COMMON	NEO	SUM
White Oak-Black Oak-Yellow Pine	30-50 Years	SISI	Eastern Bluebird	B	1
White Oak-Black Oak-Yellow Pine	30-50 Years	THLU	Carolina Wren	No	2
White Oak-Black Oak-Yellow Pine	30-50 Years	TORU	Brown Thrasher	No	2
White Oak-Black Oak-Yellow Pine	30-50 Years	TYTY	Eastern Kingbird	A	1
White Oak-Black Oak-Yellow Pine	30-50 Years	VIGR	White-Eyed Vireo	A	1
White Oak-Black Oak-Yellow Pine	30-50 Years	VIOL	Red-Eyed Vireo	A	1

Mammal Data Summary by Stand Type and Age Class based on 1992 LCTA Data

TYPE	AGE	VERTID	COMMON	SUM
Hardwood-Pine	30-50 Years	PEGO	Cotton Mouse	4
Loblolly Pine	30-50 Years	NEFL	Eastern Woodrat	1
Loblolly Pine	30-50 Years	PEGO	Cotton Mouse	8
Loblolly Pine	50-70 Years	BLCA	Southern Short-Tailed Shrew	1
Loblolly Pine	50-70 Years	NEFL	Eastern Woodrat	1
Loblolly Pine	50-70 Years	OCNU	Golden Mouse	1
Loblolly Pine	50-70 Years	PEGO	Cotton Mouse	21
Loblolly Pine-Hardwood	10-20 Years	GLVO	Southern Flying Squirrel	1
Loblolly Pine-Hardwood	10-20 Years	PEGO	Cotton Mouse	1
Longleaf Pine	Open/Grass	BLCA	Southern Short-Tailed Shrew	1
Longleaf Pine	Open/Grass	CRPA	Least Shrew	5
Longleaf Pine	Open/Grass	OCNU	Golden Mouse	2
Longleaf Pine	Open/Grass	PEGO	Cotton Mouse	26
Longleaf Pine	Open/Grass	REHU	Eastern Harvest Mouse	1
Longleaf Pine	Open/Grass	SIHI	Hispik Cotton Rat	11
Longleaf Pine	5-10 Years	CRPA	Least Shrew	2
Longleaf Pine	5-10 Years	PEGO	Cotton Mouse	3
Longleaf Pine	10-20 Years	PEGO	Cotton Mouse	4
Longleaf Pine	20-30 Years	PEGO	Cotton Mouse	5
Longleaf Pine	30-50 Years	BLCA	Southern Short-Tailed Shrew	4
Longleaf Pine	30-50 Years	CRPA	Least Shrew	5
Longleaf Pine	30-50 Years	PEGO	Cotton Mouse	48
Longleaf Pine	30-50 Years	SIHI	Hispid Cotton Rat	3
Longleaf Pine	30-50 Years	SYFL	Eastern Cottontail	1
Longleaf Pine	50-70 Years	BLCA	Southern Short-Tailed Shrew	7
Longleaf Pine	50-70 Years	CRPA	Least Shrew	19
Longleaf Pine	50-70 Years	GLVO	Southern Flying Squirrel	1
Longleaf Pine	50-70 Years	NEFL	Eastern Woodrat	4
Longleaf Pine	50-70 Years	PEGO	Cotton Mouse	58
Longleaf Pine	50-70 Years	REHU	Eastern Harvest Mouse	2
Longleaf Pine	50-70 Years	SIHI	Hispid Cotton Rat	27
Longleaf Pine	70-100 Years	PEGO	Cotton Mouse	11
Pine-Hardwood	20-30 Years	BLCA	Southern Short-Tailed Shrew	1
Pine-Hardwood	20-30 Years	PEGO	Cotton Mouse	4
Slash Pine	10-20 Years	BLCA	Southern Short-Tailed Shrew	1
Slash Pine	10-20 Years	PEGO	Cotton Mouse	8
Slash Pine	20-30 Years	PEGO	Cotton Mouse	9
Slash Pine	20-30 Years	SIHI	Hispid Cotton Rat	1
Slash Pine	30-50 Years	PEGO	Cotton Mouse	3
Slash Pine	50-70 Years	BLCA	Southern Short-Tailed Shrew	2
Slash Pine	50-70 Years	PEGO	Cotton Mouse	23
Slash Pine	50-70 Years	SIHI	Hispid Cotton Rat	2

Sweet Gum-Nuttail Oak-Willow Oak	50-70 Years	PEGO	Cotton Mouse	6
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	PEGO	Cotton Mouse	6
White Oak-Black Oak-Yellow Pine	30-50 Years	PEGO	Cotton Mouse	5
White Oak-Black Oak-Yellow Pine	30-50 Years	SIHI	Hispid Cotton Rat	1

Foliar Height Diversity Index by Stand Type/Age Class (Shannon Index) based on 1991 LCTA Data

FHD = Foliar Height Diversity (based on hits in 7 height categories)
Even = Evenness

STAND TYPE	AGE CLASS	FHD	Even
Longleaf Pine	Open/Grass	1.72175	0.885
Slash Pine	Open/grass	1.52623	0.784
Longleaf Pine	5-10 Years	1.30684	0.672
Loblolly Pine	10-20 Years	1.72282	0.885
Loblolly Pine-Hardwood	10-20 Years	1.78622	0.918
Longleaf Pine	10-20 Years	1.74229	0.895
Slash Pine	10-20 Years	1.71761	0.883
Slash Pine-Hardwood	10-20 Years	1.64539	0.846
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	1.77889	0.914
Longleaf Pine	20-30 Years	1.59199	0.818
Pine-Hardwood	20-30 Years	1.58858	0.816
Slash Pine	20-30 Years	1.50347	0.773
Sweetbay-Maple	20-30 Years	1.47865	0.760
Sweetbay-Swamp Tupelo-Red Maple	20-30 Years	1.60378	0.824
Bottomland Hardwood-Yellow Pine	30-50 Years	1.66307	0.855
Hardwood-Pine	30-50 Years	1.77310	0.911
Loblolly Pine	30-50 Years	1.72556	0.887
Loblolly Pine-Hardwood	30-50 Years	1.76692	0.908
Longleaf Pine	30-50 Years	1.46185	0.751
Slash Pine	30-50 Years	1.73649	0.892
White Oak-Black Oak-Yellow Pine	30-50 Years	0.67828	0.349
Bottomland Hardwood-Yellow Pine	50-70 Years	1.76612	0.908
Loblolly Pine	50-70 Years	1.81986	0.935
Loblolly Pine-Hardwood	50-70 Years	1.78235	0.916
Longleaf Pine	50-70 Years	1.35220	0.695
Slash Pine	50-70 Years	1.42789	0.734
Sweet Gum-Nuttail Oak-Willow Oak	50-70 Years	1.81293	0.932
Sweetbay-Swamp Tupelo-Red Maple	50-70 Years	1.70245	0.875
Loblolly Pine	70-100 Years	1.68787	0.867
Longleaf Pine	70-100 Years	1.72175	0.885

Plant Species Diversity Index by Stand Type/Age Class (Shannon Index) based on 1991 LCTA Data

pPSD = Plant Species Diversity (based on presence/absence)
pEven = Evenness (based on presence/absence)
Rich = Richness

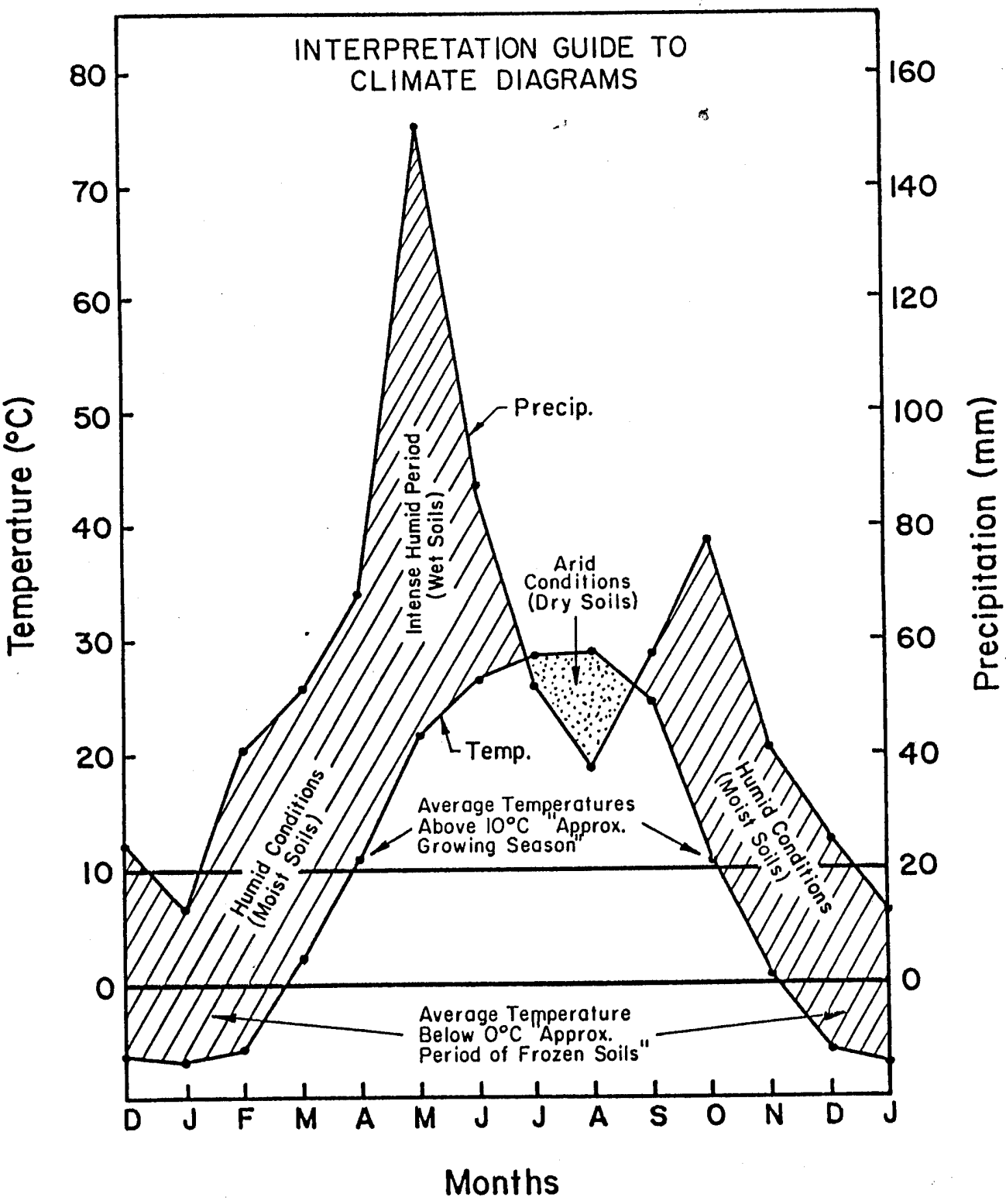
STAND TYPE	AGE CLASS	pPSD	pEven	Rich
Longleaf Pine	Open/Grass	3.55731	0.824	75
Slash Pine	Open/Grass	2.00280	0.669	20
Longleaf Pine	5-10 Years	2.26009	0.856	14
Loblolly Pine	10-20 Years	2.71145	0.853	24
Loblolly Pine-Hardwood	10-20 Years	2.36955	0.756	23
Longleaf Pine	10-20 Years	3.60907	0.791	96
Slash Pine	10-20 Years	3.56854	0.799	87
Slash Pine-Hardwood	10-20 Years	2.37481	0.857	16
Sweetbay-Swamp Tupelo-Red Maple	10-20 Years	3.08599	0.848	38
Longleaf Pine	20-30 Years	3.52775	0.820	74
Pine-Hardwood	20-30 Years	2.76003	0.837	27
Slash Pine	20-30 Years	3.06779	0.801	46
Sweetbay-Maple	20-30 Years	2.71492	0.824	27
Sweetbay-Swamp Tupelo-Red Maple	20-30 Years	2.72930	0.802	30
Bottomland Hardwood-Yellow Pine	30-50 Years	2.56880	0.771	28
Hardwood-Pine	30-50 Years	2.50627	0.789	24
Loblolly Pine	30-50 Years	3.46429	0.815	70
Loblolly Pine-Hardwood	30-50 Years	2.69764	0.810	28
Longleaf Pine	30-50 Years	3.98395	0.818	130
Slash Pine	30-50 Years	3.58915	0.824	78
White Oak-Black Oak-Yellow Pine	30-50 Years	2.62899	0.807	26
Bottomland Hardwood-Yellow Pine	50-70 Years	2.64256	0.821	25
Loblolly Pine	50-70 Years	3.52897	0.815	76
Loblolly Pine-Hardwood	50-70 Years	2.72779	0.847	25
Longleaf Pine	50-70 Years	4.35032	0.845	172
Slash Pine	50-70 Years	3.80611	0.832	97
Sweet Gum-Nuttail Oak-Willow Oak	50-70 Years	3.13894	0.835	43
Sweetbay-Swamp Tupelo-Red Maple	50-70 Years	3.06366	0.825	41
Loblolly Pine	70-100 Years	2.05473	0.686	20
Longleaf Pine	70-100 Years	2.96135	0.820	37

Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix R

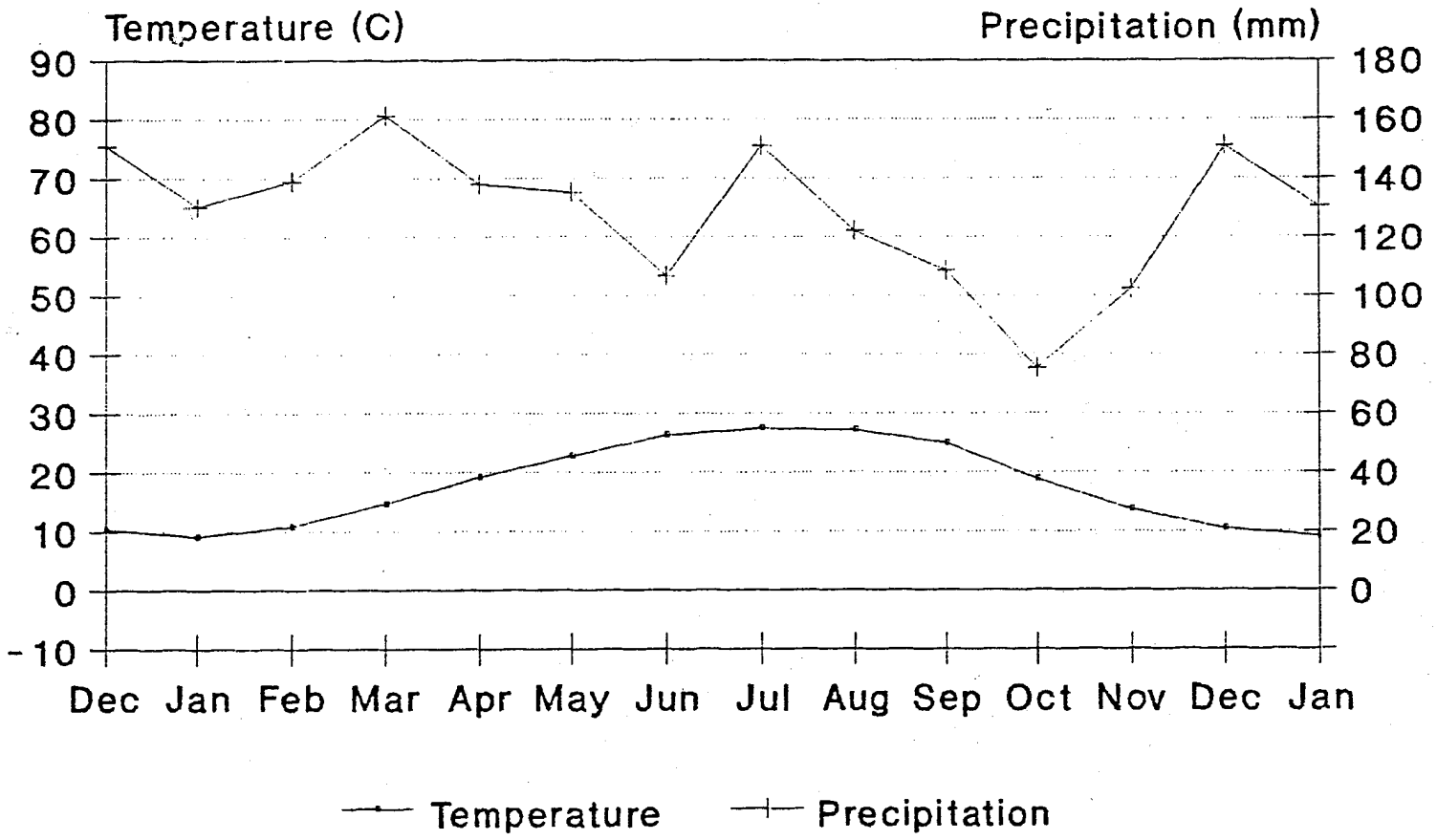
Summary of Climatic Information for Camp Shelby and Adjacent Areas


INTERPRETATION GUIDE TO
CLIMATE DIAGRAMS
Temperature (°C)
Precipitation (mm)
80
70
60
50
40
30
20
10
0
160
140
120
100
80
60
40
20
0
Precip.
Temp.
Intense Humid Period
(Wet Soils)
Arid
Conditions
(Dry Soils)
Humid Conditions
(Moist Soils)
Humid Conditions
(Moist Soils)
Average Temperatures
Above 10°C "Approx.
Growing Season"
Average Temperature
Below 0°C "Approx.
Period of Frozen Soils"
D J F M A M J J A S O N D J
Months

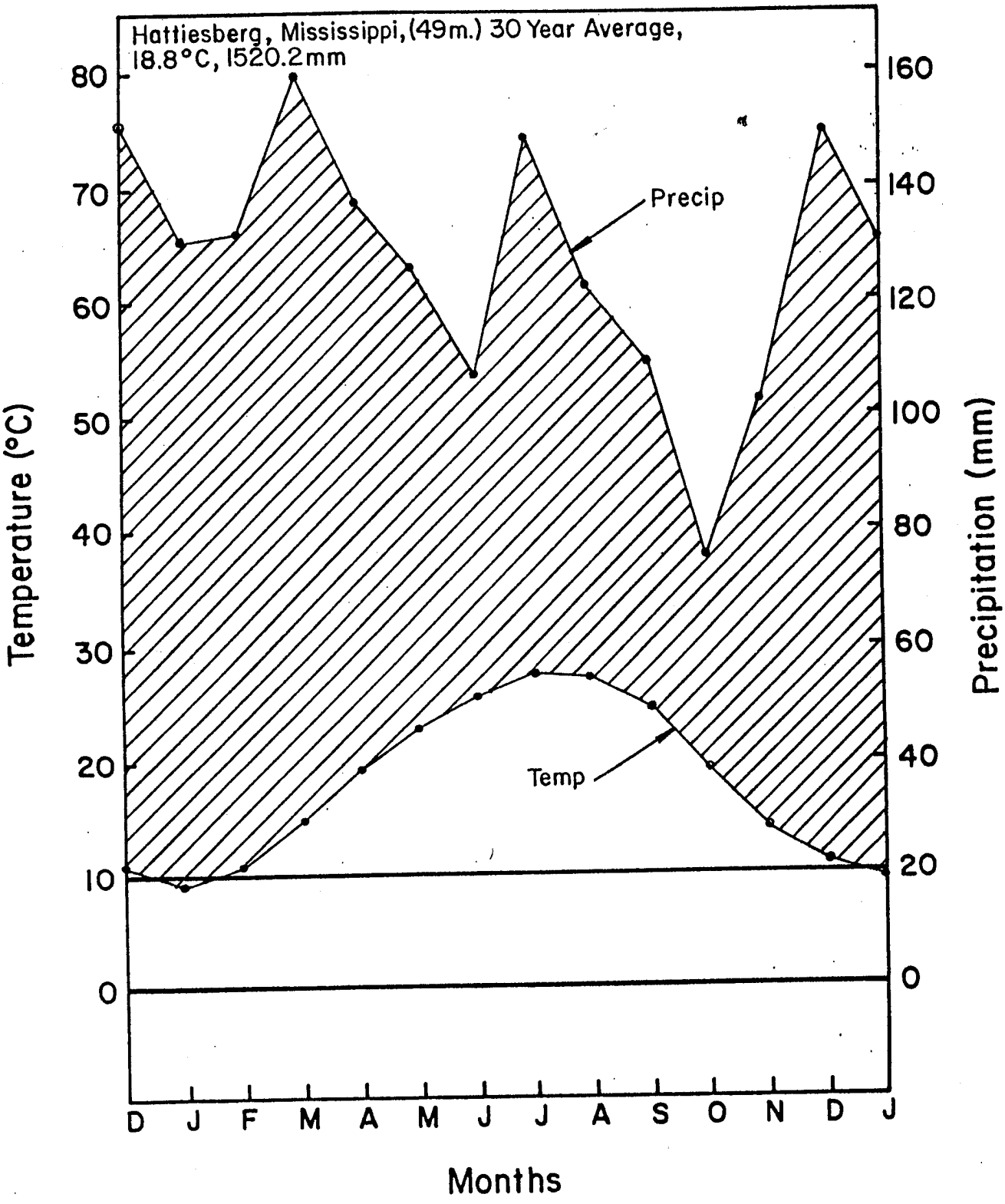
Hattiesberg, Mississippi. Elevation 161 ft. or 49 m.
Averages based on data from 1951-1980
Longitude W 89 18' Latitude N 31 19'

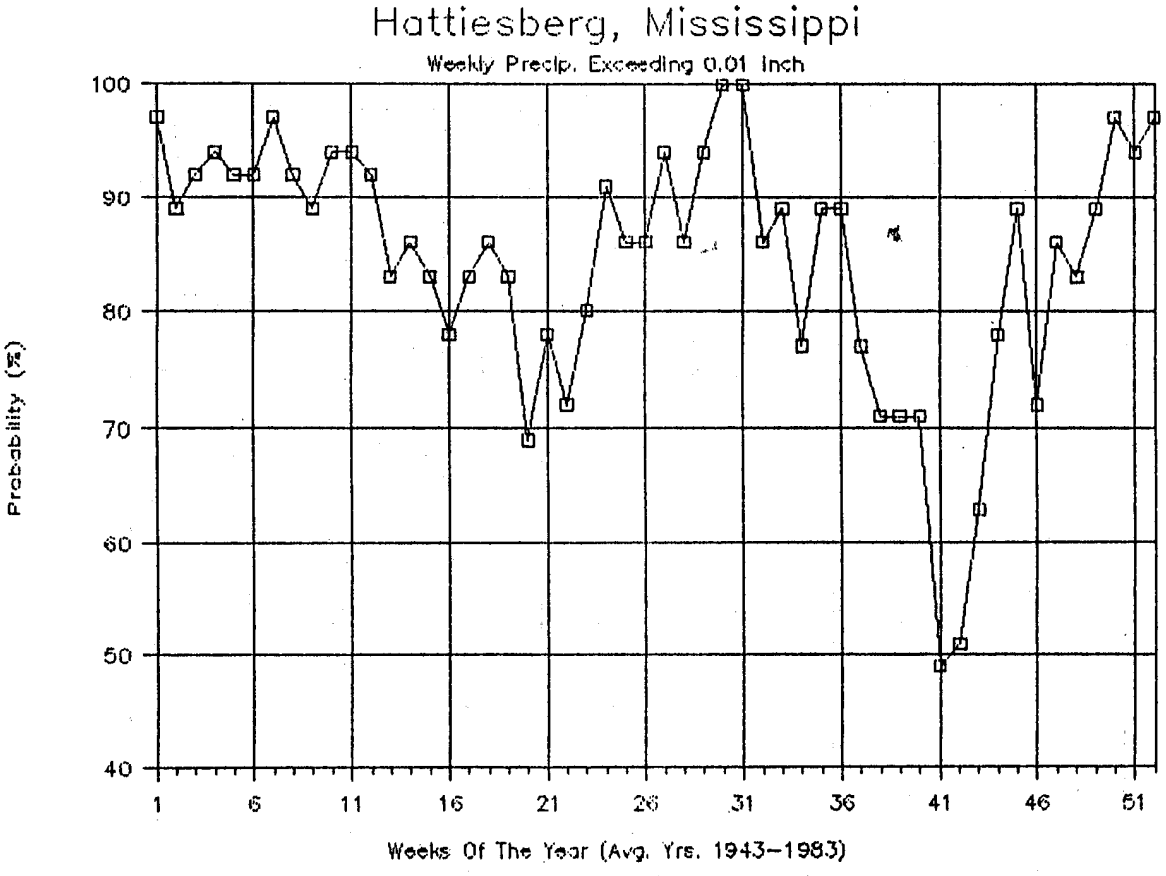
Month	Temperature		Precipitation	
	F	C	in.	mm
January	48.4	9.1	5.1	130.3
February	51.6	10.9	5.5	138.9
March	58.4	14.7	6.4	161.3
April	66.6	19.2	5.4	137.9
May	73.0	22.8	5.32	135.1
June	79.3	26.3	4.2	106.7
July	81.4	27.4	5.9	150.9
August	80.9	27.2	4.8	122.2
September	76.8	24.9	4.3	108.5
October	65.8	18.8	3.0	75.2
November	56.6	13.7	4.0	102.4
December	50.7	10.4	5.9	150.9
Mean Annual Temp.	65.8	18.8		
Average Annual Ppt.			59.9	1520.2

Hattiesberg, Mississippi
Climate Diagram



1951-1980

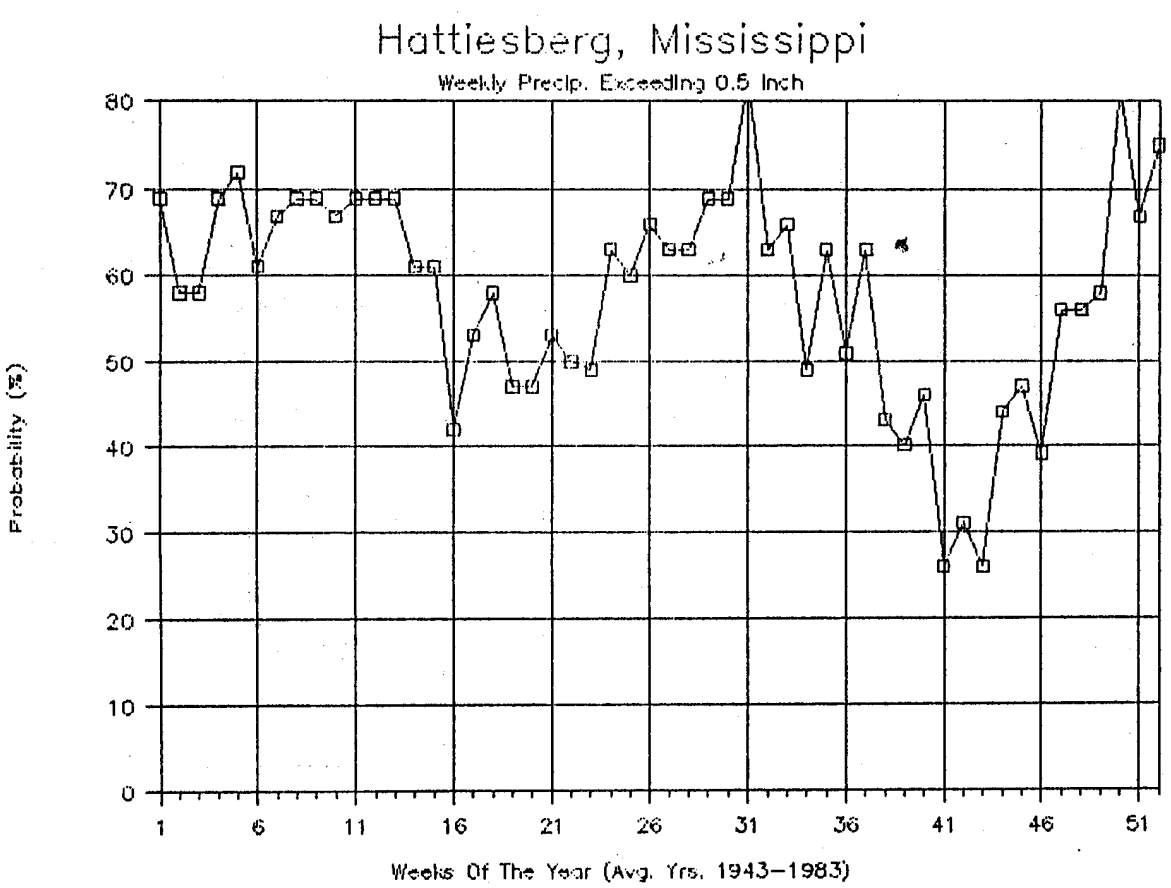

Hattiesberg, Mississippi, (49m.) 30 Year Average,
18.8°C, 1520.2mm
Precip
Temp
Temperature (°C)
Precipitation (mm)
80
70
60
50
40
30
20
10
0
160
140
120
100
80
60
40
20
0
D J F M A M J J A S O N D J
Months



WEEK	Start Date	End Date	WEEK	Start Date	End Date	WEEK	Start Date	End Dat
1	JAN 01	JAN 07	19	MAY 07	MAY 13	37	SEP 10	SEP 16
2	JAN 08	JAN 14	20	MAY 14	MAY 20	38	SEP 17	SEP 23
3	JAN 15	JAN 21	21	MAY 21	MAY 27	39	SEP 24	SEP 30
4	JAN 22	JAN 28	22	MAY 28	JUN 03	40	OCT 01	OCT 07
5	JAN 29	FEB 04	23	JUN 04	JUN 10	41	OCT 08	OCT 14
6	FEB 05	FEB 11	24	JUN 11	JUN 17	42	OCT 15	OCT 21
7	FEB 12	FEB 18	25	JUN 18	JUN 24	43	OCT 22	OCT 28
8	FEB 19	FEB 25	26	JUN 25	JUL 01	44	OCT 29	NOV 04
*9	FEB 26	MAR 04	27	JUL 02	JUL 08	45	NOV 05	NOV 11
10	MAR 05	MAR 11	28	JUL 09	JUL 15	46	NOV 12	NOV 18
11	MAR 12	MAR 18	29	JUL 16	JUL 22	47	NOV 19	NOV 25
12	MAR 19	MAR 25	30	JUL 23	JUL 29	48	NOV 26	DEC 02
13	MAR 26	APR 01	31	JUL 30	AUG 05	49	DEC 03	DEC 09
14	APR 02	APR 08	32	AUG 06	AUG 12	50	DEC 10	DEC 16
15	APR 09	APR 15	33	AUG 13	AUG 19	51	DEC 17	DEC 23
16	APR 16	APR 22	34	AUG 20	AUG 26	**52	DEC 24	DEC 31
17	APR 23	APR 29	35	AUG 27	SEP 02			
18	APR 30	MAY 06	36	SEP 03	SEP 09			

* 8 Day Period During Leap-Year

** 8 Day Period

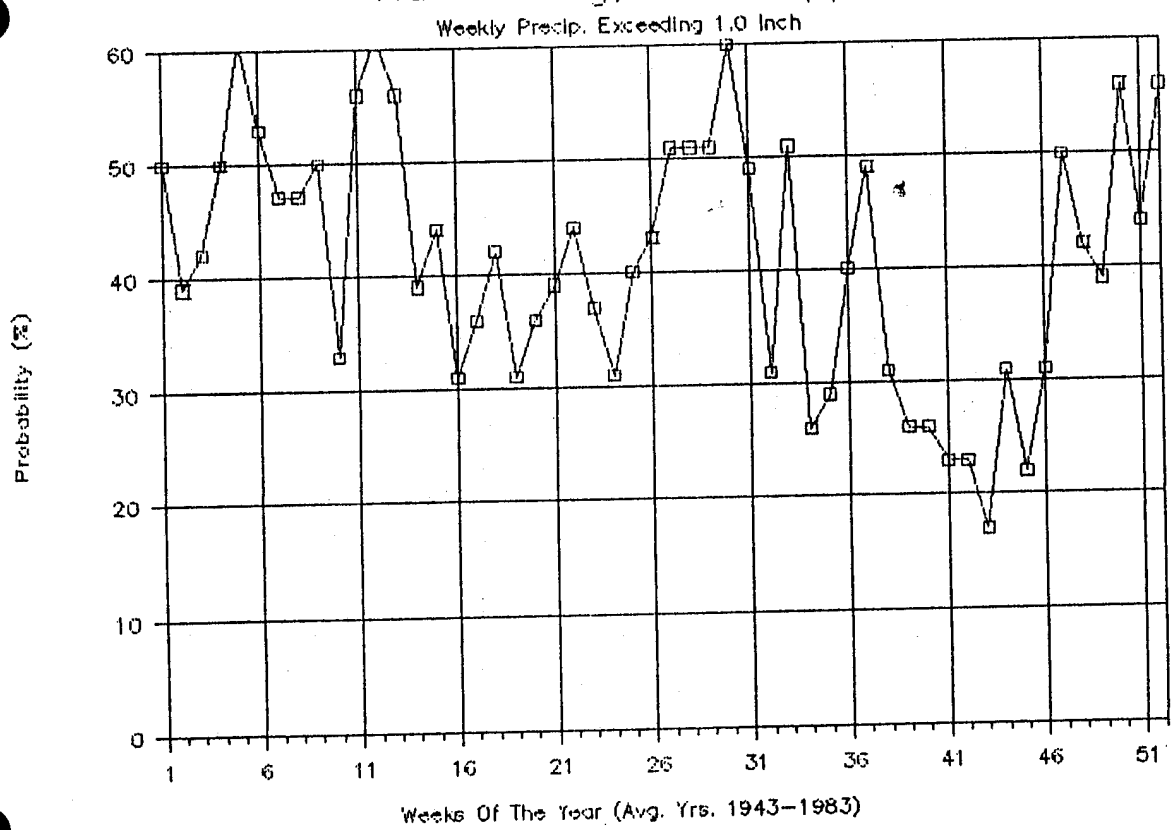


WEEK	Start Date	End Date	WEEK	Start Date	End Date	WEEK	Start Date	End Date
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3	JAN 15	JAN 21	21	MAY 21	MAY 27	39	SEP 24	SEP 30
4	JAN 22	JAN 28	22	MAY 28	JUN 03	40	OCT 01	OCT 07
5	JAN 29	FEB 04	23	JUN 04	JUN 10	41	OCT 08	OCT 14
6	FEB 05	FEB 11	24	JUN 11	JUN 17	42	OCT 15	OCT 21
7	FEB 12	FEB 18	25	JUN 18	JUN 24	43	OCT 22	OCT 28
8	FEB 19	FEB 25	26	JUN 25	JUL 01	44	OCT 29	NOV 04
*9	FEB 26	MAR 04	27	JUL 02	JUL 08	45	NOV 05	NOV 11
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14	APR 02	APR 08	32	AUG 06	AUG 12	50	DEC 10	DEC 16
15	APR 09	APR 15	33	AUG 13	AUG 19	51	DEC 17	DEC 23
16	APR 16	APR 22	34	AUG 20	AUG 26	**52	DEC 24	DEC 31
17	APR 23	APR 29	35	AUG 27	SEP 02			
18	APR 30	MAY 06	36	SEP 03	SEP 09			

* 8 Day Period During Leap-Year

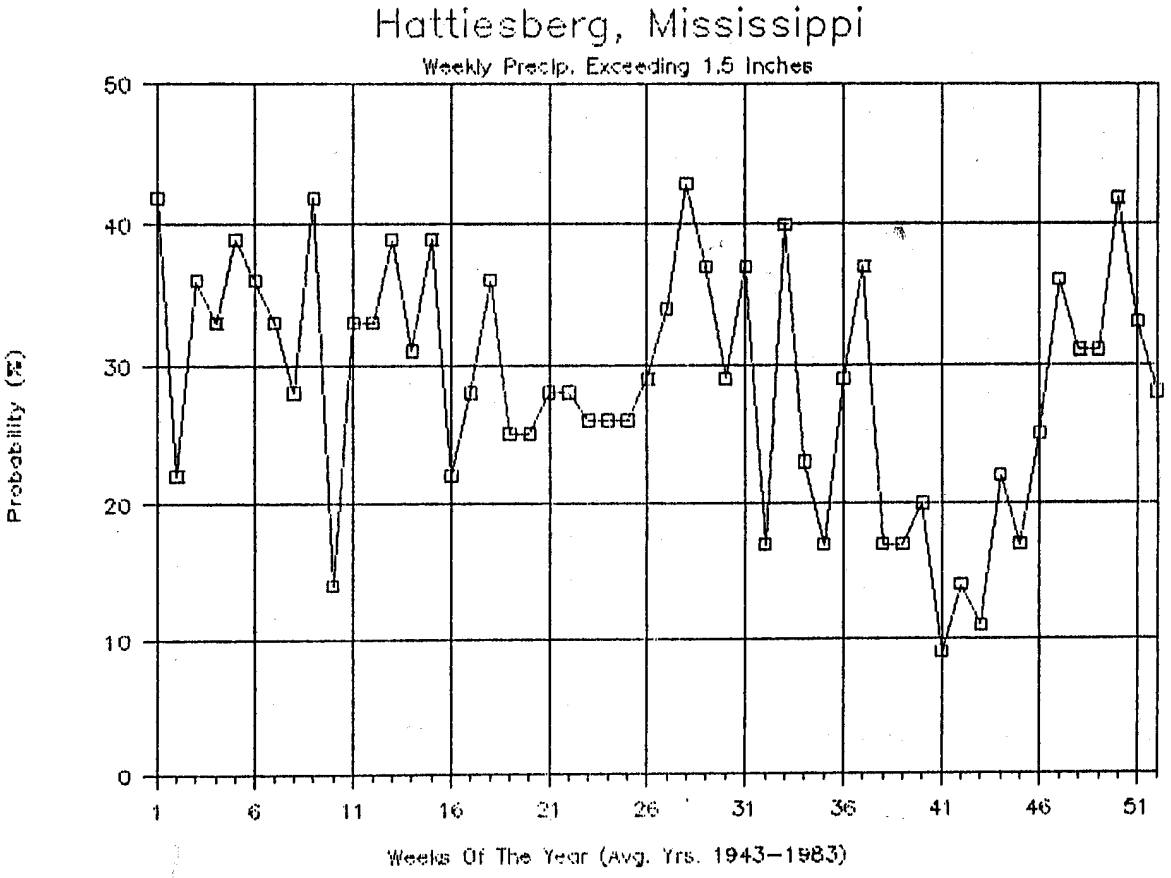
** 8 Day Period

Hattiesberg, Mississippi



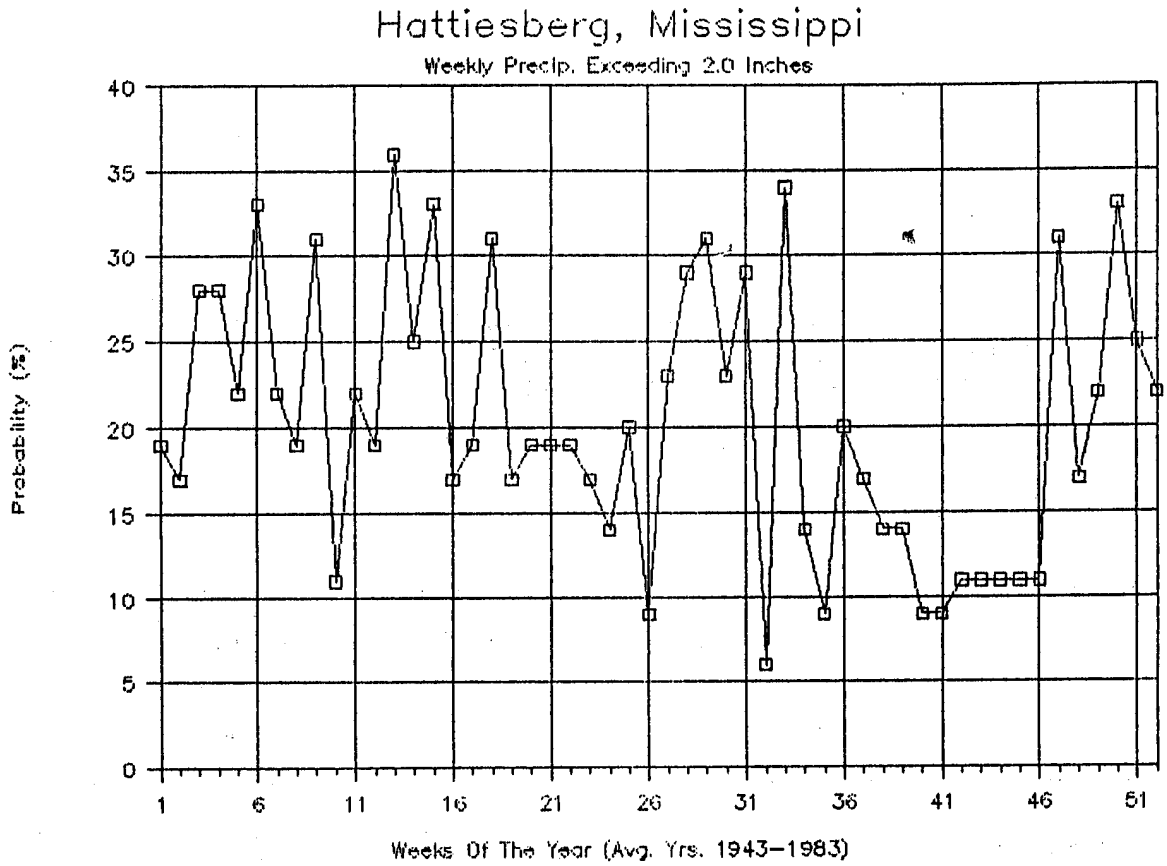
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17	APR 23	APR 29	35	AUG 27	SEP 02			
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** 8 Day Period



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17	APR 23	APR 29	35	AUG 27	SEP 02			
18	APR 30	MAY 06	36	SEP 03	SEP 09			

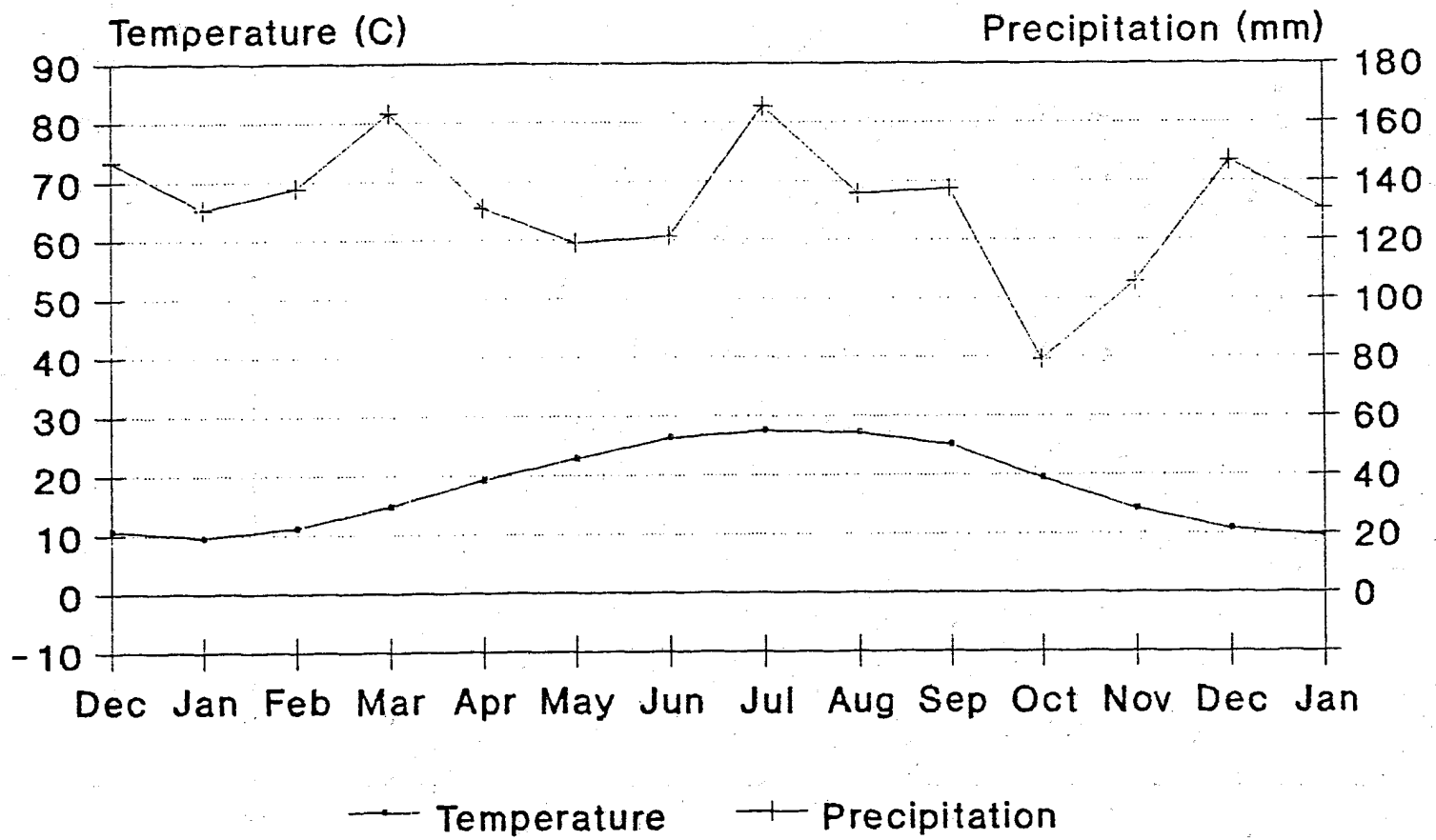
* 8 Day Period During Leap-Year

** 8 Day Period

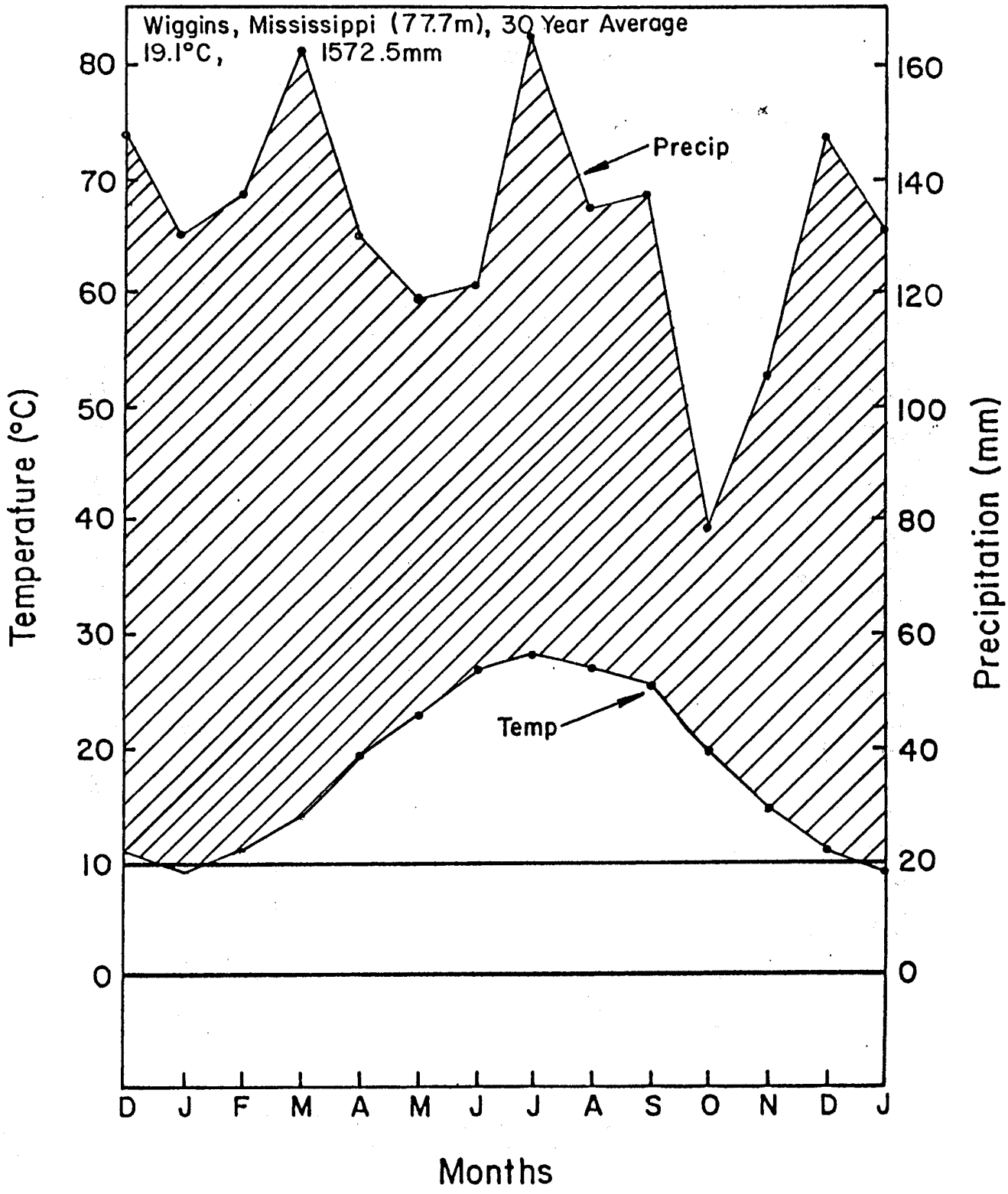
Wiggins, Mississippi. Elevation 255 ft. or 77.7 m.
Averages based on data from 1951-1980
Longitude W 89 09' Latitude N 30 52'

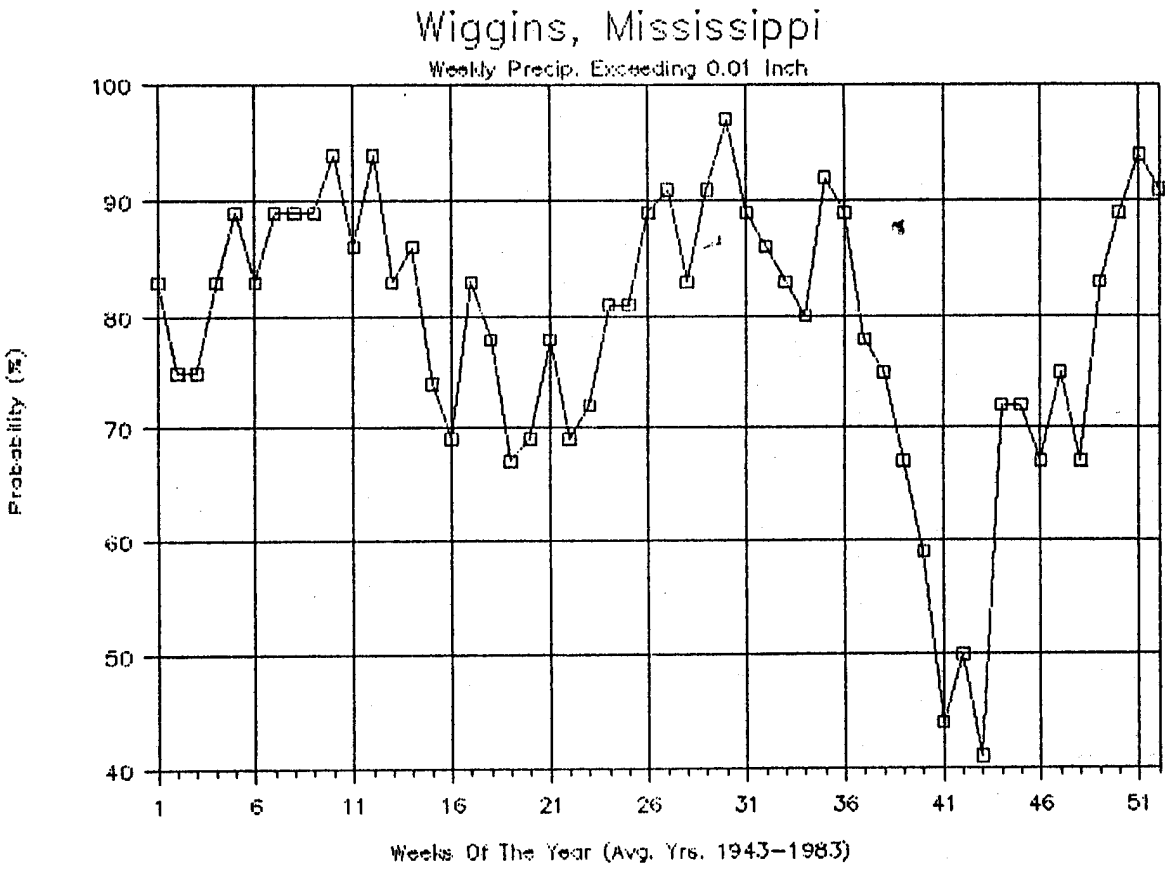
Month	Temperature		Precipitation	
	F	C	in.	mm
January	49.2	9.6	5.1	130.6
February	52.2	11.2	5.4	137.7
March	58.7	14.8	6.4	163.3
April	66.7	19.3	5.2	130.8
May	73.3	22.9	4.7	119.1
June	79.4	26.3	4.8	121.2
July	81.5	27.5	6.5	165.4
August	81.0	27.2	5.3	135.6
September	77.1	25.1	5.4	137.4
October	67.0	19.4	3.1	79.0
November	57.5	14.2	4.2	105.7
December	51.5	10.8	5.8	146.8
Mean Annual Temp.	66.3	19.1		
Average Annual Ppt.			61.9	1572.5

Wiggins, Mississippi
Climate Diagram



1951-1980

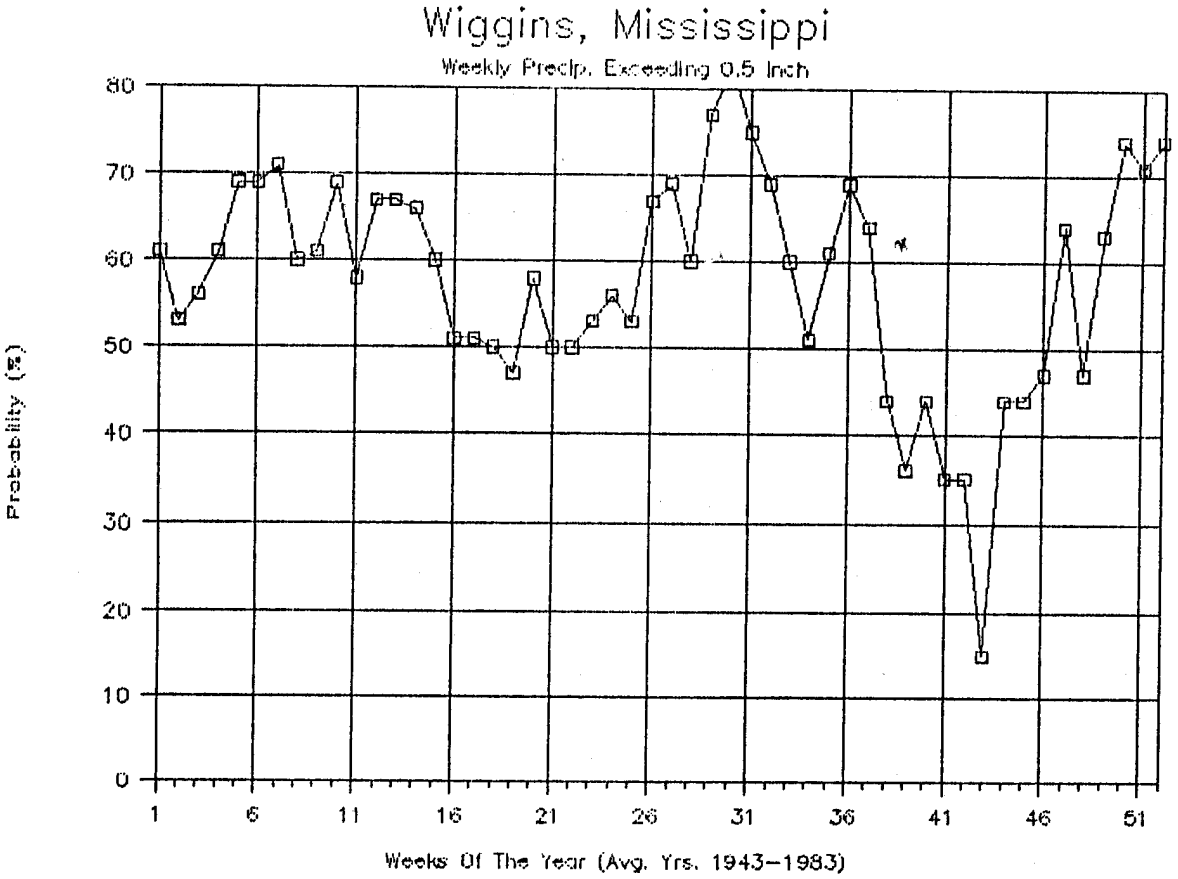

Wiggins, Mississippi (77.7m), 30 Year Average
19.1°C, 1572.5mm
Precip
Temp
Temperature (°C)
Precipitation (mm)
Months
80
70
60
50
40
30
20
10
0
160
140
120
100
80
60
40
20
0
D J F M A M J J A S O N D J



WEEK	Start Date	End Date	WEEK	Start Date	End Date	WEEK	Start Date	End Date
1	JAN 01	JAN 07	19	MAY 07	MAY 13	37	SEP 10	SEP 16
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3	JAN 15	JAN 21	21	MAY 21	MAY 27	39	SEP 24	SEP 30
4	JAN 22	JAN 28	22	MAY 28	JUN 03	40	OCT 01	OCT 07
5	JAN 29	FEB 04	23	JUN 04	JUN 10	41	OCT 08	OCT 14
6	FEB 05	FEB 11	24	JUN 11	JUN 17	42	OCT 15	OCT 21
7	FEB 12	FEB 18	25	JUN 18	JUN 24	43	OCT 22	OCT 28
8	FEB 19	FEB 25	26	JUN 25	JUL 01	44	OCT 29	NOV 04
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10	MAR 05	MAR 11	28	JUL 09	JUL 15	46	NOV 12	NOV 18
11	MAR 12	MAR 18	29	JUL 16	JUL 22	47	NOV 19	NOV 25
12	MAR 19	MAR 25	30	JUL 23	JUL 29	48	NOV 26	DEC 02
13	MAR 26	APR 01	31	JUL 30	AUG 05	49	DEC 03	DEC 09
[illegible]	APR 02	APR 08	32	AUG 06	AUG 12	50	DEC 10	DEC 16
[illegible]	APR 09	APR 15	33	AUG 13	AUG 19	51	DEC 17	DEC 23
16	APR 16	APR 22	34	AUG 20	AUG 26	**52	DEC 24	DEC 31
17	APR 23	APR 29	35	AUG 27	SEP 02			
18	APR 30	MAY 06	36	SEP 03	SEP 09			

* 8 Day Period During Leap-Year

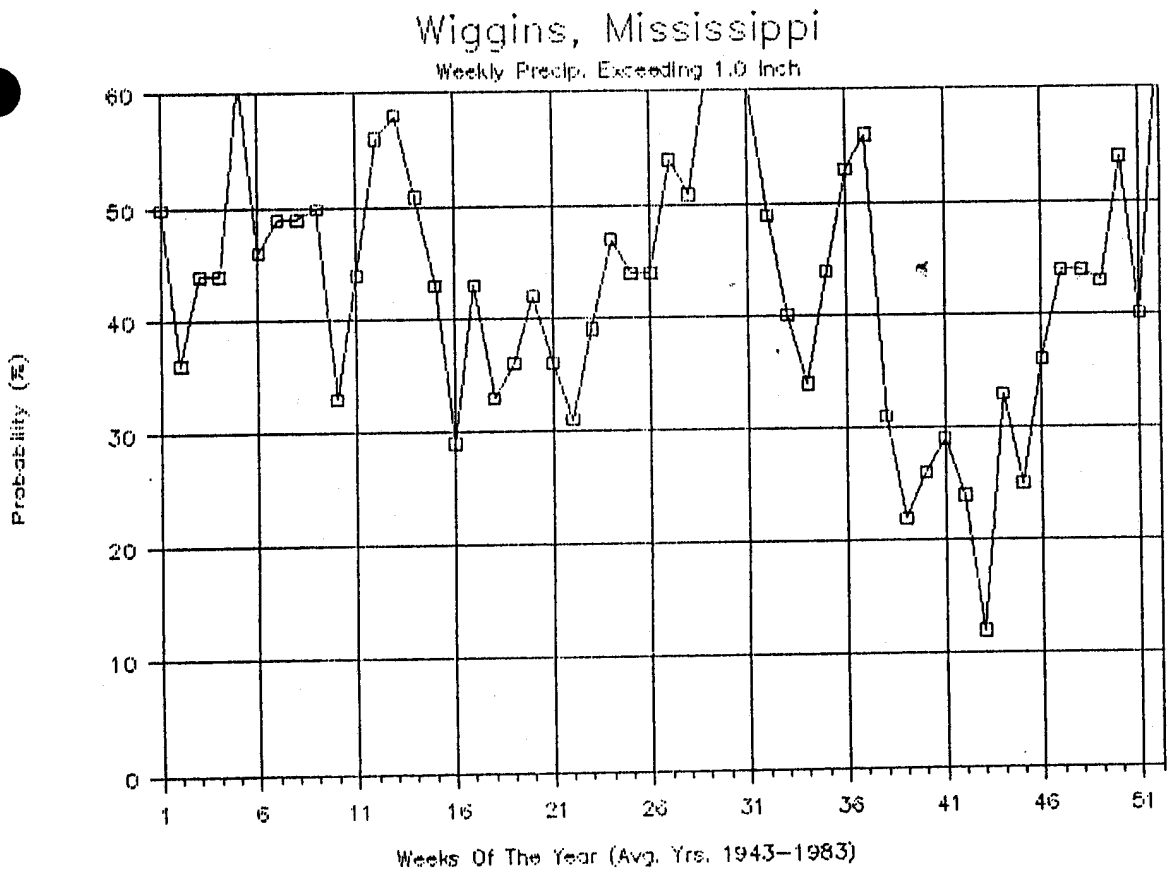
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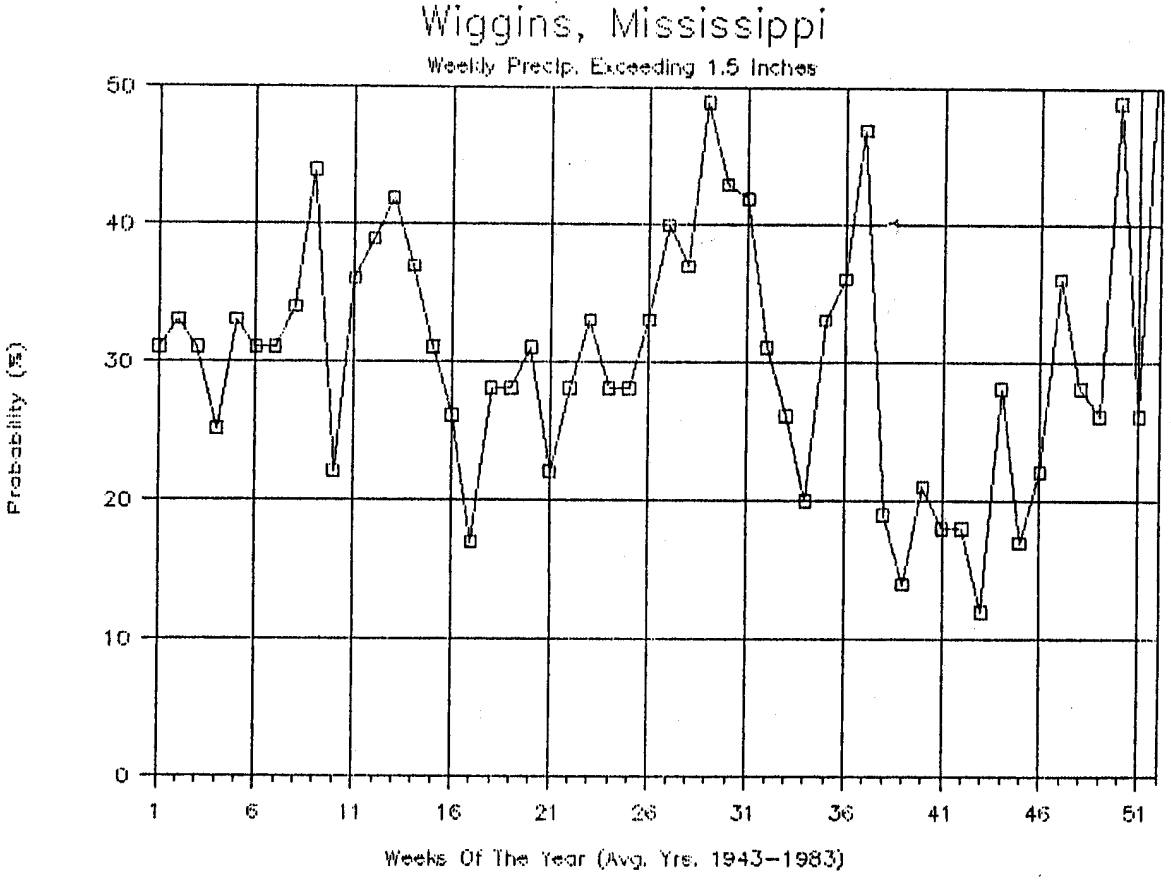
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3	JAN 15	JAN 21	21	MAY 21	MAY 27	39	SEP 24	SEP 30
4	JAN 22	JAN 28	22	MAY 28	JUN 03	40	OCT 01	OCT 07
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17	APR 23	APR 29	35	AUG 27	SEP 02			
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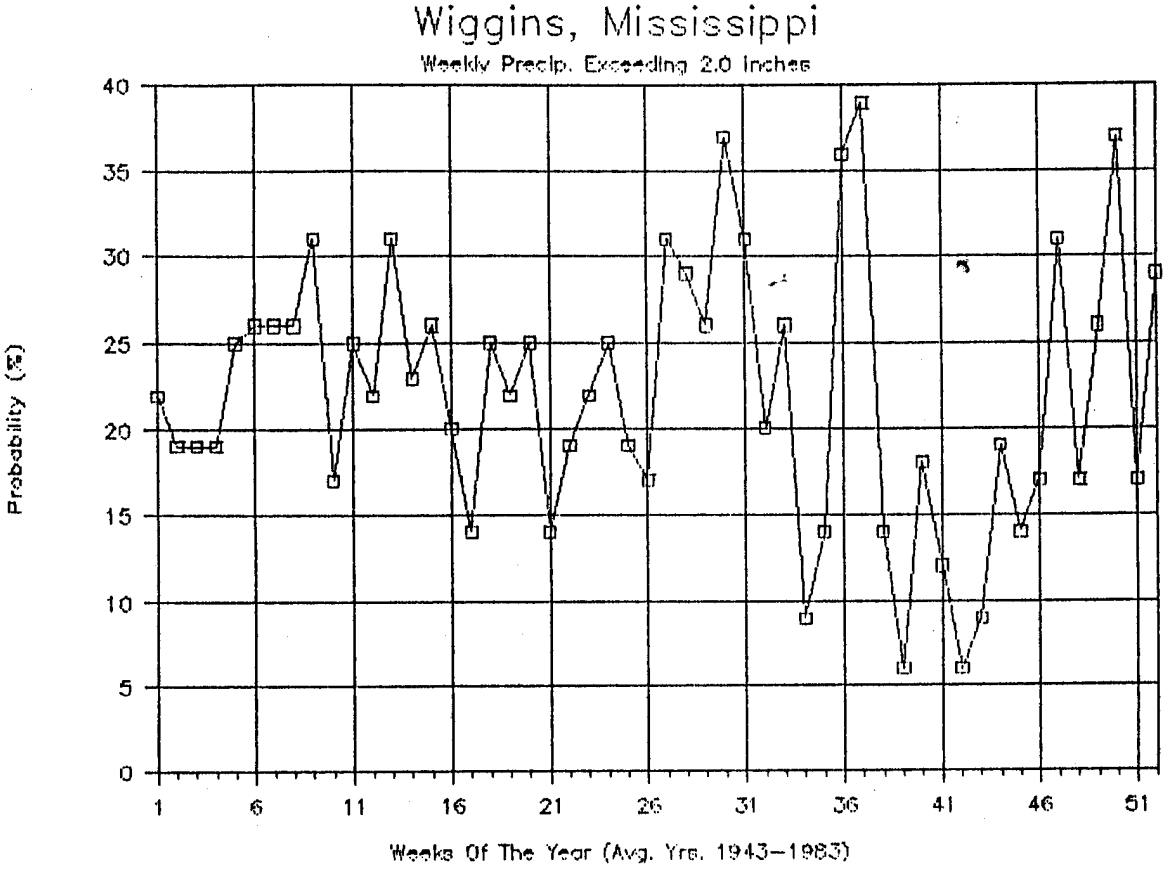
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4	JAN 22	JAN 28	22	MAY 28	JUN 03	40	OCT 01	OCT 07
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14	APR 02	APR 08	32	AUG 06	AUG 12	50	DEC 10	DEC 16
15	APR 09	APR 15	33	AUG 13	AUG 19	51	DEC 17	DEC 23
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* 8 Day Period During Leap-Year

** 8 Day Period



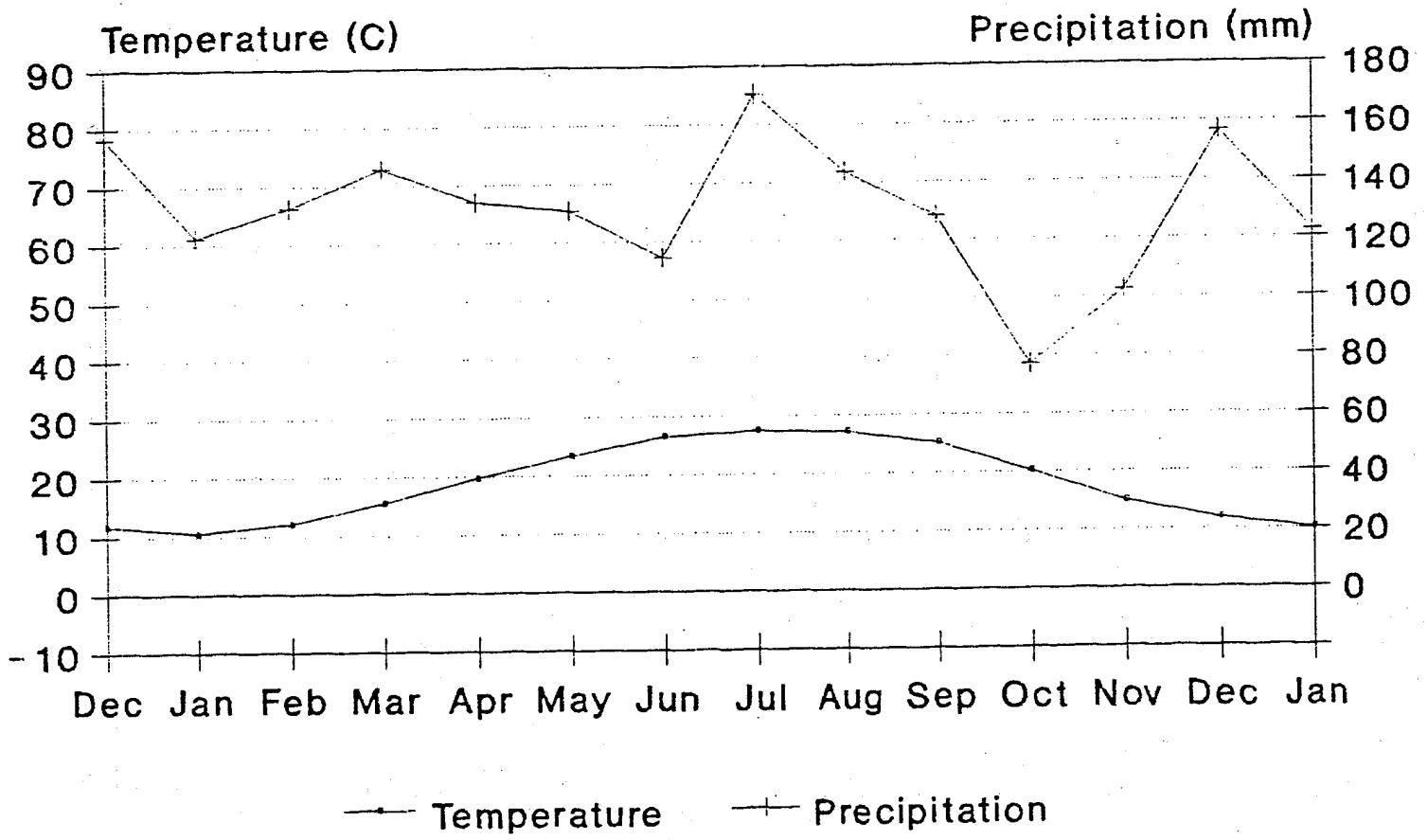
WEEK	Start Date	End Date	WEEK	Start Date	End Date	WEEK	Start Date	End Date
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2	JAN 08	JAN 14	20	MAY 14	MAY 20	38	SEP 17	SEP 23
3	JAN 15	JAN 21	21	MAY 21	MAY 27	39	SEP 24	SEP 30
4	JAN 22	JAN 28	22	MAY 28	JUN 03	40	OCT 01	OCT 07
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7	FEB 12	FEB 18	25	JUN 18	JUN 24	43	OCT 22	OCT 28
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11	MAR 12	MAR 18	29	JUL 16	JUL 22	47	NOV 19	NOV 25
12	MAR 19	MAR 25	30	JUL 23	JUL 29	48	NOV 26	DEC 02
13	MAR 26	APR 01	31	JUL 30	AUG 05	49	DEC 03	DEC 09
14	APR 02	APR 08	32	AUG 06	AUG 12	50	DEC 10	DEC 16
15	APR 09	APR 15	33	AUG 13	AUG 19	51	DEC 17	DEC 23
16	APR 16	APR 22	34	AUG 20	AUG 26	**52	DEC 24	DEC 31
17	APR 23	APR 29	35	AUG 27	SEP 02			
18	APR 30	MAY 06	36	SEP 03	SEP 09			

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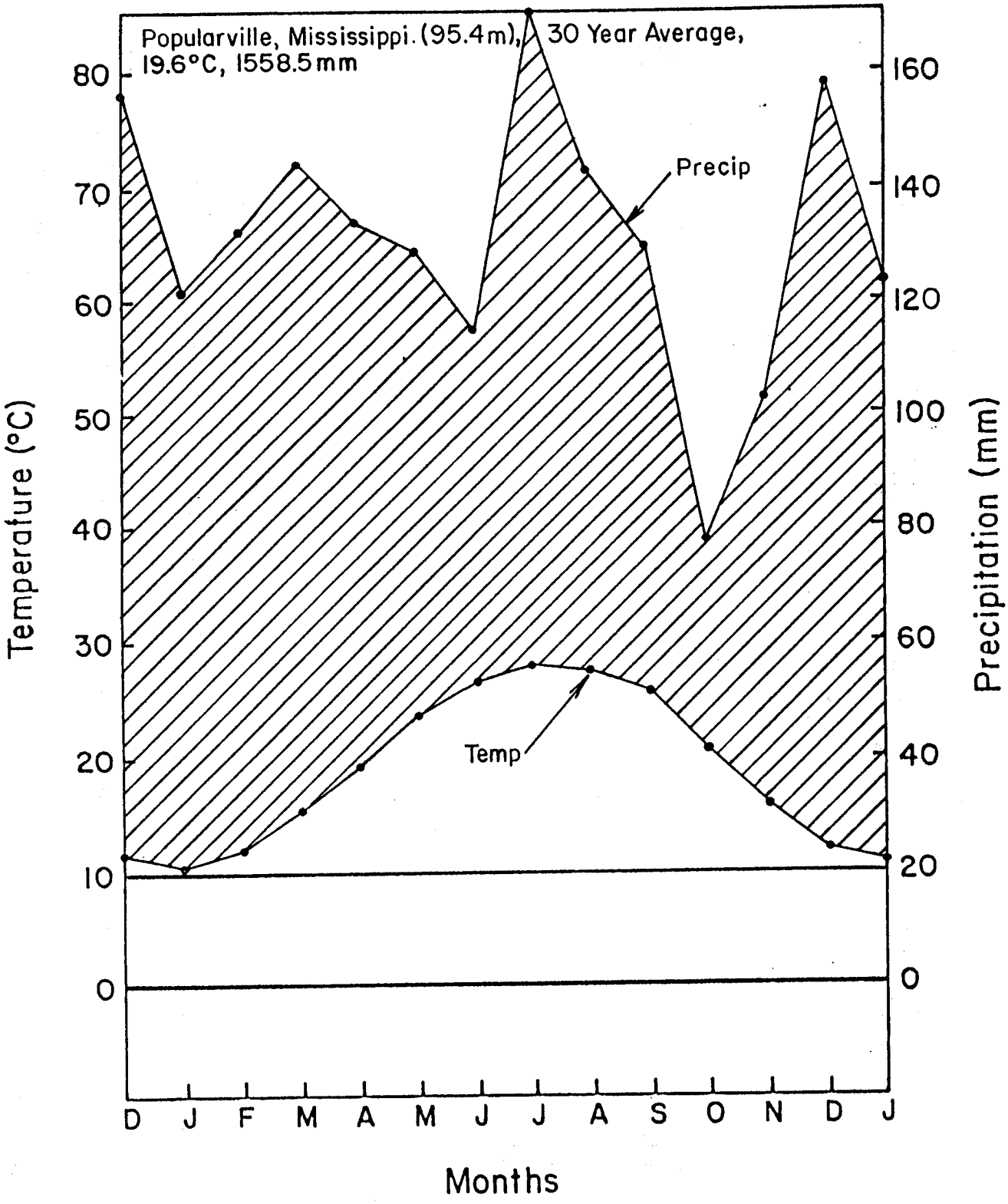
Popularville, Mississippi. Elevation 313 ft. or 95.4 m.
Averages based on data from 1951-1980
Longitude W 89 33' Latitude N 30 51'

Month	Temperature		Precipitation	
	F	C	in.	mm
January	51.1	10.6	4.8	122.4
February	53.8	12.1	5.2	132.6
March	60.1	15.6	5.7	145.8
April	67.6	19.8	5.3	134.1
May	74.1	23.4	5.2	130.8
June	79.9	26.6	4.5	114.6
July	81.4	27.4	6.7	170.4
August	81.0	27.2	5.7	143.5
September	77.4	25.2	5.1	128.3
October	68.4	20.2	3.0	77.0
November	59.0	15.0	4.0	102.4
December	53.4	11.9	6.2	156.7
Mean Annual Temp.	67.3	19.6		
Average Annual Ppt.			61.4	1558.5

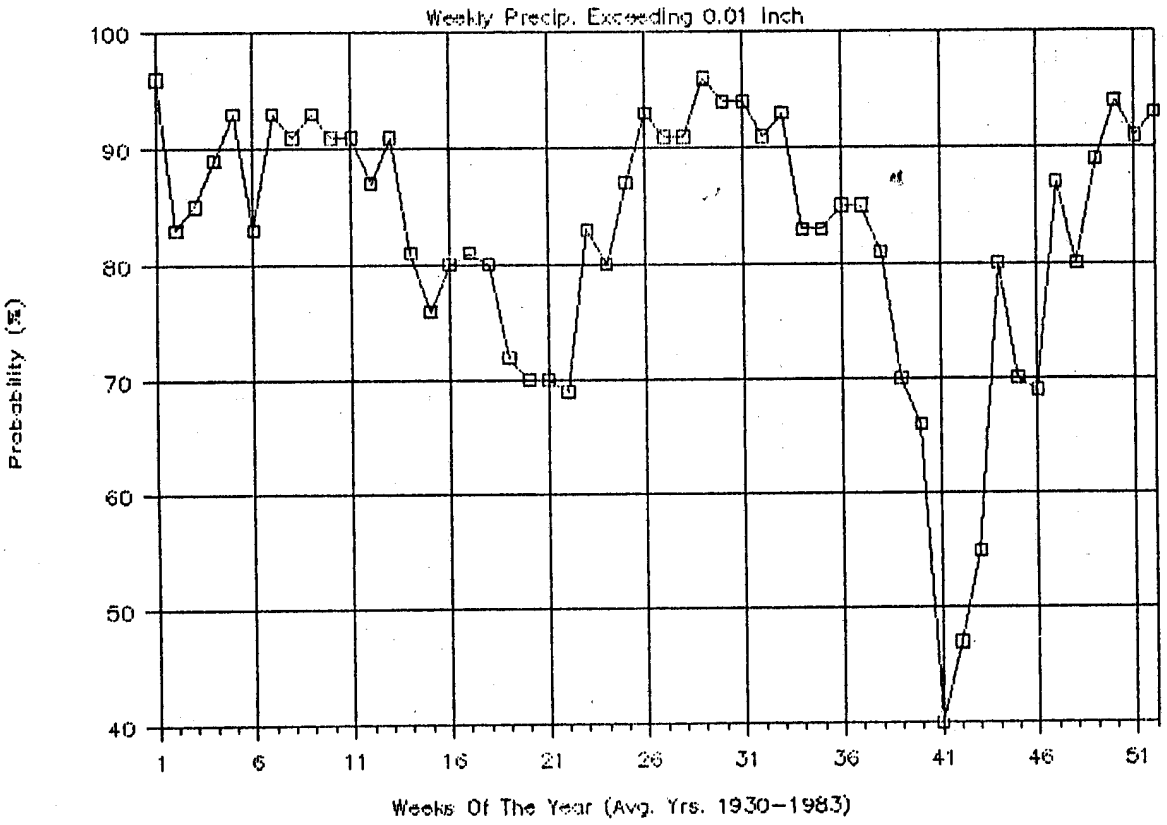
Popularville, Mississippi
Climate Diagram



1951-1980

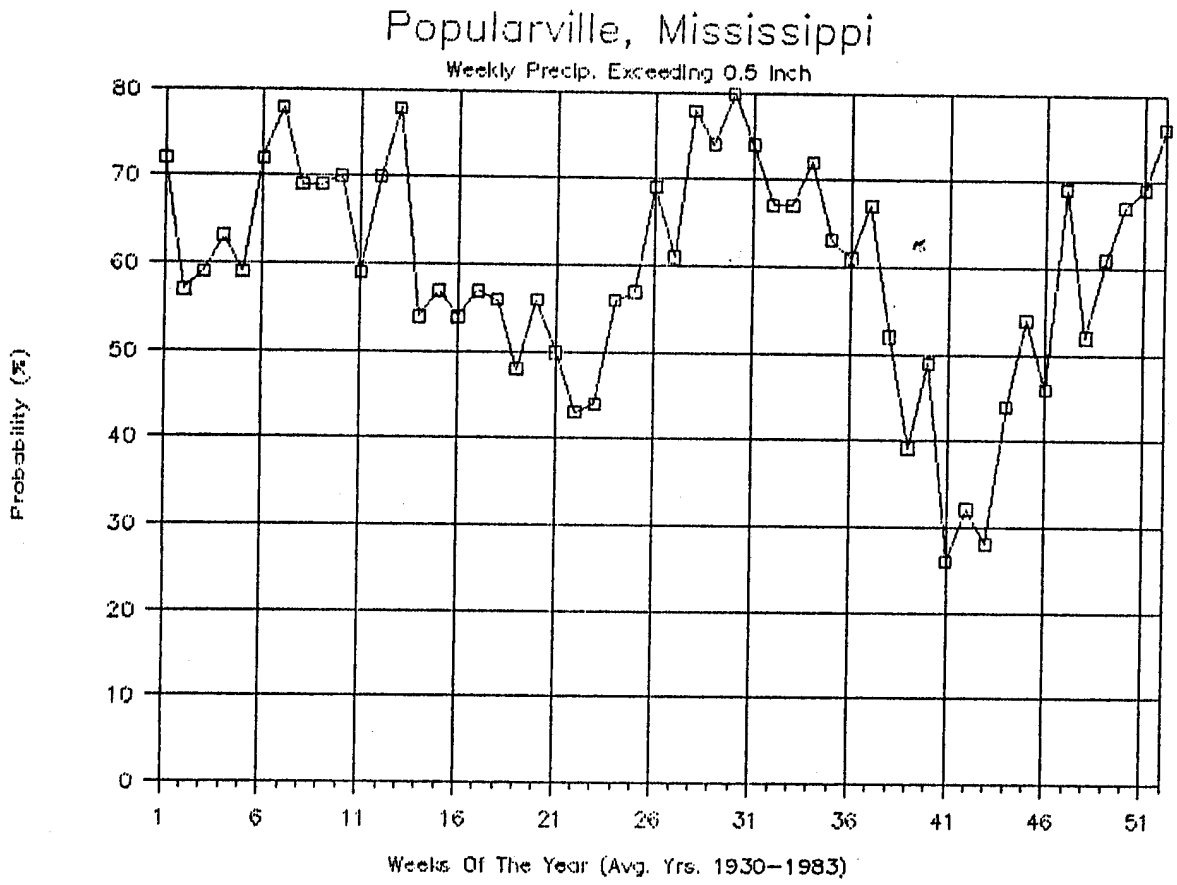

Popularville, Mississippi. (95.4m),
19.6°C, 1558.5mm
30 Year Average,
Precip
Temp
Temperature (°C)
Precipitation (mm)
80
70
60
50
40
30
20
10
0
160
140
120
100
80
60
40
20
0
D J F M A M J J A S O N D J
Months

Popularville, Mississippi



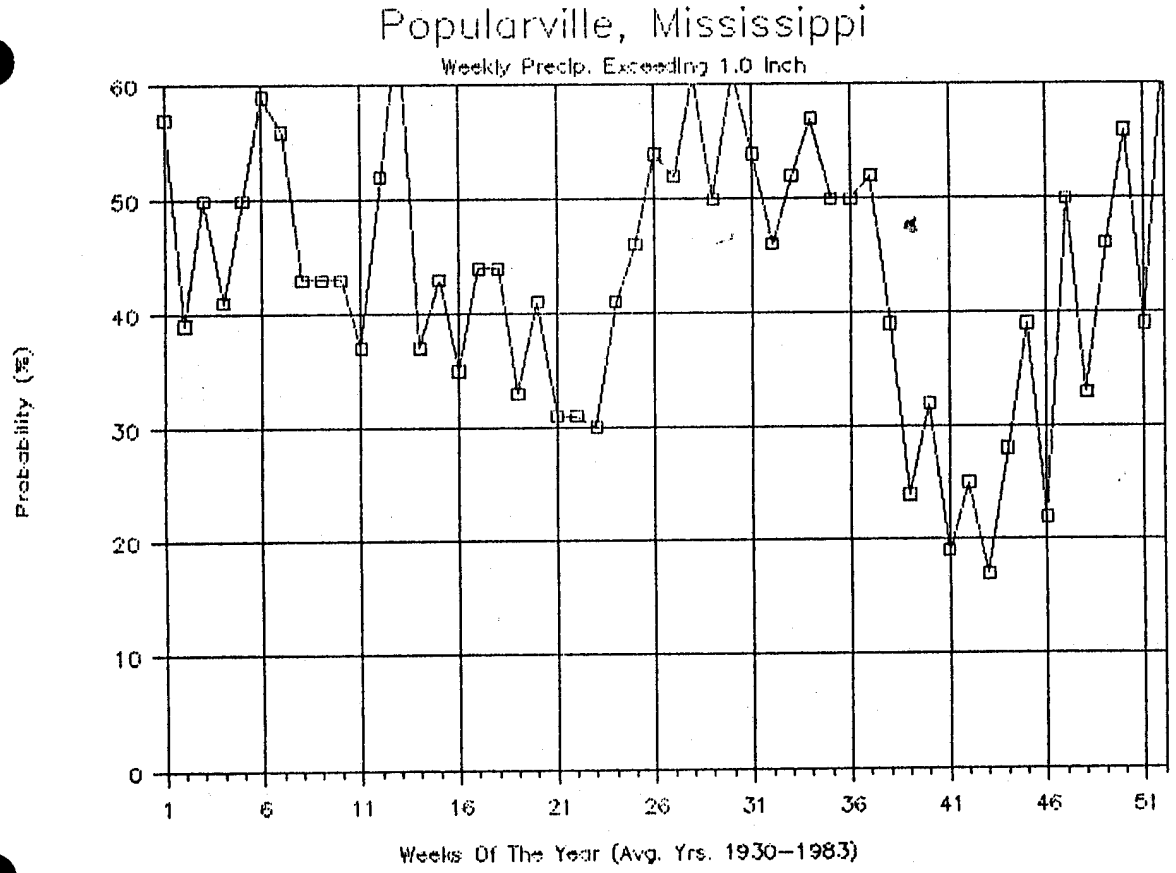
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3	JAN 15	JAN 21	21	MAY 21	MAY 27	39	SEP 24	SEP 30
4	JAN 22	JAN 28	22	MAY 28	JUN 03	40	OCT 01	OCT 07
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18	APR 30	MAY 06	36	SEP 03	SEP 09			

* 8 Day Period During Leap-Year
** 8 Day Period



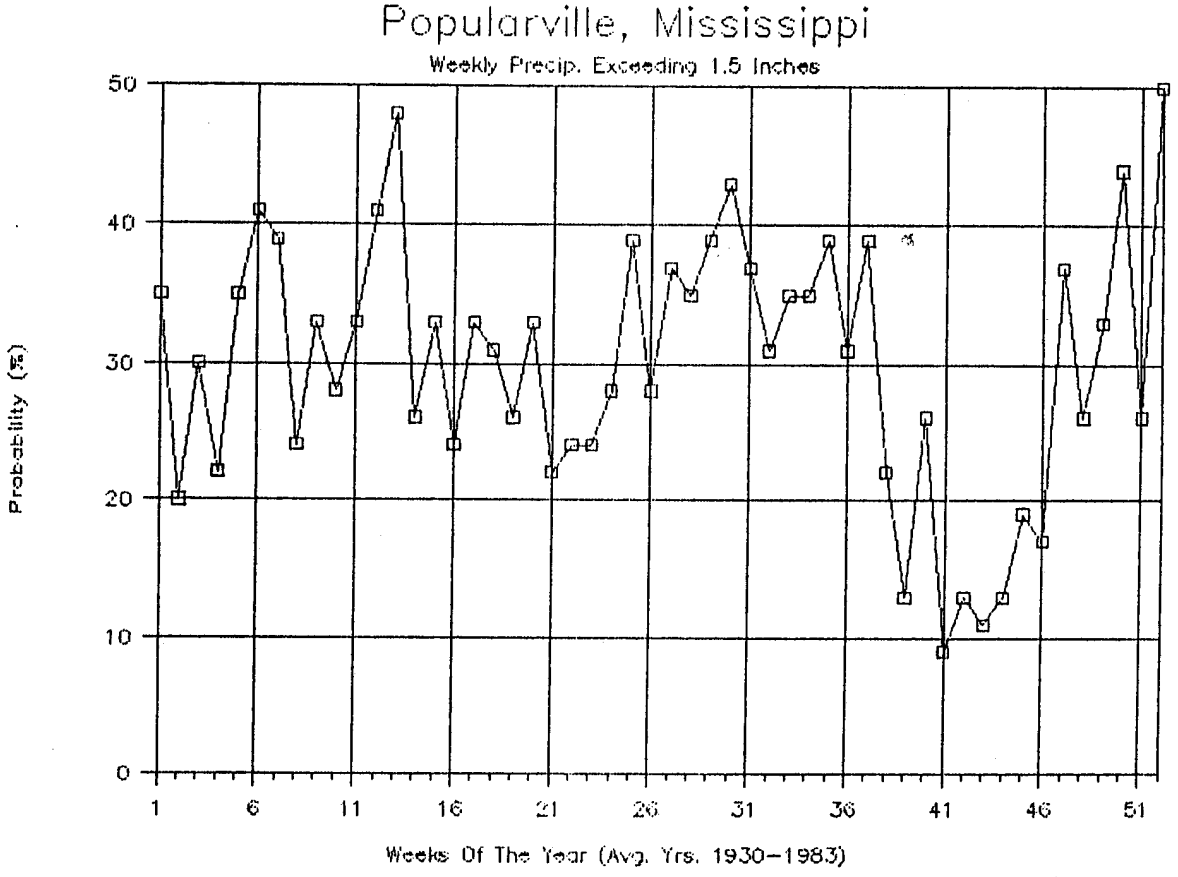
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15	APR 09	APR 15	33	AUG 13	AUG 19	51	DEC 17	DEC [illegible]
16	APR 16	APR 22	34	AUG 20	AUG 26	**52	DEC 24	DEC 31
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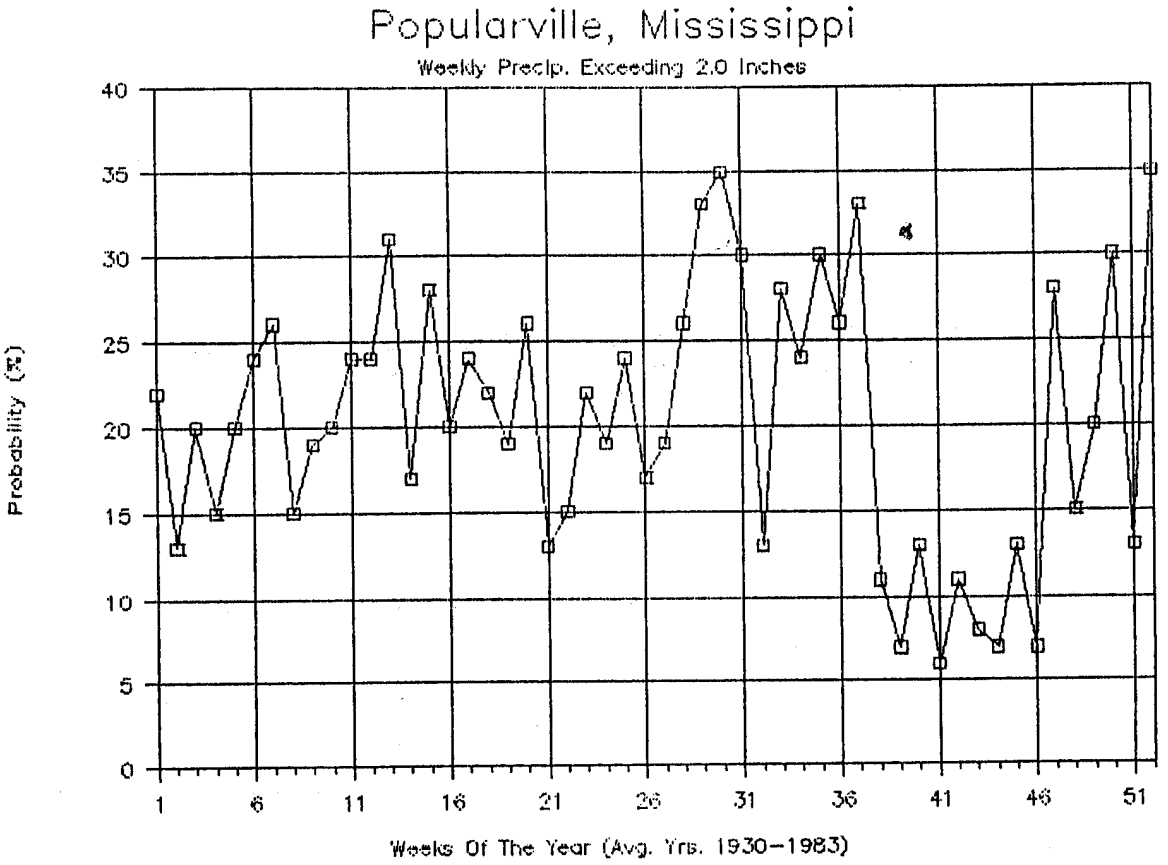
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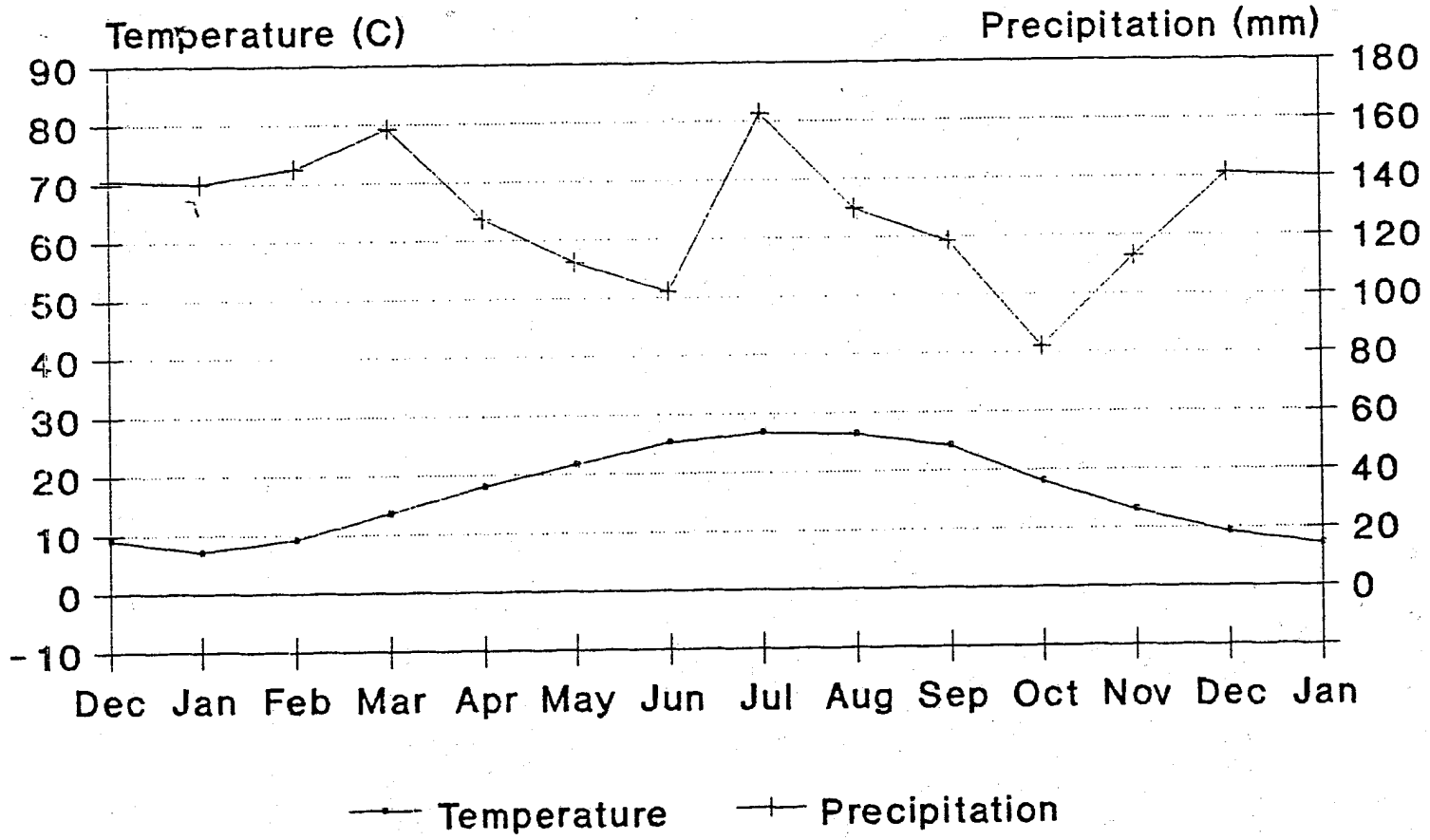
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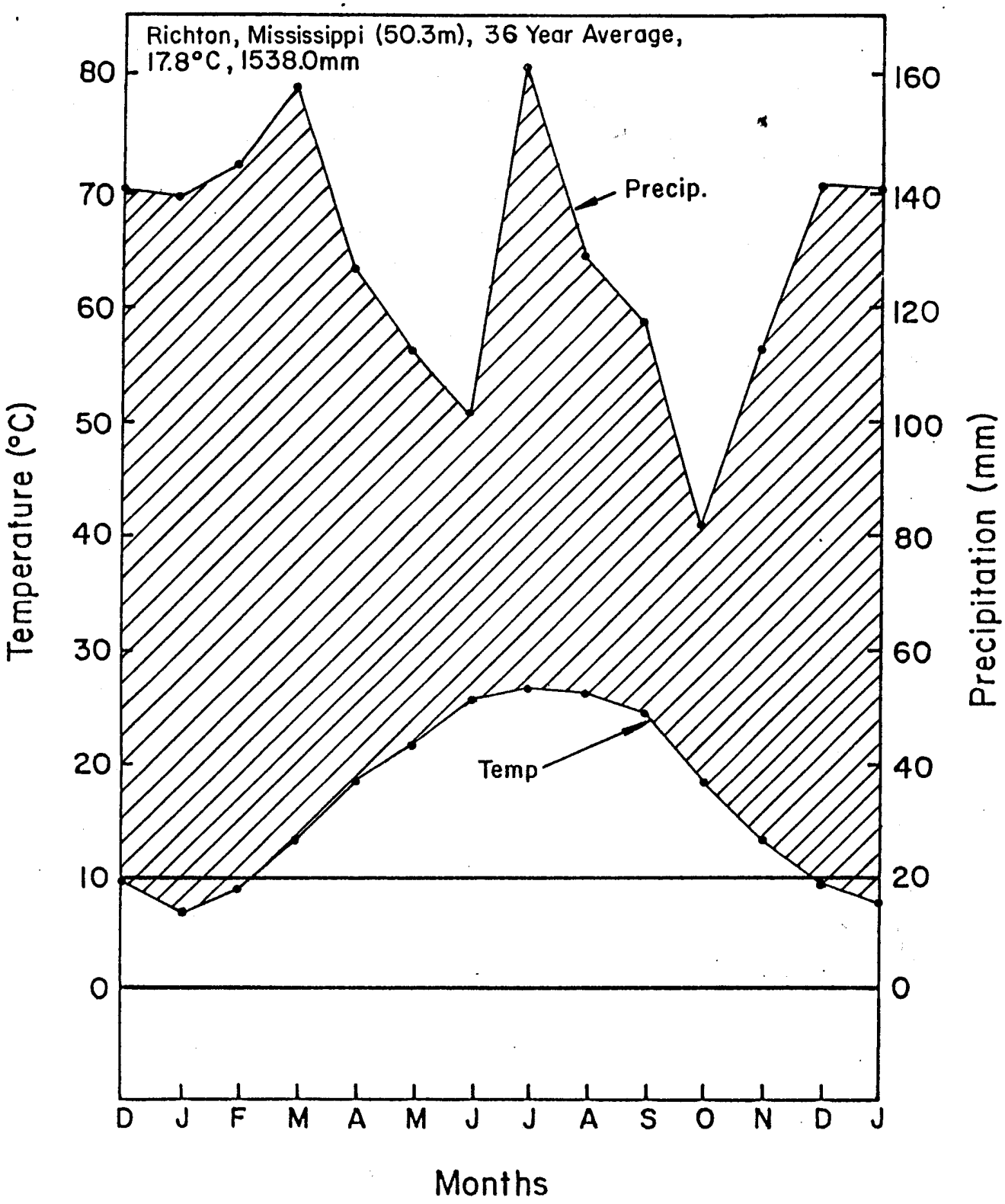
Richton, Mississippi. Elevation 165 ft. or 50.3 m.
Averages based on data from 1953-1988
Longitude W 88 54' Latitude N 31 18'

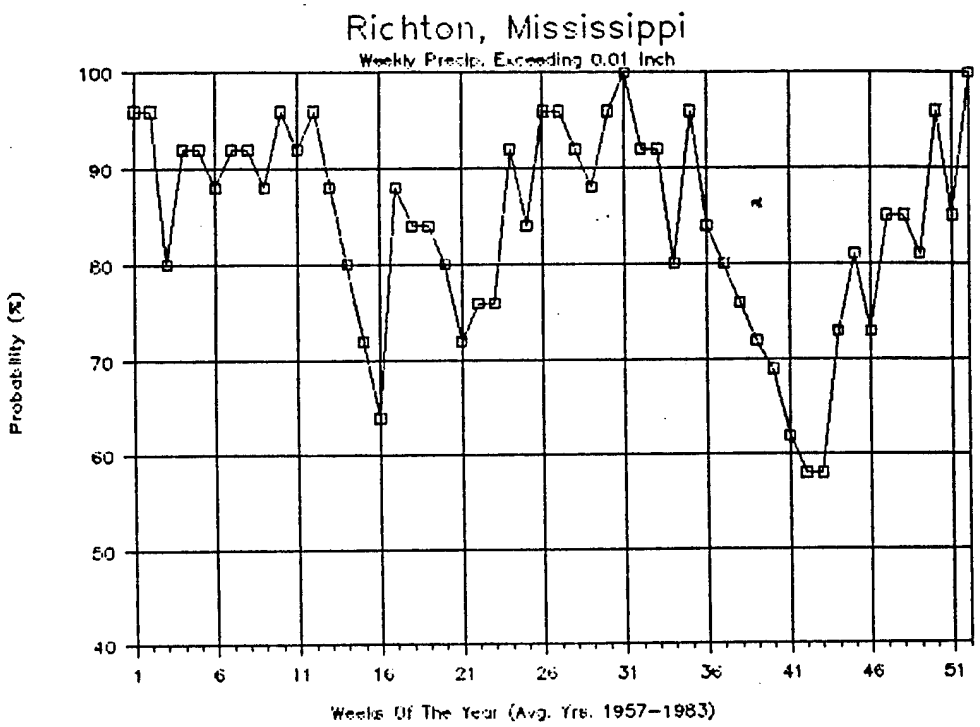
Month	Temperature		Precipitation	
	F	C	in.	mm
January	45.0	7.2	5.5	140.0
February	48.5	9.2	5.7	145.0
March	56.5	13.6	6.2	158.5
April	64.5	18.1	5.0	127.5
May	71.0	21.7	4.4	112.3
June	77.5	25.3	4.0	102.1
July	80.0	26.7	6.4	162.6
August	79.5	26.4	5.1	129.8
September	75.5	24.2	4.7	118.4
October	64.5	18.1	3.2	82.0
November	55.5	13.1	4.4	112.8
December	48.5	9.2	5.6	141.2
Mean Annual Temp.	64.0	17.8		
Average Annual Ppt.			60.6	1538.0

Richton, Mississippi
Climate Diagram



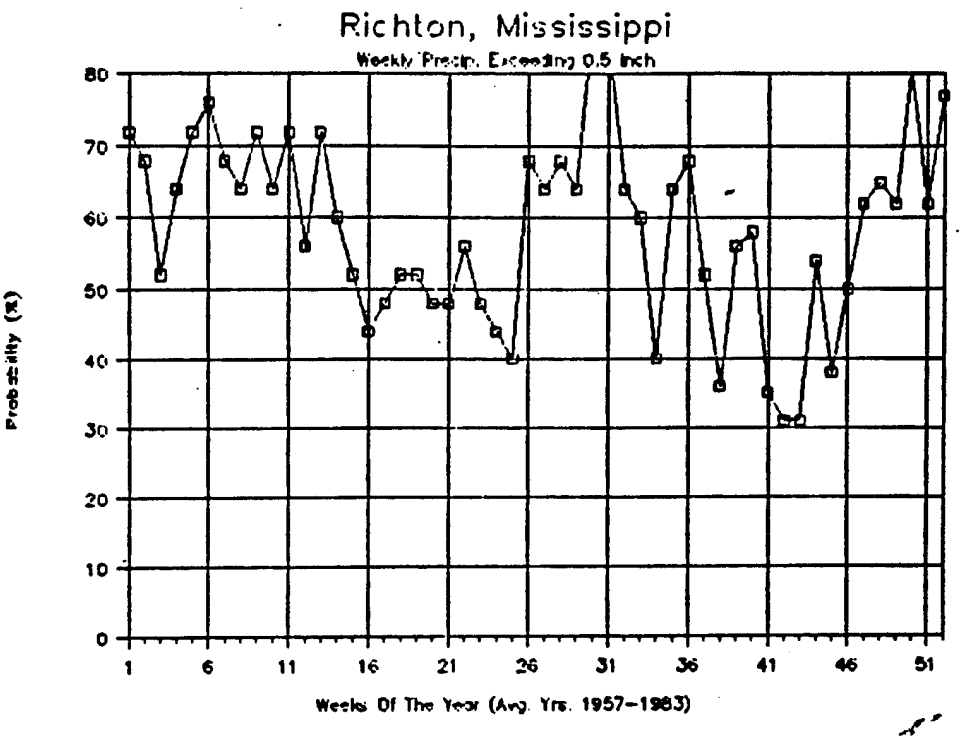
1953--1988


Richton, Mississippi (50.3m), 36 Year Average,
17.8°C, 1538.0mm
Precip.
Temp
Temperature (°C)
Precipitation (mm)
80
70
60
50
40
30
20
10
0
160
140
120
100
80
60
40
20
0
D J F M A M J J A S O N D J
Months



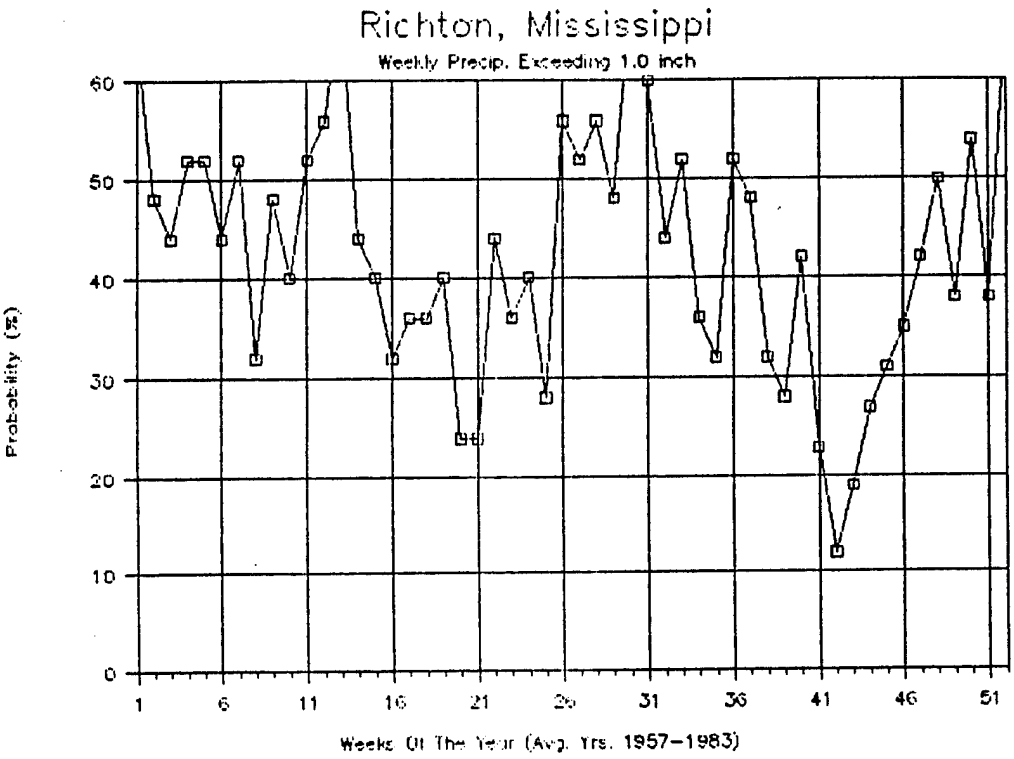
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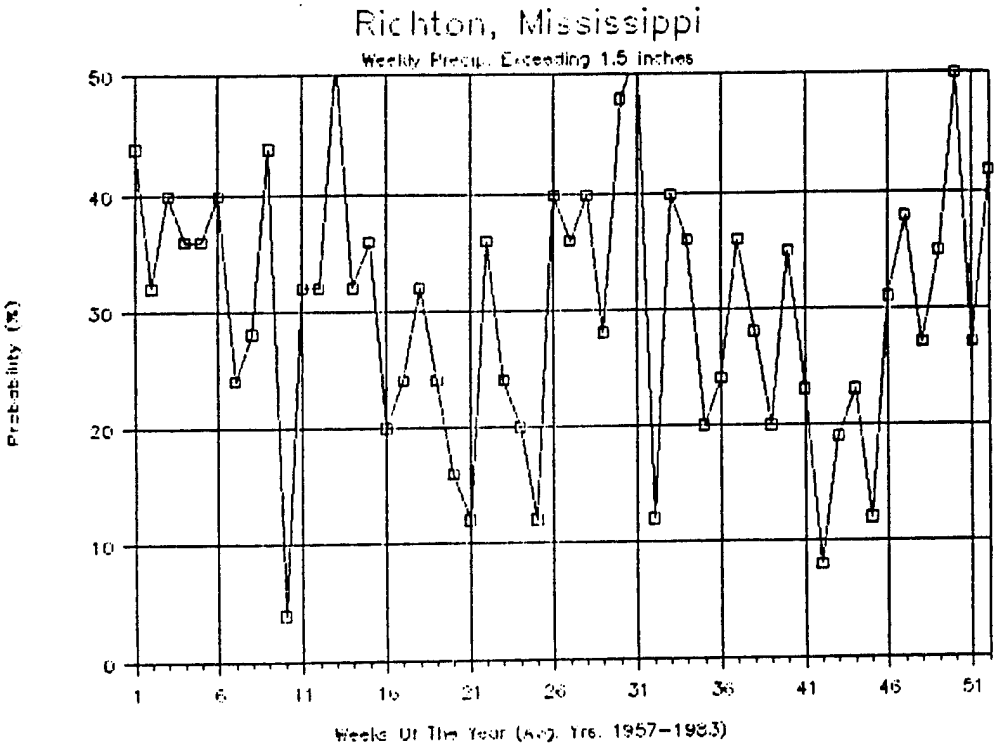
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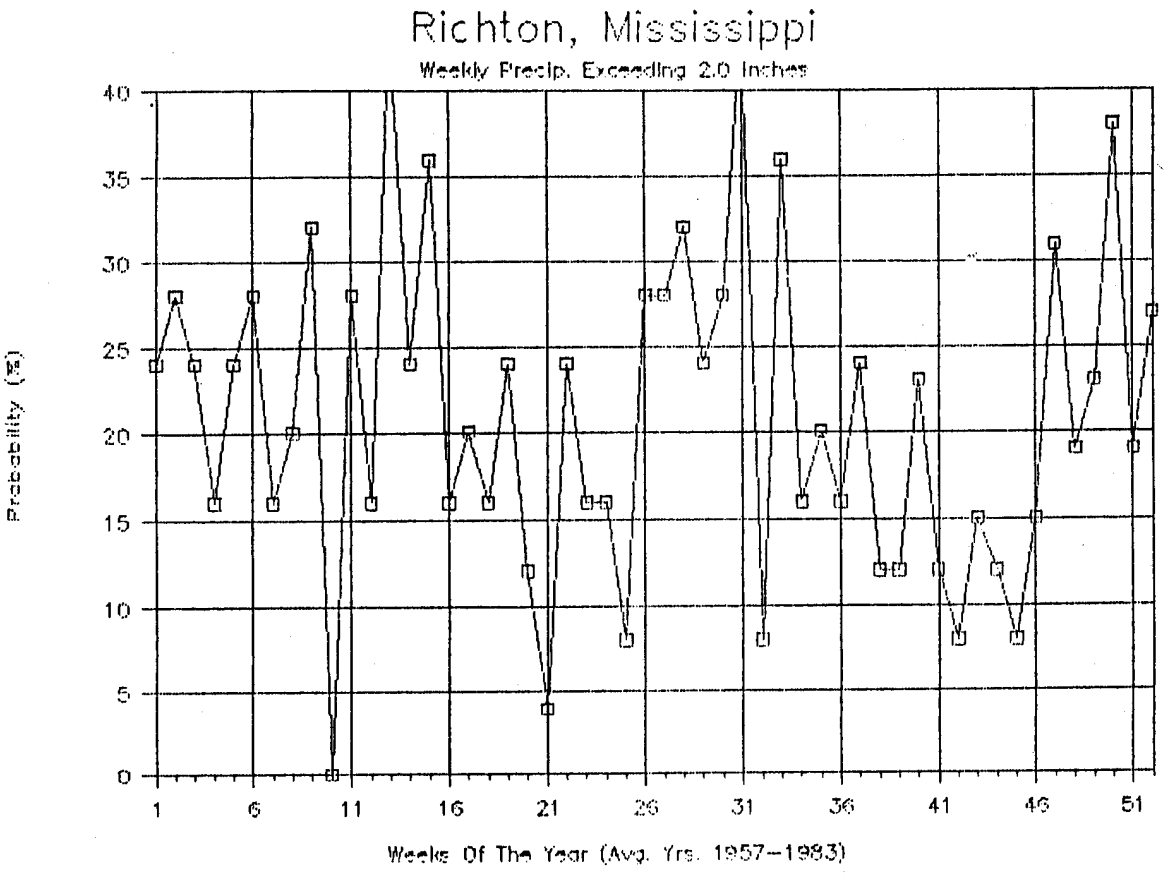
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5	JAN 29	FEB 04	23	JUN 04	JUN 10	41	OCT 08	OCT 14
6	FEB 05	FEB 11	24	JUN 11	JUN 17	42	OCT 15	OCT 21
7	FEB 12	FEB 18	25	JUN 18	JUN 24	43	OCT 22	OCT 28
8	FEB 19	FEB 25	26	JUN 25	JUL 01	44	OCT 29	NOV 04
*9	FEB 26	MAR 04	27	JUL 02	JUL 08	45	NOV 05	NOV 11
10	MAR 05	MAR 11	28	JUL 09	JUL 15	46	NOV 12	NOV 18
11	MAR 12	MAR 18	29	JUL 16	JUL 22	47	NOV 19	NOV 25
12	MAR 19	MAR 25	30	JUL 23	JUL 29	48	NOV 26	DEC 02
13	MAR 26	APR 01	31	JUL 30	AUG 05	49	DEC 03	DEC 09
14	APR 02	APR 08	32	AUG 06	AUG 12	50	DEC 10	DEC 16
15	APR 09	APR 15	33	AUG 13	AUG 19	51	DEC 17	DEC 23
16	APR 16	APR 22	34	AUG 20	AUG 26	**52	DEC 24	DEC 31
17	APR 23	APR 29	35	AUG 27	SEP 02			
18	APR 30	MAY 06	36	SEP 03	SEP 09			

* 8 Day Period During Leap-Year
** 8 Day Period



WEEK	Start Date	End Date	WEEK	Start Date	End Date	WEEK	Start Date	End Date
1	JAN 01	JAN 07	19	MAY 07	MAY 13	37	SEP 10	SEP 16
2	JAN 08	JAN 14	20	MAY 14	MAY 20	38	SEP 17	SEP 23
3	JAN 15	JAN 21	21	MAY 21	MAY 27	39	SEP 24	SEP 30
4	JAN 22	JAN 28	22	MAY 28	JUN 03	40	OCT 01	OCT 07
5	JAN 29	FEB 04	23	JUN 04	JUN 10	41	OCT 08	OCT 14
6	FEB 05	FEB 11	24	JUN 11	JUN 17	42	OCT 15	OCT 21
7	FEB 12	FEB 18	25	JUN 18	JUN 24	43	OCT 22	OCT 28
8	FEB 19	FEB 25	26	JUN 25	JUL 01	44	OCT 29	NOV 04
*9	FEB 26	MAR 04	27	JUL 02	JUL 08	45	NOV 05	NOV 11
10	MAR 05	MAR 11	28	JUL 09	JUL 15	46	NOV 12	NOV 18
11	MAR 12	MAR 18	29	JUL 16	JUL 22	47	NOV 19	NOV 25
12	MAR 19	MAR 25	30	JUL 23	JUL 29	48	NOV 26	DEC 02
13	MAR 26	APR 01	31	JUL 30	AUG 05	49	DEC 03	DEC 09
14	APR 02	APR 08	32	AUG 06	AUG 12	50	DEC 10	DEC 16
15	APR 09	APR 15	33	AUG 13	AUG 19	51	DEC 17	DEC 23
16	APR 16	APR 22	34	AUG 20	AUG 26	**52	DEC 24	DEC 31
17	APR 23	APR 29	35	AUG 27	SEP 02			
18	APR 30	MAY 06	36	SEP 03	SEP 09			

* 8 Day Period During Leap-Year

** 8 Day Period

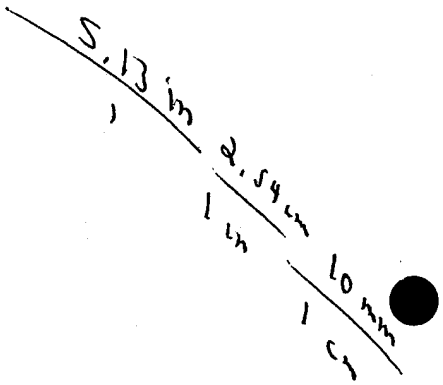
FORMATS FOR LOTUS FILES FOR PROJECT #900943

FORMAT FOR TEMPERATURES AND MONTHLY PRECIPITATION

COLUMNS A THROUGH L : MONTHS
COLUMN M : ANNUAL
LINE 1 : MEAN MAXIMUM TEMPERATURE
LINE 2 : MEAN MINIMUM TEMPERATURE
LINE 3 : MEAN DAILY TEMPERATURE
LINE 4 : MEAN PRECIPITAION

FORMAT FOR WEEKLY PROBABILITY OF PRECIPITATION (POP)

COLUMN A : YEARS OF DATA
COLUMN B : WEEK OF THE YEAR
COLUMN C : % >=0.01"
COLUMN D : % >=0.50"
COLUMN E : % >=1.00"
COLUMN F : % >=1.50"
COLUMN G : % >=2.00"



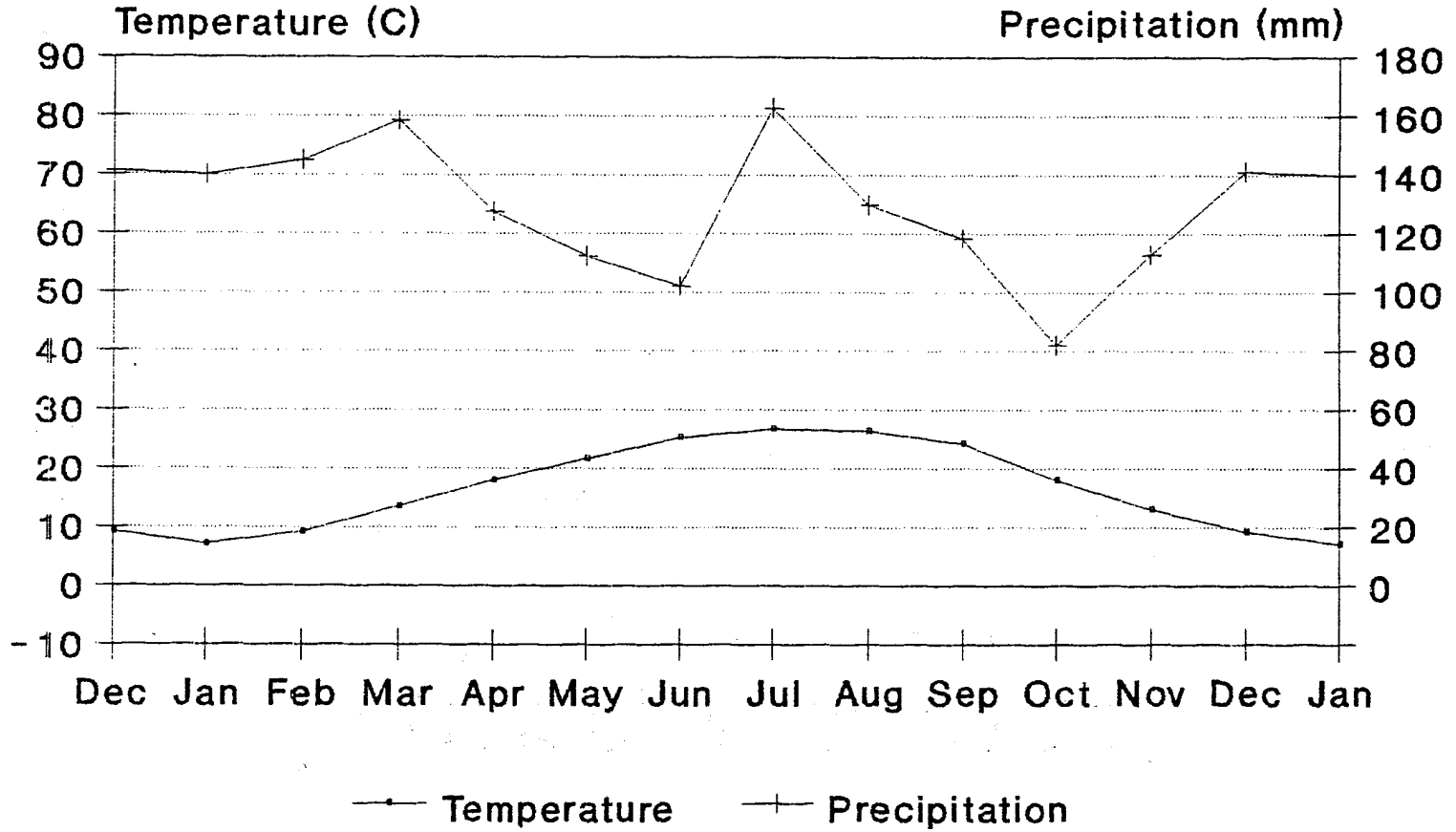
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POPULARVILLE, MS : POPLRVL.WK1 (LOTUS) POPLRVL.DAT (ASCII)
RICHTON, MS : RICHTON.WK1 (LOTUS) RICHTON.DAT (ASCII)
WIGGINS, MS : WIGGINS.WK1 (LOTUS) WIGGINS.DAT (ASCII)

FOR MONTHLY TEMPERATURES AND PRECIPITATION:
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— POPULARVILLE : POPTEMPS.WK1 — 30.51 N 89 33 W 313 FT.
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— WIGGINS : WIGTEMP.WK1 — 30.52 N 89 09 W 255 FT.

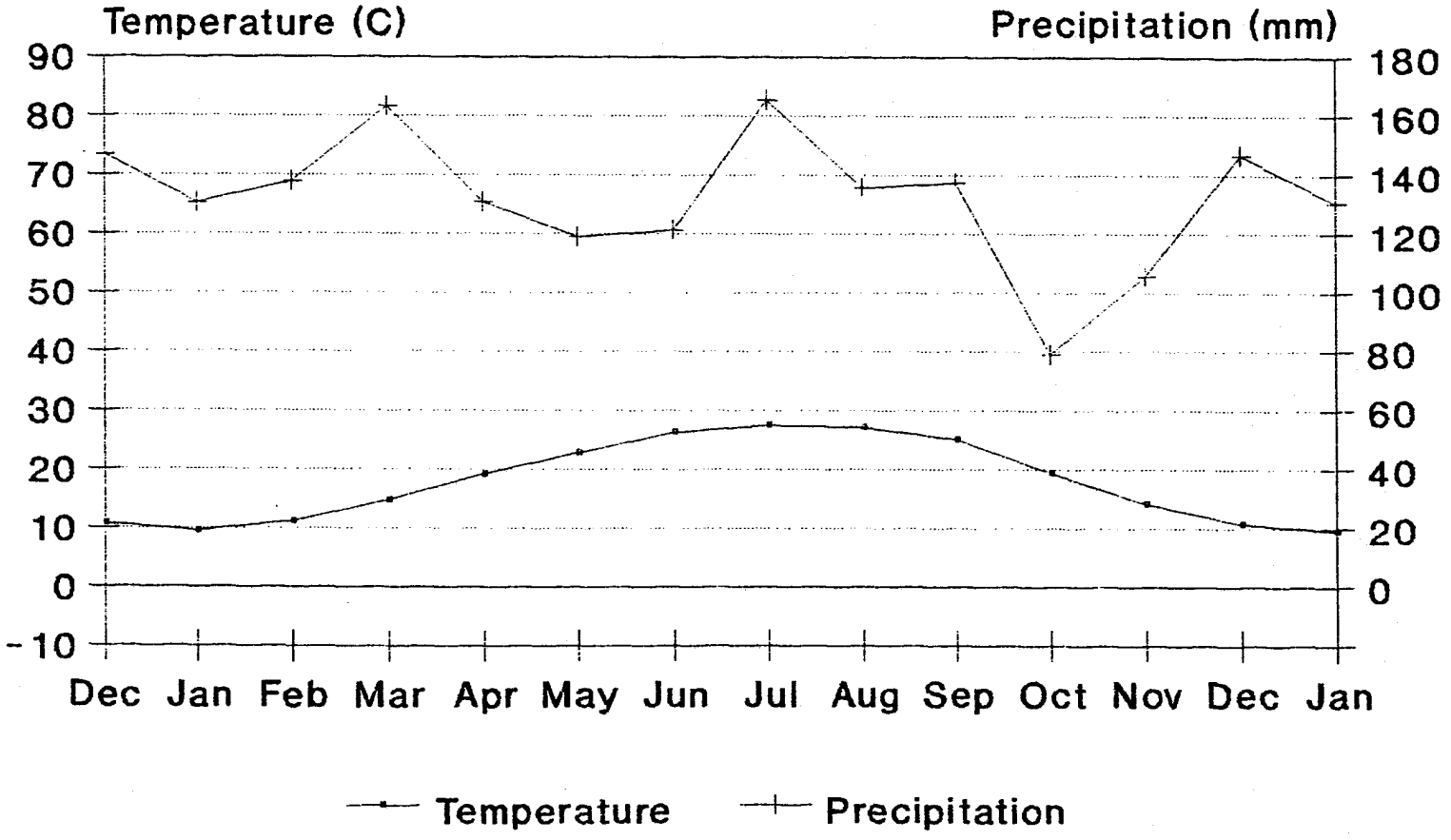
PERIOD OF RECORD
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POPULARVILLE, POP 30-83, OTHER 51-80
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WIGGINS, POP 43-83, OTHER 51-80

Richton, Mississippi
Climate Diagram



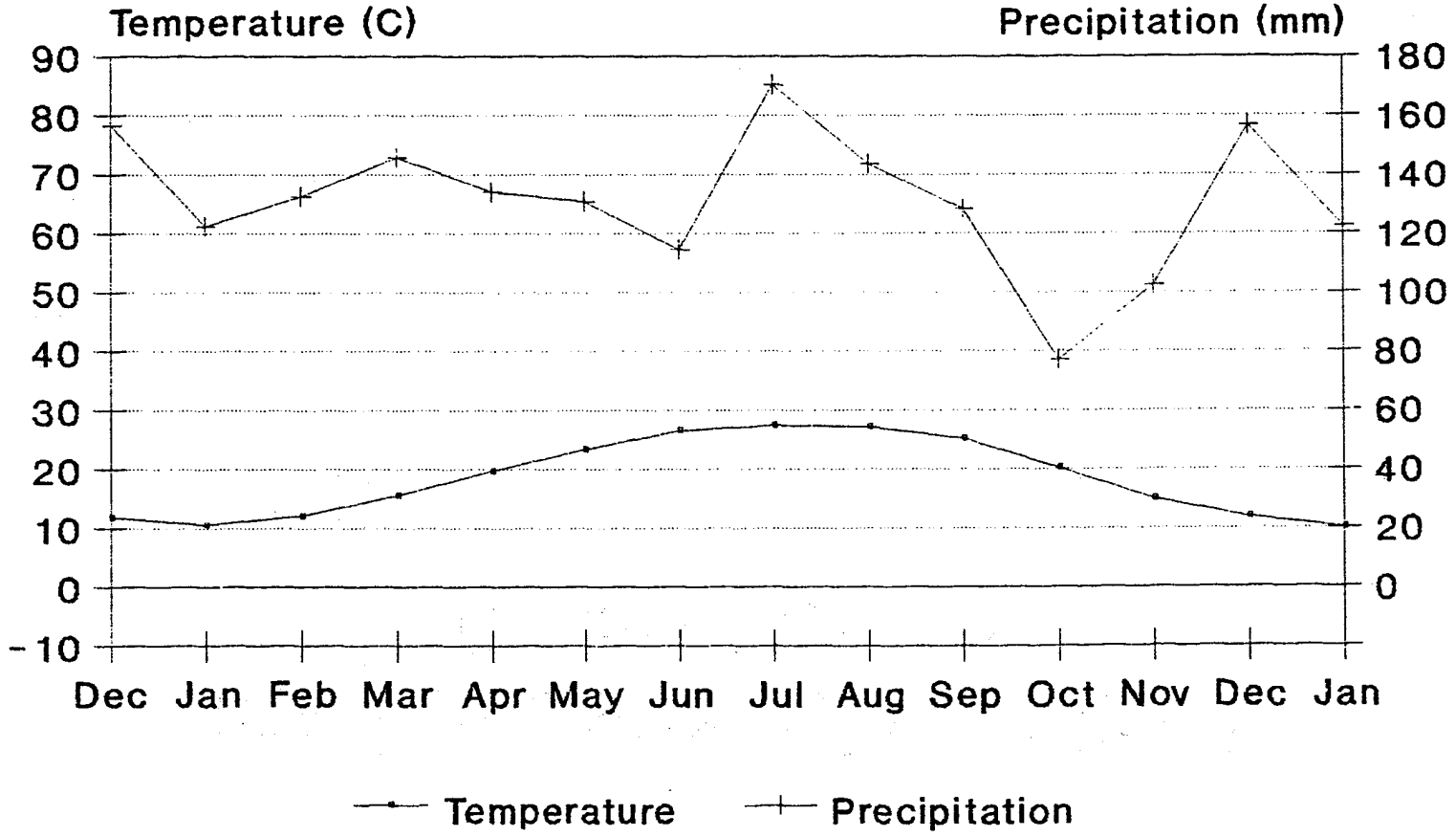
1953-1988

Wiggins, Mississippi
Climate Diagram



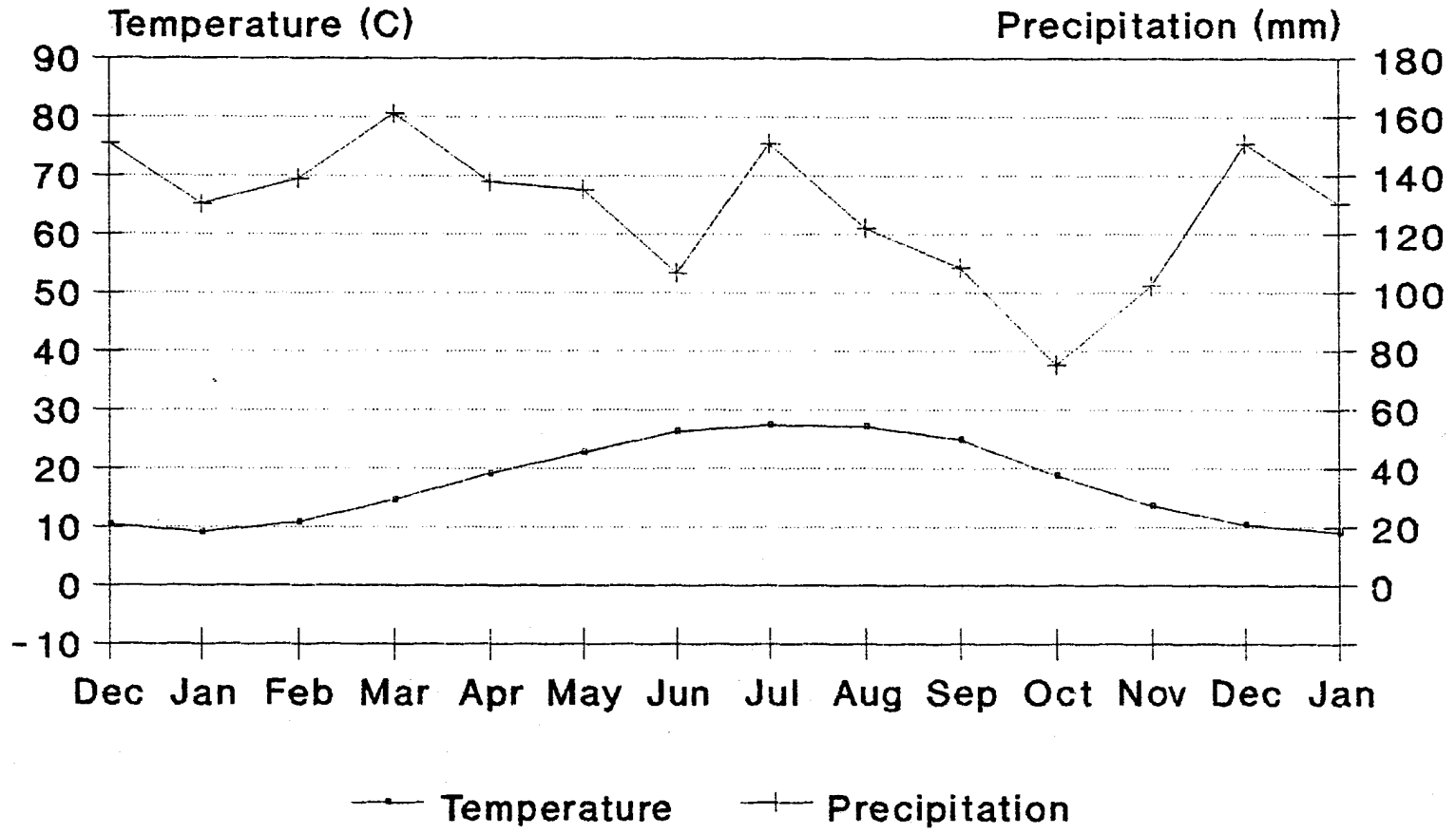
1951-1980

Popularville, Mississippi
Climate Diagram



1951-1980

Hattiesberg, Mississippi
Climate Diagram



1951-1980

Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix S

Nitrogen Leaching Potential and Recommendations for Fertilization Management

A TEST TO DETERMINE THE NITROGEN LEACHING POTENTIAL OF MISSISSIPPI SOILS

Maran Associates, Inc.
La Raw Maran, Ph.D.,
Technical Director

201 W. Springfield Ave.
Suite 211
Champaign, IL 61820

November, 1992

Executive Summary

A test to determine the nitrogen leaching and runoff potential of soils in and around Camp Shelby, Mississippi

Tests to determine the nitrogen leaching and runoff potential of Mississippi soils were performed. This test used a nutrient management computer program developed as a water quality planning tool by the USDA-Soil Conservation Service. Mississippi soils data as well as nitrogen movement interpretation methods were used by the program.

The test revealed that it will be possible to determine the relative nitrogen leaching and runoff potentials of the different revegetation methods. The primary variables in the selection of low impact methods are grass type and the timing of fertilizer application.

The Nitrogen Leaching Potential of Mississippi Soils

I. Summary of Work and Findings

1. Background

The US Army uses a portion of the De Soto National Forest at Camp Shelby, Mississippi, for training. In the environmental impact statement recently prepared for renewal of the permit for this use, revegetation plans with commercial fertilizer application were included. This apparently brought about expressions of concern about the environmental impact potential of the nutrients lost to the environment. In order to address these concerns properly, it might be advisable for the Army to acquire a nutrient management program capable of determining the potential impact, especially on surface waters, of each of the management options available. Such a program should enable the adoption of management practices having the lowest impact potential, and may substantially ease the concerns of the Forest Service and the Fish and Wildlife Service, among others.

A computer program which can perform precisely in this manner was developed for the U.S. Department of Agriculture, Soil Conservation Service, Illinois, for use as a water quality planning tool. This program, the Nutrient Management Advisory System, or NUMAS, offers technical assistance to crop producers both in the areas of nutrient management for production, and in minimizing the impact on water quality of the effects of lost nutrients. NUMAS was released as a working system in April, 1992.

The scientific-engineering nucleus of the group that designed and implemented the NUMAS program has now formed a small, new technology spin-off company in Champaign, IL, the Maran Associates, Inc. The company is specializing in pollution control software engineering, especially in the area of water quality problems stemming from agrichemicals.

2. An Available Program and Testing

The purpose of this work is for Maran Associates, Inc., to determine the potential usefulness of NUMAS in analyzing Mississippi soils with respect to their potential for nutrient loss by leaching and runoff. A preliminary series of tests has been performed using the soil databases of the salient counties in the Camp Shelby area, together with the nitrogen movement potential interpretation methods used by the Soil Conservation Service in Mississippi.

We are pleased to report that our initial test of NUMAS reveals the possibility that the program can be an especially appropriate and successful nutrient management tool at Camp Shelby. The main report, which follows is divided into two sections, covering, respectively, a strategy to prevent the nutrient pollution of surface waters, including the wetlands and bogs, and a technical summary of the tests performed, results and conclusions. A brief Attachment on the nitrogen cycle and its potential to contribute to nutrient pollution to surface waters has been included.

3. Toward Nutrient Loss Problem Management

The problem we are concerned with is the potential impact that lost nutrients will have on the environment, especially on aquatic ecosystems. This is a typical nonpoint source type of pollution problem, and past experience shows that there is no one-step or simple solution here. While a program like NUMAS can help us in selecting fertilizer application methods that are associated with low potential lost nutrient effects, this program is not capable of dealing with the nutrients that may nevertheless be lost.

Accordingly, the nutrient management program that we envisage for Camp Shelby's needs will be a system that contains all the modifications and augmentations that NUMAS will need in order to function as a comprehensive nutrient management program.

We have named this prototype program the Lost Nutrient Effects Analyzer (LONEA) system. NUMAS's current functions will be absorbed into LONEA's functions.

II. The Management of Lost Nutrient Effects Problem

There are two aspects to the management decision task at Camp Shelby; the first is to successfully revegetate the land, and the second is to prevent any negative effects on the surrounding environment, especially wetlands and bogs, as a consequence of lost nutrients. The two-sided nature of this management objective requires a two-pronged attack on the problem, and these are: 1) the ability to select and use fertilizer application methods attributed with low impact potential -- i.e., application methods having low leaching and runoff potentials for the soil in question; and 2) the ability to control the portion of nutrients that remain, in spite of the first means of control, to move and discharge into wetlands and bogs.

1. Nutrient Management

A program like NUMAS can select, on the basis of on-site soil and management data, fertilizer application methods that are relatively safe in terms of the nutrient loss potential. Let us say that we currently have this capability.

2. Managing the Nutrient Loss Problem

There are three reasons why the nutrient loss problem is serious and requires a specific set of remedies.

A) Regardless of how careful we have been in the selection of fertilizer application methods, some nutrient loss will inevitably occur. This is due to the nature of the interaction between the weather and the hydraulic conductivity of the soil.

B) Due to the fact that disturbing the soil cover is inevitable during military training, organic matter normally contained in the soil will become exposed to the air. There is a strong possibility that oxidation and nitrate formation within the soil will then occur. Nitrates in solute form move readily with soil-water, and hence a secondary nutrient source may form in the watershed. In addition, disturbing the soil cover will contribute to soil erosion.

C) The revegetation program to be used at Camp Shelby includes the use of ammonium nitrate fertilizer, also represented as 13-13-13. Phosphorus is the second component in the formula, and is known to contribute to stream and lake eutrophication. The primary movement characteristic of phosphorus is that it binds with soil particles, and tends to move along with eroded soil toward discharge points.

These three factors point strongly to the need for a specific capability to deal with lost nutrients, including secondary formation, in addition to the application method selection system.

3. Rating the Potential to Leach and Erode

To calculate the leaching and runoff (or erosion) potentials of specific soil types and management techniques, the NUMAS program uses the standard methodology utilized by the SCS. We project that the LONEA system will continue this practice.

This methodology is actually a series of soil interpretations based upon complex analytical models or simulations, such as the use of the Erosion/Productivity Impact Calculator (EPIC) to model the relationship between nitrogen leaching sensitivity, evapotranspiration and soil water storage.

The SCS models accept the fact that some nutrient leaching and soil erosion will occur whenever the soil cover is disturbed for land use purposes. Accordingly, a rating system was developed to gage pollutant movement and deposition where the minimum, or low, rating is actually a threshold of acceptable pollutant discharge, whether nutrients, pesticides or sediments. Pollutant movement above this level is given either a moderate or high rating. Inasmuch as the goal of controlling leaching and runoff at Camp Shelby is to protect the wetland and bog ecosystems, even the low level discharges that the SCS finds acceptable may not be deemed desirable at all. The mechanisms of management control may need to be tightened accordingly.

4. Hydrologic Characteristics

Topographically, the areas at and around Camp Shelby are uneven, frequently precipitous. When this topographic characteristic is combined with the fact that this region is climatically humid, an important hydrologic characteristic emerges, and that is the strong

likelihood that ground or subsurface water flow will be discharged into surface waters. In other words, regardless of whether lost nutrients move by leaching or runoff, they will ultimately be discharged into surface waters. This suggests that the wetlands and bogs around Camp Shelby are gravely vulnerable to nutrient pollution. This underscores the importance of the management methods that are designed to control soil erosion. The technical assistance program of the SCS shows grassy strips, grass hedges, high residue cover on exposed soil, sediment detention channels, etc., as the appropriate management techniques to cope with erosion.

5. A Computational Perspective

Computationally, there are two scenarios. One is a system to support the management selection of the best fertilizer application method. For Camp Shelby, this functionality can be acquired by the mere modification and adaptation of NUMAS.

The second is a system for managing lost nutrients in the processes of moving and/or forming. This functionality must be developed as a specific capability to generate, based on site-specific soil and hydrologic data, a management program to control the lost nutrient effects problem.

This capability has two facets that the LONEA system developer must recognize. First is the data requirements to generate site-specific soil-hydrology models. Since the U.S. Army Construction Engineering Research Lab., the USDA Soil Conservation Service, the Forest Service and the Fish and Wildlife Service all maintain soil databases and geographic information systems, it appears that the necessary data systems already exist for this objective. Second, in order to build the capability to specify a management program to deal with individual instances of lost nutrient effects problems, we will need an expert system. This program will be based on such technical information as those concerning erosion control and the knowledge about biological environments where denitrification occurs, for instance.

6. Toward a Best Management Program

We have touched on three basic points toward the development of a best management approach to lost nutrient effects analysis and management: 1) finding management practices having the lowest potential negative impact, 2) being capable of dealing with nutrients that are lost, or that form secondarily in the watershed by means of specific watershed management strategies, and 3) having site-specific technical information necessary to support these management tasks.

In our opinion, all three aspects of the best management approach can be developed in the form of modifications and augmentation of NUMAS. The resultant management program, the LONEA system, should be capable of supporting management decision making at Camp Shelby, as well as other installations where similar problems exist.

ATTACHMENT A

1. The Role and Sources of N

Supplemental N is a must-have component for revegetation efforts. However, any excess N may have detrimental effects of the environment.

There are several possible sources of the N which is needed for vegetative growth. These include both natural and artificial types:

- fertilizers - be they natural or human affected in origin
- fixation by legumes
- plant residues, subsequently mobilized by microorganisms into Ammonia
- animal manure and human wastes

Sources of N not wholly natural in origin or in application concentration include human-applied fertilizers such as Anhydrous Ammonia and Urea, and concentrated manure application (i.e. manure removed from livestock yards and applied to fields as opposed to less intense deposits from grazing cattle).

The point made here is simple. Whatever the origin of various N forms used by vegetation, be it man-made fertilizers, manure or other natural sources, its subsequent behavior and reactions are identical. Put another way, the behavior of N in the N-cycle is independent of its source or origination.

2. The Fates of N

There are numerous fates for N in the soil, including: use by vegetation, runoff with soil, leaching and denitrification (of NO_3), volatilization and nitrification (of NH_4), and pausing in the Nitrogen cycle (its eventual fate to be determined at a later time).

3. N Movements - Reactions, Runoff and Leaching

Local topography greatly affects the degree of runoff or infiltration. In an area of steep terrain, leaching will more likely be reduced, and runoff extensive, due to reduced infiltration. Revegetation here may be assisted by a man-made cover over seed beds to reduce soil loss and seed washout. In a flatter terrain, the risk of runoff and erosion decreases, and infiltration becomes the larger concern because of less lateral movement of precipitation.

The following is an example of how one source of N reacts once it is introduced into the soil. Remember that all forms of N will undergo identical reactions, even though they may enter the cycle at different points. Anhydrous Ammonia (NH_3), applied in gaseous form, reacts immediately with soil-water to form Ammonia (NH_4). Some Ammonia may be immediately volatilized and released into the atmosphere, or be taken up by plants. Microorganisms then transform the remaining NH_4 into transitory NO_2 (nitrite), and then quickly to NO_3 (nitrate) if the soil is warm and moist enough, as it will be during the growing season. Both NO_2 and NO_3 are anions, and thus are water-soluble, making them available for leaching or other movement with water. NO_3 can then: 1) be used by the crop, 2) denitrify and be released as N_2 into the atmosphere, or 3) leach.

4. The N Cycle

Nitrogen cycling within the soil is constantly occurring. The sources of N can be either wholly natural or influenced by man. Examples of natural sources are the decay of plant and animal residues (e.g. leaves, stalks, manure and animal carcasses). These residues are rotted by microorganisms in the soil and are mobilized, releasing NH_3, later converted to NH_4. Other natural sources of N are electrical fixation, whereby lightning directly fixates NO_3 into the soil, and fixation by legumes.

5. Environmental Impact

Excess nitrate (NO_3) is the most visible form of N pollution. Although it is expensive to reduce NO_3 levels by artificial means, nature does it quite well. When soil is saturated with water (and therefore low in oxygen), oxygen-deprived microorganisms obtain their oxygen by denitrifying NO_3 to N_2 (which is released into the atmosphere). Thus, poorly drained, swampy, vegetated zones (including land near streams, waterways, or lakes) provide a natural "denitrification zone" for groundwater moving laterally through it. This will help reduce excess nitrates before water moves very far downstream, potentially including human water supplies.

6. Excess N Management in Mississippi

Of major import, at this time, is to find out where, specifically, in Camp Shelby that revegetation is being attempted. There is such a large potential area of activity (approximately 450 square miles) that behavior and movement of excess nutrients and their ultimate effects upon the environment cannot be accurately predicted. Generalizations over such a large area which includes extreme variations in geography would lead to very inaccurate predictions. For example, will runoff from some slopes flow directly into the bog, or will the slope be on the far side of a ridge, and instead flow into rivers, losing NO_3 before later entering the bog?

If excess nutrients run off or are leached into the bog, it is very likely that excess NO_3 will be reduced before long. Microorganisms will denitrify some NO_3, as mentioned earlier, and other NO_3 will be used to promote growth of vegetation within the bog itself. However, the same fate for phosphorous cannot be projected, and this is a major consideration since Ammonium Nitrate, which includes phosphorus, is being used for revegetation. Phosphorus is known to contribute to eutrophication of lakes and streams.

A last word on seasonal variations of NO_3 levels: In temperate regions, such as in Illinois, where NUMAS was developed, most N leaches through the soil in the Spring. In Winter, there is a reduced movement of the water table because of little precipitation, and little uptake of N due to plant senescence. Then, when heavy Spring rains come before much crop growth occurs, nitrates are leached. However, Southern Mississippi does not have the same period of senescence, and may have different yearly rainfall distributions. This could change the period of highest NO_3 concentration, or alter its fluctuations throughout the year.

CONTROLLING NUTRIENT IMPACT THROUGH ENVIRONMENTAL REVEGETATION MANAGEMENT

Maran Associates, Inc.
La Raw Maran, Ph.D.,
Technical Director

201 W. Springfield Ave.
Suite 211
Champaign, IL 61820

March, 1993

1.0 The Issue and the Proposed Resolution

The revegetation of areas where the soil cover has been disturbed by training exercises is part of Camp Shelby's erosion control program. Such replanting requires the application of plant nutrients [Aldrich, 1980; Fedkiw, 1991]. Through leaching and runoff, these nutrients could migrate into pitcher plant bogs and flats. Migration in sufficient quantity could drastically alter the composition of plant species and, among other things, could eventually make such bogs and flats unsuitable for the endemic Camp Shelby burrowing crayfish [Eleuterius, et al, 1969; Harper 1971; Bergh 1979; Silverton 1980]. To ensure that this situation is unlikely to occur, environmental revegetation management will be used to control the amount of nutrient, particularly Nitrate-N, that leaves the training site.

2.0 The Means to Environmentally Manage Revegetation Practices

Managing revegetation practices in order to control the potential impact of Nitrate-N has been made feasible by the recent development of suitable computer programs [Maran, et al, 1992]. These programs combine the expertise of plant cultivation, including the use of commercial fertilizers, with the expertise to calculate the potential impact that results from leaching and runoff. The potential impact is the amount of Nitrate-N that could be expected to leave the training area in a year of normal rainfall [Spalding, et al, 1990; Goolsby, et al, 1991]. This value can be used to establish the environmental soundness of revegetation practices.

3.0 The Goal of Environmental Revegetation Management

An environmentally sound practice has a potential impact which lies within a range of acceptable values. The low end of that range is the potential impact of the existing natural revegetation process, and the high end is that potential impact beyond which pitcher plant bogs and flats would be irreparably harmed. Since revegetation practices utilize supplemental fertilizer, their potential impact values will be no less than that of the natural process; thus, environmentally sound practices are those having a potential impact no greater than the high-end value. While some data exists which could possibly be used to make an estimate [Eleuterius, et al, 1969], a scientifically verifiable high-end value has not yet been established. Until this occurs, the prudent course of action is to use those practices whose potential impacts are closest to the low-end value. This is the goal of environmental revegetation management.

4.0 Seeking Environmentally Sound Revegetation Practices

The cover crop, the kind of fertilizer, and the time of application are three factors which significantly affect the potential impact [Barber, 1984; Gregory, 1987; Glass, 1989]. Management controls the environmental soundness of its revegetation practices by the selection it makes for these three factors. The approach is to optimize one factor at the time in the following order: the cover crop, the kind of fertilizer, and the time of application.

Stepping through the factors in this order results in a practice with the lowest potential impact or one very close to it. Each factor is optimized by stepping through its available options, computing the resulting potential impacts, and selecting the one with the lowest potential impact among those options not ruled out for other considerations. The available options for each factor are given in Table A.

5.0 The Effectiveness of Environmental Revegetation Management

5.1 Demonstrating Its Effectiveness for Camp Shelby

The effectiveness of environmental revegetation management is measured by the reduction in potential impact made possible by its use and by how close the potential impacts of its practices come to that of the ideal practice. To demonstrate the effectiveness of its use at Camp Shelby, their current revegetation practice was compared to the ideal practice and to an optimum practice obtained by using the approach described in Section 4.0.

5.2 The Ideal Practice

As indicated in Section 3.0, the ideal practice is that of the existing natural revegetation process. To compute its potential impact, this practice is considered to be similar to an open meadowland not managed for agriculture which is part of the ecosystem around Camp Shelby. The nutrients come from organic sources and from electrical nitrogen fixing. An estimate of 20 lbs/acre of organic matter was used to calculate the potential impact.

5.3 The Optimum Practice.

5.3.1 Selecting the Cover Crop. Nine mixtures of grasses and legumes were considered. Grasses with low nitrogen requirements, those with high nitrogen requirements, and equal amounts of both were each combined with three different concentrations of legumes: less than 20%, no less than 20% and no greater than 30%, and greater than 30%. The selection with the lowest potential impact was any mixture of grasses with greater than 30% legumes.

5.3.2 Selecting the Fertilizer

Two of the options given in Table A were ruled out by considerations other than potential impact. Ammonium Phosphate was ruled out because it adds a large amount of unneeded phosphate. Phosphate is a nutrient that could migrate into pitcher plant bogs and flats through erosion. Also ruled out was Anhydrous Ammonia + N Inhibitor. The inhibitor is used to reduce leaching over the winter months from fertilizer applied in the Fall. This is not a problem in Mississippi because of its long growing season. Of the remaining options, Anhydrous Ammonia is the selection with the lowest potential impact.

5.3.3 Selecting the Application Time

Three of the options in Table A were ruled out for other reasons. The Fall and Spring options have no meaning in Mississippi because of the long growing season. Post emergence application was ruled out because the ground equipment used to apply the fertilizer would seriously disturb the cover crop. This leaves application at planting time as the selection.

5.4 Comparing Practices

With regard to its environmental soundness, a revegetation practice is characterized by the selections for its cover crop, fertilizer, and application time. The selections for the ideal, optimum and current practices are given in Table B, and their resulting potential impacts are given in Table C. As can be seen in the effectiveness column of Table C, the potential impact can be reduced from 500% greater than the ideal value to only 54% greater by using environmental revegetation management.

5.5 The Effect of Soil Type

While not under management's control, the soil type is another factor that significantly affects the amount of potential impact. The potential impacts in Table C were computed for two soil types: McClaurin and Jena. While it does not cover a significant portion of the proposed training areas, the Jena type provides a worst-case scenario with respect to potential impact. The potential impacts of all other soil types in these areas would be no greater than that of the Jena type. The McClaurin type is the predominant soil type. As can be seen, its potential impacts are very close to that of the Jena type.

6.0 Further Information

For a more detailed explanation, including additional references and a description of the computer program used in the computations, see the Attachment.

Table S-1
Revegetation Options

Cover Crop	fescue, bermuda, bahia, rye, clover, vetch, lespedza, or mixtures thereof
Kind of Fertilizer	ammonium nitrate, ammonium phosphate, anhydrous ammonia, anhydrous ammonia plus N inhibitor, urea, urea anhydrous solution, and organic matter
Time of Application	spring, fall, at planting post emergence, or split applications

Table S-2
Three Revegetation Practices

	Cover Crop*	Kind of Fertilizer**	Time of Application
Ideal Practice	Natural Cover	Organic Matter (20)	Naturally Occurring
Current Practice	Type A Grasses <20% Legumes	Ammonium Nitrate (102)	At Planting in the Fall
Optimum Practice	Type A Grasses <30% Legumes	Anhydrous Ammonia (102)	At Planting in the Fall

*Type A grasses: fescue, bermuda, bahia (low nitrogen requirements).
Legumes: lespedeza, vetch, clover.
The numbers in parentheses are the lbs/acre of seed mixture.
**The numbers in parentheses are the lbs/acre of nitrogen.

Table S-3
Potential Nitrate-N Impacts

Soil Type	Practice	Potential Impact		Effectiveness
		lbs/acre/yr	mg/liter	
McClaurin (2-5% slope)	Ideal	3.776	10.089	1.00
	Optimum	5.808	15.522	1.54
	Current	22.653	60.537	6.0
Jena	Ideal	3.846	10.279	1.00
	Optimum	5.917	15.814	1.54
	Current	23.078	61.673	6.00

CONTROLLING NUTRIENT IMPACT THROUGH ENVIRONMENTAL REVEGETATION MANAGEMENT

1.0 Introduction

The issue under consideration is the potential effect of nutrient loading, particularly Nitrate-N, on the aquatic environment in DeSoto National Forest resulting from revegetation practices at Camp Shelby [Aerts, et al,1988; Bergh, 1979; Eleuterius, et al, 1969]. The issue is addressed by controlling the potential nutrient impact at the source through environmental revegetation management.

Simply put, environmental revegetation management seeks and utilizes revegetation practices having low potential impact. The remaining four sections respectively contain the following information:

(1) a description of the computer program, LOst Nutrient Effects Analyzer (LONEA),
(2) the use of LONEA to seek environmentally sound revegetation practices,
(3) a demonstration of the effectiveness of environmental revegetation management,
(4) a listing of the references consulted.

2.0 The LONEA Computer Program

2.1 The Origin of LONEA

The LOst Nutrient Effects Analyzer (LONEA) is an operating computer program under continuing development by Maran Associates, Inc. of Champaign, Illinois. The forerunner of this program is called the NUtrient Management Advisory System (NUMAS) and it was developed at the University of Illinois for the United States Department of Agriculture's Soil Conservation Service (USDA-SCS). The principals of Maran Associates were key participants in its development, particularly Dr. La Raw Maran who was the project director. In May, 1992, funding was discontinued and the version of NUMAS existing at that time was delivered to the USDA-SCS. While an operating program, this version had not been field tested and evaluated. At this juncture, the private firm of Maran Associates was formed to continue work on NUMAS and expand it into LONEA.

2.2 The Features of NUMAS

The NUMAS computer program was developed to facilitate the protection of water quality by enabling farmers and their advisors to assess the potential of various agricultural practices to cause nutrient loading in the ground water. Using the analytic soil data and interpretation systems of the USDA-SCS, the program's knowledge-base models the potential of nutrient solutes to leave the agricultural site through leaching. It specifically addresses the loss of Nitrate-N including that resulting from commercial fertilizers [Aldrich, 1980; Fedkiw, 1991;Spalding, et al, 1990; Taylor, 1982; Goolsby, et al, 1991; Johnston, 1965; Kohl, et al,

1971; Baker, 1980; G.L., 1990; Addiscott, 1988]. Given the user inputs of soil type, crop, yield goal, and recent planting history, NUMAS provides the user with the amount (lbs/acre) of nitrogen the fertilizer needs to supply. Then given the user inputs of fertilizer type and time of application, NUMAS provides an assessment of whether the potential impact on the ground water is high, medium or low.

2.3 The Features of LONEA

At its present stage of development, the LONEA computer program includes all of the features of NUMAS plus some additional features which significantly expand the capabilities.

2.3.1 Numerical Measures of Potential Impact

Whereas NUMAS gives a non-numerical assessment of the potential impact, LONEA provides two numerical measures of the amount of Nitrate-N that leaves the site: pounds/acre/year and milligrams/liter. These values are based on the normal annual rainfall in the area. The measures can be readily converted to a monthly basis given the rainfall data.

2.3.2 Total Potential Impact

LONEA provides numerical measures of the potential runoff impact as well as the potential leaching impact. Their sum provides the total amount of Nitrate-N that leaves the site. This is the pertinent value when the concern is nutrient loading in streams, rivers, lakes, wetlands and bogs.

2.3.3 Agricultural Land Uses

NUMAS addresses the potential impacts resulting from the farming of production crops, particularly corn and soy beans. LONEA addresses the potential impacts resulting from all agricultural land uses, whether for farming, horticultural or livestock purposes.

2.3.4 Climatic Conditions As a Variable

NUMAS has Illinois climatic conditions built into the computer program. LONEA permits the climatic conditions to be changed to conform to any location without changing the computer program.

2.4 User Inputs and Computer Outputs

Four factors which significantly affect the amount of potential impact are required user inputs to LONEA: the soil type, the crop, the fertilizer, and the time of application [Barber, 1984; Gregory, 1987; Glass, 1989]. The input options available for each factor as well as some optional user inputs are given in Table A. The available computer outputs are given in Table B.

2.5 Data Sources for Camp Shelby Computations

The soil data comes from USDA-SCS Soil DataBases for the 5 Mississippi counties which shelter Camp Shelby. Nitrogen requirements for Mississippi grasses were provided by the Extension Agronomists at Mississippi State University. Information about the proposed training sites and current revegetation practices came from the U.S. Army Corps of Engineers Research Lab, Champaign, Illinois.

3.0 Using LONEA to Seek Environmentally Sound Revegetation Practices

3.1 The Goal of Environmental Revegetation Management

The potential impact of each revegetation practice can be used to establish its environmental soundness. An environmentally sound practice has a potential impact which lies within a range of acceptable values. The low end of that range is the potential impact of the existing natural revegetation process, and the high end is that potential impact beyond which pitcher plant bogs and flats would be irreparably harmed [Persson, 1981; Tilman, 1982; Walker, 1985; Walker, et al, 1983;]. Since revegetation practices utilize supplemental fertilizer, their potential impact values will be no less than that of the natural process; thus, environmentally sound practices are those having a potential impact no greater than the high-end value. While some data exists which could possibly be used to make an estimate [Eleuterius, et al, 1969], a scientifically verifiable high-end value has not yet been established. Until this occurs, the prudent course of action is to use those practices whose potential impacts are closest to the low-end value. This is the goal of environmental revegetation management.

3.2 Controlling Environmental Soundness

The cover crop, the kind of fertilizer, and the time of application are three of the factors which significantly affect the potential impact. The cover crop establishes the amount of nitrogen needed, and subtracting the residual nitrogen establishes the amount of nitrogen to be supplied by the fertilizer. Different fertilizers can have considerably different leaching and runoff characteristics, and the time of application determines how much of a fertilizer's nitrogen is available over time for leaching and runoff. [Barber, 1984; Gregory, 1987; Glass, 1989;]. These three factors are under management's control. For each factor there are a number of management options. The options currently provided by LONEA are shown in Table A. Management controls the environmental soundness of its revegetation practice by the options it selects.

3.3 Seeking the Best Revegetation Practice

Because revegetation options can be ruled out by considerations other than their effect on environmental soundness, LONEA is presently designed to interact with the user in seeking the best revegetation practice. The approach is to seek the best practice by

optimizing one factor at a time in the following order: the cover crop, the kind of fertilizer, and the time of application. Stepping through the factors in this order results in a practice with the lowest potential impact or one very close to it. For each factor, LONEA presents management with a set of options which are ordered according to their environmental soundness, i.e., from lowest to highest potential impact. From those options not ruled out by other considerations, management can select the one with the lowest potential impact.

4.0 The Effectiveness of Environmental Revegetation Management

4.1 Demonstrating Effectiveness

The effectiveness of environmental revegetation management is measured by the reduction in potential impact made possible by its use and by how close the potential impacts of its practices come to that of the ideal practice. To demonstrate the effectiveness of its use at Camp Shelby, their current practice was compared to the ideal practice and to an optimum practice obtained using LONEA.

4.2 Approximating the Ideal Practice

As indicated in Section 3.1, the ideal practice is that of the existing natural revegetation process. This situation is considered to be similar to that of an open meadowland not managed for agriculture which is in the ecosystem around Camp Shelby. The USDA-SCS provides a model for the nutrient cycling characteristics of such a meadowland. In this model the available nutrients come from organic sources and electrical nitrogen fixing. This model plus an estimate of 20 lbs/acre of organic matter was used to calculate the potential impact of the ideal practice.

4.3 Determining an Optimum Practice

4.3.1 Selecting the Cover Crop

To reduce the amount of computation the grasses were grouped into two types. Type A grasses (fescue, bermuda, bahia) have low nitrogen requirements, and Type B grasses (rye) have high nitrogen requirements. Three options were considered: Type A, Type B, and Type (A+B), which is a seed mixture having equal amounts of Types A and B. A total of nine options were generated by adding three different concentrations of legumes to each grass option. LONEA was used to calculate the amount (lbs/acre) of supplemental nitrogen required for each option. The results are given in Table C. The option requiring the smallest amount of supplemental nitrogen has the lowest potential impact. As can be seen, a high concentration of legumes with any mixture of grass types is a best selection.

4.3.2 Selecting the Fertilizer

Two of the options given in Table A were ruled out by considerations other than potential impact. Ammonium Phosphate was ruled out because it adds a large amount of unneeded phosphate. Phosphate is a nutrient that could migrate into pitcher plant bogs and flats through erosion. Also ruled out was Anhydrous Ammonia + N Inhibitor. The inhibitor is used to reduce leaching over the winter months from fertilizer applied in the Fall. This is not a problem in Mississippi because of its long growing season. With the cover crop selected in Section 4.3.1 and the application time of the current practice as inputs, LONEA was used to order the remaining options in Table A from lowest to highest potential impact. The relative rankings, with 1.0 being the lowest, are given in Table D. Anhydrous Ammonia is the selection with the lowest potential impact.

4.3.3 Selecting the Application Time

Three of the options in Table A were ruled out for other reasons. The Fall and Spring options have no meaning in Mississippi because of the long growing season. Post emergence application was ruled out because the ground equipment used to apply the fertilizer would seriously disturb the cover crop. This leaves application at planting time as the selection.

4.4 Comparing Practices

To demonstrate the effectiveness of using environmental revegetation management at Camp Shelby the potential impact of its current practice was compared to those of the ideal and optimum practices of Sections 4.2 and 4.3. The cover crop, fertilizer and application time information for each practice is given in Table E and the resulting potential impacts are given in Table F. As can be seen in the effectiveness column of Table F, the potential impact can be reduced from 500% greater than the ideal value to only 54% greater.

4.5 The Effect of Soil Type

While not under management's control, the soil type is another factor that significantly affects the amount of potential impact. The impact potentials in Table F were computed for two soil types: McClaurin and Jena. While it does not cover a significant portion of the proposed training areas, the Jena type provides a worst-case scenario with respect to potential impact. The potential impacts of all other soil types in these areas would be no greater than that of the Jena type. The McClaurin type is the predominant soil type. As can be seen, its potential impacts are very close to that of the Jena type.

Table A. Master List of User Inputs

REQUIRED INPUTS:

(1) STATE and COUNTY NAME - this input can be eliminated if the computer program covers only one state and county.

(2) SOIL TYPE - the list of possible soil types are given in the USDA-SCS Soils Database specified by the state and county name.

(3) COVER CROP - fescue; bermuda; bahia; rye; clover; vetch; lespedeza; or mixtures thereof.

(5) KIND of FERTILIZER - ammonium nitrate; ammonium phosphate; anhydrous ammonia; anhydrous ammonia plus N inhibitor; urea; urea anhydrous solution; and organic matter.

(6) TIME of APPLICATION - spring; fall; at planting; post emergence; or split applications.

OPTIONAL INPUTS:

(7) RESTRICTIONS - any of the options under the cover crop, the kind of fertilizer, and the time of application. This is an optional input which permits the removal from a computer run of those options not available to the user; otherwise, all options are utilized.

(8) CONDITIONS - adverse. This is an optional input which indicates that the land will be used for training before the cover crop is well established. When not entered, the program assumes normal growth.

(4) YIELD GOAL - bushels/acre. This is an optional input used primarily for production agriculture. When not entered, the computer program uses the nitrogen recommendation provided in the USDA-SCS Soils Database.

Table B. Master List of Computer Outputs

(1) SUPPLEMENTAL NITROGEN REQUIREMENT - the calculated amount (lbs/acre) of Nitrogen to be added by the fertilizer.

(2) POTENTIAL LEACHING - the calculated amount (lbs/acre) of Nitrate-N lost through the leaching process during a year of normal rainfall. (Monthly amounts can be obtained given the weather data.)

(3) POTENTIAL RUNOFF - the calculated amount (lbs/acre) of Nitrate-N lost through the runoff process during a year of normal rainfall. (Monthly amounts can be obtained given the weather data.)

(4) POTENTIAL IMPACT - the sum of the leaching and runoff potentials. This output can also be calculated as a Nitrate-N concentration (mg/liter).

(5) RANK-ORDERED SELECTIONS - a list of different sets of a user's inputs ordered from lowest to highest according to the potential impact each set produces.

Table S-4
Cover Crop: Required Supplemental Nitrogen (lbs/acre)

Legumes	Grasses		
	Type A	Type B	Type (A+B)
High (>30%)	60	60	60
Med. (>20%, <30%)	90	100	95
Low (<20%)	120	140	130

Table S-5
Fertilizers: Relative Potential Impact Rankings

Fertilizers	Rankings
Anhydrous Ammonia	1.00
Urea Anhydrous Solution	1.67
Urea	1.67
Ammonium Nitrate	2.00

Table S-6
Three Revegetation Practices

	Cover Crop*	Kind of Fertilizer**	Time of Application
Ideal Practice	Natural Cover	Organic Matter (20)	Naturally Occurring
Current Practice	Type A Grasses <20% Legumes	Ammonium Nitrate (102)	At Planting in the Fall
Optimum Practice	Type A Grasses <30% Legumes	Anhydrous Ammonia (102)	At Planting in the Fall

*Type A grasses: fescue, bermuda, bahia (low nitrogen requirements).
Legumes: lespedeza, vetch, clover.
The numbers in parentheses are the lbs/acre of seed mixture.
**The numbers in parentheses are the lbs/acre of nitrogen.

Table S-7
Potential Nitrate-N Impacts

Soil Type	Practice	Potential Impact		Effectiveness
		lbs/acre/yr	mg/liter	
McClaurin (2-5% slope)	Ideal	3.776	10.089	1.00
	Optimum	5.808	15.522	1.54
	Current	22.653	60.537	6.0
Jena	Ideal	3.846	10.279	1.00
	Optimum	5.917	15.814	1.54
	Current	23.078	61.673	6.00

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Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix T

Mineral Exploration and Extraction Lease Provisions, National Forests in Mississippi

Form 3100-11*
(March 1984)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0006
Expires January 31, 1986

Serial No. ES

OFFER TO LEASE AND LEASE FOR OIL AND GAS

The undersigned (reverse) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Mineral Leasing Act of 1920 (30 U.S.C. 181 et seq.), the Mineral Leasing Act for Acquired Lands (30 U.S.C. 351-359), the Attorney General's Opinion of April 2, 1941 (40 OP. Atty. Gen. 41), or the

Read Instructions Before Completing

1. Name

Street

City, State, Zip Code

2. This offer/lease is for: (Check Only One) ☐ PUBLIC DOMAIN LANDS ☒ ACQUIRED LANDS (percent U.S. interest _____)

Surface managing agency if other than BLM: _____ Unit/Project _____

Legal description of land requested:

T.	R.	Meridian	State	County
SAME				

Posted Sept B.C. 8-11-86 BP

RECEIVED
JUL 30 86
LAND & MINERALS
REGION 8

Total acres applied for _____

Amount remitted: Filing fee $ _____ Rental fee $ _____ Total $ _____

DO NOT WRITE BELOW THIS LINE

FORMERLY ES 26129

3. Land included in lease:

T.	R.	Meridian	State	County
Mississippi, Perry County, DeSoto N.F. List No.				
See Attachment.				

Total acres in lease 5,487.09

Rental retained $ 5,488.00

In accordance with the above offer, or the previously submitted simultaneous oil and gas lease application or competitive bid, this lease is issued granting the exclusive right to drill for, mine, extract, remove and dispose of all the oil and gas (except helium) in the lands described in item 3 together with the right to build and maintain necessary improvements thereupon for the term indicated below, subject to renewal or extension in accordance with the appropriate leasing authority. Rights granted are subject to applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance, and to regulations and formal orders hereafter promulgated when not inconsistent with lease rights granted or specific provisions of this lease.

Type and primary term of lease:

☒ Simultaneous noncompetitive lease (ten years)

☐ Regular noncompetitive lease (ten years)

☐ Competitive lease (five years)

☐ Other _____

THE UNITED STATES OF AMERICA

by /s/ Pearl F. Tillman (Signing Officer)

Authorized Officer (Title)

JUN 24 1986 (Date)

EFFECTIVE DATE OF LEASE JUL 1 1986

*(Formerly 3110-1, 2, 3, 3120-1, 7, 3130-4, 5, and 7)

4 (a) Undersigned certifies that (1) offeror is a citizen of the United States; an association of such citizens; a municipality; or a corporation organized under the laws of the United States or of any State or Territory thereof, (2) all parties holding an interest in the offer are in compliance with 43 CFR 3100 and the leasing authorities; (3) offeror's chargeable interests, direct and indirect, in either public domain or acquired lands do not exceed 200,000 acres in oil and gas options or 246,080 acres in options and leases in the same State, or 300,000 acres in leases and 200,000 acres in options in either leasing District in Alaska; and (4) offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located.

(b) Undersigned agrees that signature to this offer constitutes acceptance of this lease, including all terms, conditions, and stipulations of which offeror has been given notice, and any amendment or separate lease that may include any land described in this offer open to leasing at the time this offer was filed but omitted for any reason from this lease. The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the BLM State Office before this lease, an amendment to this lease, or a separate lease, which includes the land described in the withdrawal, has been signed on behalf of the United States

This offer will be rejected and will afford offeror no priority if it is not properly completed and executed in accordance with the regulations, or if it is not accompanied by the required payments. 18 U.S.C. Sec. 1001 makes it a crime for any person knowingly and willfully to make to any Department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Duly executed this 21st day of May, 19 86. ✓ [redacted]
(Signature of Lessee or Attorney-in-fact)

[redacted]

LEASE TERMS

Sec. 1. Rentals—Rentals shall be paid to proper office of lessor in advance of each lease year. Annual rental rates per acre or fraction thereof are:

(a) Simultaneous noncompetitive lease, $1.00 for the first 5 years, thereafter, $3.00;
(b) Regular noncompetitive lease, $1.00;
(c) Competitive lease, $2.00; or
(d) Other, see attachment.

If all or part of a noncompetitive leasehold is determined to be within a known geological structure or a favorable petroleum geological province, annual rental shall become $2.00, beginning with the lease year following notice of such determination. However, a lease that would otherwise be subject to rental of more than $2.00 shall continue to be subject to the higher rental.

If this lease or a portion thereof is committed to an approved cooperative or unit plan which includes a well capable of producing leased resources, and the plan contains a provision for allocation of production, royalties shall be paid on the production allocated to this lease. However, annual rentals shall continue to be due at the rate specified in (a), (b), (c), or (d) for those lands not within a participating area.

Failure to pay annual rental, if due, on or before the anniversary date of this lease (or next official working day if office is closed) shall automatically terminate this lease by operation of law. Rentals may be waived, reduced, or suspended by the Secretary upon a sufficient showing by lessee.

Sec. 2. Royalties—Royalties shall be paid to proper office of lessor. Royalties shall be computed in accordance with regulations on production removed or sold. Royalty rates are:

(a) Simultaneous noncompetitive lease, 12½%;
(b) Regular noncompetitive lease, 12½%;
(c) Competitive lease, see attachment; or
(d) Other, see attachment.

Lessor reserves the right to specify whether royalty is to be paid in value or in kind, and the right to establish reasonable minimum values on products after giving lessee notice and an opportunity to be heard. When paid in value, royalties shall be due and payable on the last day of the month following the month in which production occurred. When paid in kind, production shall be delivered, unless otherwise agreed to by lessor, in merchantable condition on the premises where produced without cost to lessor. Lessee shall not be required to hold such production in storage beyond the last day of the month following the month in which production occurred, nor shall lessee be held liable for loss or destruction of royalty oil or other products in storage from causes beyond the reasonable control of lessee.

Minimum royalty shall be due for any lease year after discovery in which royalty payments aggregate less than $1.00 per acre. Lessee shall pay such difference at end of lease year. This minimum royalty may be waived, suspended, or reduced, and the above royalty rates may be reduced, for all or portions of this lease if the Secretary determines that such action is necessary to encourage the greatest ultimate recovery of the leased resources, or is otherwise justified.

An interest charge shall be assessed on late royalty payments or underpayments in accordance with the Federal Oil and Gas Royalty Management Act of 1982 (FOGRMA) (96 Stat. 2447). Lessee shall be liable for royalty payments on oil and gas lost or wasted from a lease site when such loss or waste is due to negligence on the part of the operator, or due to the failure to comply with any rule, regulation, order, or citation issued under FOGRMA or the leasing authority.

Sec. 3. Bonds—Lessee shall file and maintain any bond required under regulations.

Sec. 4. Diligence, rate of development, unitization, and drainage—Lessee shall exercise reasonable diligence in developing and producing, and shall prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves right to specify rates of development and production in the public interest and to require lessee to subscribe to a cooperative or unit plan, within 30 days of notice, if deemed necessary for proper development and operation of area, field, or pool embracing these leased lands. Lessee shall drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in amount determined by lessor.

Sec. 5. Documents, evidence, and inspection—Lessee shall file with proper office of lessor, not later than 30 days after effective date thereof, any contract or evidence of other arrangement for sale or disposal of production. At such times and in such form as lessor may prescribe, lessee shall furnish detailed statements showing amounts and quality of all products removed and sold, proceeds therefrom, and amount used for production purposes or unavoidably lost. Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest, expenditures, and depreciation costs. In the form prescribed by lessor, lessee shall keep a daily drilling record, a log, information on well surveys and tests, and a record of subsurface investigations and furnish copies to lessor when required. Lessee shall keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands. Lessee shall maintain copies of all contracts, sales agreements, accounting records, and documentation such as billings, invoices, or similar documentation that supports costs claimed as manufacturing, preparation, and/or transportation costs. All such records shall be maintained in lessee's accounting offices for future audit by lessor. Lessee shall maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor.

During existence of this lease, information obtained under this section shall be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 6. Conduct of operations—Lessee shall conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users. Lessee shall take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with lease rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-ways. Such uses shall be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee.

Prior to disturbing the surface of the leased lands, lessee shall contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessee may be required to complete minor inventories or short term special studies under guidelines provided by lessor. If in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee shall immediately contact lessor. Lessee shall cease any operations that would result in the destruction of such species or objects.

Sec. 7. Mining operations—To the extent that impacts from mining operations would be substantially different or greater than those associated with normal drilling operations, lessor reserves the right to deny approval of such operations.

Sec. 8. Extraction of helium—Lessor reserves the option of extracting or having extracted helium from gas production in a manner specified and by means provided by lessor at no expense or loss to lessee or owner of the gas. Lessee shall include in any contract or sale of gas the provisions of this section.

Sec. 9. Damages to property—Lessee shall pay lessor for damage to lessor's improvements, and shall save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations.

Sec. 10. Protection of diverse interests and equal opportunity—Lessee shall pay when due all taxes legally assessed and levied under laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; and take measures necessary to protect the health and safety of the public.

Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly. If lessee operates a pipeline, or owns controlling interest in a pipeline or a company operating a pipeline, which may be operated accessible to oil derived from these leased lands, lessee shall comply with section 28 of the Mineral Leasing Act of 1920.

Lessee shall comply with Executive Order No. 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto. Neither lessee nor lessee's subcontractors shall maintain segregated facilities.

Sec. 11. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee shall file with lessor any assignment or other transfer of an interest in this lease. Lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which shall be effective as of the date of filing, subject to the continued obligation of the lessee and surety to pay all accrued rentals and royalties.

Sec. 12. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee shall place affected wells in condition for suspension or abandonment, reclaim the land as specified by lessor and, within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells.

Sec. 13. Proceedings in case of default—If lessee fails to comply with any provisions of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease shall be subject to cancellation. Lessee shall also be subject to applicable provisions and penalties of FOGRMA (96 Stat. 2447). However, if this lease includes land known to contain valuable deposits of leased resources, it may be cancelled only by judicial proceedings. This provision shall not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver shall not prevent later cancellation for the same default occurring at any other time.

Sec. 14. Heirs and successors-in-interest—Each obligation of this lease shall extend to and be binding upon, and every benefit hereof shall inure to the heirs, executors, administrators, successors, beneficiaries, or assignees of the respective parties hereto.

MSES-_____

NATIONAL FORESTS IN MISSISSIPPI

Military Use Special Stipulation 09

Camp Shelby Training Area

1. The lessee shall not conduct exploratory activities on the lands included in this lease during periods when the USDA, Forest Service grants to the National Guard the privilege of using the area. Such use by the National Guard will be limited to a continuous three month period out of each year, normally but not necessarily May 15 through August 30, and for additional periods totaling not more than 20 days. The USDA, Forest Service shall approve the dates of such use by the National Guard. The periods of use will be subject to 90 days prior public notice given by the National Guard. Provided however, the lessee may conduct exploratory activities on the lands under this lease during the periods when the National Guard uses the area if the National Guard gives the lessee written permission for such exploratory activities.

2. Lessee will forever release and discharge the State of Mississippi, its agencies, agents, and authorized personnel from any and all liabilities arising out of, or in connection with, the use of said premises by the National Guard, excepting such liabilities as result from the willful misconduct or negligence of any agents or authorized personnel of the State of Mississippi.

3. Lessee will defend, pay or settle all liabilities and claims by or in favor of any third persons against the State of Mississippi, its agencies, agents, and authorized personnel arising out of, or in connection with, the use of the premises by the lessees; and the lessees will hold the State of Mississippi, its agencies, agents, and authorized personnel harmless against any such liabilities or claims asserted by third persons, including costs of suit, attorney's fees, and other expenses in connection therewith, excepting herefrom such liabilities or claims as a result from the willful misconduct or negligence of any agents, or authorized personnel of the State of Mississippi.

4. Lessee will pay or settle claims for injury, loss, or damage to personnel or property of or under control of the State of Mississippi, arising out of, or in connection with, the use of the premises by the lessees, excepting such injuries, losses, or damages as a result solely from the negligence of any agents or authorized personnel of the State of Mississippi.

5. It is understood that land included in this lease has been and is being used by the Mississippi National Guard, as an impact area of artillery (bombing, machine gun, etc.) range, and other military training purposes, and

   That such land has been and may be subject to contamination by the introduction of unexploded and dangerous bombs, shell-rockets, mines, and charges either upon or below the surface thereof; and

   THAT THE UNITED STATES IS UNABLE TO CERTIFY THAT THE PROPERTY HAS BEEN COMPLETELY AND FULLY CLEARED AND DECONTAMINATED AND IS UNABLE TO STATE WHETHER OR NOT THE SAME IS SAFE FOR USE; and

   That the lessee assumes full obligation for any risk involved in exercise of the rights and privileges authorized by this lease.

6. Use or occupancy of the surface within 200 feet of the cleared right-of-way line of all regularly traveled roads or within 100 feet of stream banks is limited strictly to access facilities such as roads, power, pipe, or telephone lines which may be installed in a manner as specified by the Forest Supervisor, USDA, Forest Service, Jackson, Mississippi.

   The lessee agrees to obtain written approval from the Forest Supervisor prior to installing any such access facilities.

   The lessee is authorized to employ directional drilling to exploit the mineral resources within the aforementioned areas providing such drilling will not disturb the surface.

7. Lessee will bury all gas and oil pipelines underneath the earth's surface a depth of two feet, except that such lines crossing streets and roads over which military vehicles and armored tanks usually travel, the pipelines shall be buried a depth of three feet underneath such streets and roads.

8. Lessee will mark with appropriate signs or markers in sufficient size lettering to warn any member or unit of the National Guard of the whereabouts of all underground pipelines and above ground facilities constructed by lessee.

9. The following described land(s) is/are dangerous area(s) contaminated by unexploded ordnance on or below the surface of the area. No occupancy or surface use is authorized. The lessee is, however, authorized to employ directional drilling to explore for or recover minerals resources under this area:

Military Use Special Stipulation 09 (cont'd.)

10. The following described land(s) is/are actively used by National Guard for tank firing positions, small arms, grenades, machine guns, rocket launches or mortar ranges, impact area, ammunition dump, etc. Use or occupancy of the surface of the aforementioned areas is prohibited. The lessee is authorized to employ directional drilling to exploit the mineral resources within these areas providing such drilling will not disturb or interfere with the National Guard's use of the surface:

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Final
Environmental Impact Statement

Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix U

Examination of History of Military Training - Related Wildfires in Camp Shelby Area

APPENDIX U
AN ANALYSIS OF MILITARY CAUSED WILDFIRES ON CAMP SHELBY SPECIAL USE AREA FROM 1987 TO 1991.

DEFINITIONS:

SIZE CLASS:

A/B	10 acres or less
C	11 to 99 acres
D	100 to 299 acres
E	300 to 999 acres
F	1,000 acres or larger

Fire Intensity Levels	Flame Length
1	0-2 FT
2	2-4 FT
3	4-6 FT
4	6-8 FT
5	8-12 FT
6	+12 FT

Impact Area includes the main impact area and the East Air to Ground Range.

Special Use Area - All areas under the Camp Shelby Special Use Permit excluding the Impact Areas.

Fire Danger Rating Class Day	Description
A	Low
B	Low Moderate
C	High Moderate
C+	High
D	Very High
E	Extreme

Table U-1

Wildfires on Black Creek Ranger District - All Causes

Year	Number by Size Class					Total	Total Acres
	A/B	C	D	E	F		
1987	88	26			1	115	3,736
1988	76	41	3			120	1,495
1989	39	12			1	52	2,528
1990	65	34		2	1	102	4,207
1991	36	23		3		62	2,606
Total	304	136	3	5	3	451	14,572
5-Year Avg	61	27	0.6	1	0.6	90	2,914

Table U-2

Wildfires on Black Creek Ranger District - All Military Activities

Year	Number by Size Class					Total	Acres Burned by Size Class					
	A/B	C	D	E	F		A/B	C	D	E	F	Total
1987	37	6			1	44	114	350			2,680	3,144
1988	10	3	1			14	37	55	140			232
1989	10	10			1	21	22	398			1,600	2,020
1990	16	5		1	1	23	56	311		850	1,500	2,717
1991	3	3		3		9	16	140		1,780		1,936
Total	76	27	1	4	3	111	245	1,254	140	2,630	5,780	10,049
5-Year Avg	15	5	0.2	0.8	0.6	22	49	251	28	526	1,156	2,010

Table U-3

Impact Area Fires - Military Caused

Year	Number by Size Class					Total	Acres Burned by Size Class					Total Acres
	A/B	C	D	E	F		A/B	C	D	E	F	
1987	5	2			1	8	22	75			2,680	2,777
1988			1			1			140			140
1989					1	1					1,600	1,600
1990		4		1	1	6		279		850	1,500	2,629
1991	1	2		3		6	1	108		1,780		1,889
Total	6	8	1	4	3	22	23	462	140	2,630	5,780	9,035
5-Year Avg	1.2	1.6	0.2	0.8	0.6	4.4	4.6	92.4	28	526	1,156	1,807

Table U-4

Special Use Area - Military Caused (Impact Area Excluded)

Year	Number by Size Class					Total	Acres Burned by Size Class					Total Acres
	A/B	C	D	E	F		A/B	C	D	E	F	
1987	31	5				36	92	275				367
1988	10	3				13	37	55				92
1989	10	10				20	22	398				420
1990	16	1				17	56	32				88
1991	2	1				3	15	32				47
Total	69	20				89	222	792				1,014
5-Year Avg	13.8	4				17.8	44.4	158.4				202.8

Table U-5

Impact Area Wildfires Military Caused) by Month 1987-1991

Month	Number by Size Class					Total	Acres Burned by Size Class					Total Acres
	A/B	C	D	E	F		A/B	C	D	E	F	
January	1					1	1					1
February		1	1	1	2	5		85	140	850	3,100	4,175
March		2				2		112				112
April		1				1		82				82
May												
June												
July												
August												
September												
October	3	1		1		5	17	35		370		422
November	1	1				2	5	90				95
December	1	2		2	1	6	1	58		1,410	2,680	4,148
Total	6	8	1	4	3	22	24	462	140	2,630	5,780	9,035

Table U-6

Special Use Area - Military Caused (Impact Area Excluded) by Month 1987-1991

Month	Number by Size Class					Total	Acres Burned by Size Class					Total Acres
	A/B	C	D	E	F		A/B	C	D	E	F	
January	11	1				12	38	47				85
February	3	1				4	7	20				27
March	7	7				14	36	325				361
April	2	2				4	1	150				151
May	6	1				7	17	32				49
June	10	1				11	40	52				92
July	1	1				2	1	23				24
August	6	1				7	14	20				34
September												
October	15					15	42					42
November	7	4				11	24	111				135
December	1	1				2	2	12				14
Total	69	20				89	222	792				1,014

Table U-7

Impact Area - Number of Fires and Acres Burned by Size Class and Fire Intensity Level for 1987-1991

Fire Intensity Level	Number by Size Class					Total	Acres Burned by Size Class					Total Acres	5-Year Avg
	A/B	C	D	E	F		A/B	C	D	E	F		
1	1					1	1					1	0
2	5	7	1	1		14	22	372	140	850		1,384	277
3				3	2	5				1,780	4,180	5,960	1,192
4		1				1		90				90	18
5					1	1					1,600	1,600	320
Total	6	8	1	4	3	22	23	462	140	2,630	5,780	9,035	

Table U-8

Special Use Area Wildfires (Military Caused) Impact Area Excluded by Fire Intensity Level

Fire Intensity Level	Number by Size Class					Total	Acres Burned by Size Class					Total Acres	5-Year Avg
	A/B	C	D	E	F		A/B	C	D	E	F		
1	29	5				34	80	140				220	44
2	40	11				51	142	447				589	118
3		4				4		205				205	41
4													0
5													0
Total	69	20				89	222	792				1,014	

Table U-9

Impact Area Wildfires (Military Caused) by Fire Danger 1987-1991

Fire Danger Class	Number by Size Class					Total	Acres Burned by Size Class					Total Acres
	A/B	C	D	E	F		A/B	C	D	E	F	
A												
B												
C	3	3		1	1	8	5	130		560	1,500	2,195
C+	2	5		3	1	11	15	332		2,070	1,600	4,017
D			1			1			140			140
E	1				1	2	3				2,680	2,683
Total	6	8	1	4	3	22	23	462	140	2,630	5,780	9,035

Table U-10

Special Use Area Wildfires (Military Caused) by Fire Danger 1987-1991

Fire Danger Class	Number by Size Class					Total	Acres Burned by Size Class					Total Acres
	A/B	C	D	E	F		A/B	C	D	E	F	
A	10	3				13	42	141				183
B	1					1	6					6
C	35	11				46	96	346				442
C+	13	5				18	45	273				318
D	8	1				9	30	32				62
E	2					2	3					3
Total	69	20				89	222	792				1,014

Table 1 shows the most recent five year (1987-1991) Wildfire history of the Black Creek Ranger District. Table 2 shows all of the Military Caused Wildfires on the District, both in the Impact Area and the Special Use Area. Comparing the two tables, they show that 25% of all wildfires on the District are caused by Military Activities, which account for 69% of the acres burned annually. On the average, military activities cause 22 wildfires per year burning 2,010 acres per year.

The National Forests in Mississippi averaged 272 Wildfires, burning 5,803 acres annually. Comparing these figures to the Military caused Wildfires, 8% of the wildfires on the Forest result from Military activities. Of the acres burned, military activities represent 35% acres burned annually.

Tables 3 and 4 compare impact area wildfires to the special use area, all are military caused. The largest number of wildfires occur in the Special Use Area. On the average there are 18 wildfires burning 203 acres annually. The impact area averages 4 wildfires, burning 1,807 acres annually.

The primary reason for the smaller acerage burned in the Special Use Area is that our fire suppression crews can utilize direct attack strategy and in the impact area, only indirect attack can be used due to unexploded ordance.

Table 5 shows the time of year the Wildfires occur in the impact area. The occurrance is in line with our regular fire season. December and February are critical, with October being serious. These 3 months account for 73% of the impact area wildfires and 97% of the acres burned.

The fire occurance for the special use area has two basic patterns. They follow our normal fire season plus some increase in spring and summer due to increased military activities (summer camps). March is by far the most critical month.

Tables 8 and 9 show military caused wildfires by Fire Intensity Level. The higher the intensity level the more difficult the wildfire is to suppress; more suppression forces are needed and more resource damage occurs. Fire Intensity Levels 1 and 2 only cause low to moderate resource damage. Fire Intensity Levels 3, 4, and 5 cause high to extreme resource damage. The most significant being the soil resource and the wildfire resource from a T & E Species viewpoint.

Tables 9 and 10 show the relationship between military caused wildfires and the Fire Danger on those days that the fire occurred. Table 9 is for the Impact Area. 64% of the wildfires occurred on high moderate days or higher. 76% of the acres burned also occurred on high moderate days or higher.

Table 10 shows the wildfire occurrance and fire danger relationship for the Special Use Area. 52% of the wildfires and 44% of the acres burned occur on a low moderate fire day. 32% of the wildfires and 38% of the acres burned occurred on high moderate days or higher.

Conclusions:

Impact Area:

1. Limit firing during periods of high moderate fire danger or have a helicopter with water drop capability on standby for immediate dispatch on C+ or higher days.

2. Establish fire breaks and/or green strips within the main impact area.

Special Use Area:

1. The military needs to become active in advising troop encampments in wildfire prevention as it pertains to military operations.

2. Establish a system whereby troop commander can be advised of fire danger and appropriate actions to be taken in the event of a wildfire.

3. Limit the use of incindary devices during periods of high fire danger.

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Military Training Use of National Forest Lands: Camp Shelby, Mississippi

Appendix V

Environmental Assessment of the Use of Herbicides and Insecticides

Appendix V

DECISION NOTICE AND FINDING OF NO SIGNIFICANT IMPACT

This appendix includes three separate Decision Notices by the Mississippi Army National Guard and are numbered accordingly; V-1, V-2 and V-3.

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USDA Forest Service
DeSoto National Forest
Black Creek Ranger District

Decision Notice and Finding of No Significant Impact
Mississippi Army National Guard
Insecticide Application For Fire Ant Control on Camp Shelby Range Facilities
Forrest and Perry Counties, Mississippi

An environmental assessment (EA), prepared under the direction of an interdisciplinary team, discussing the proposed fire ant control project is available for public review in the Forest Supervisor's Office in Jackson, Mississippi, and the District Ranger's Office in Wiggins, Mississippi.

Based on analysis documented in the EA, it is my decision to adopt the actions of Alternative 4. The description of the alternatives described in the EA is as follows:

1. No Action.

2. Proposed Action:
All areas shown on the attached map (725 sites) infested with the RIFA's and outside of floodplains, 30 horizontal feet from wetlands, and 25 feet from active or inactive gopher tortoise burrows (see attached Biological Evaluation) will be treated with high yield Diazinon insect killer granules (see Appendix E) under the direct supervision of a certified pesticide applicator (see Appendix D) since Diazinon is a restricted use pesticide. Prior to treatment, a transect survey will be conducted with transects approximately a yard apart. According to Dr. Tim Lockley, Imported Fire Ant Station, Gulfport MS, this intense survey is needed to flag incipient colonies (less than 2,000 ants or 1-11 months old) for treatment. A small shovel should be used to locate incipient colonies. Colonies are hardly noticeable during the summer months, compared to spring and fall since colony mounds are used as a temperature control device against cold and also used to protect against the wet seasons.

Application will be made by sprinkling 1/2 cup of high-yield Diazinon [illegible] killer granules over and 6 ft. around, each fire ant colony. Immediately [illegible] application granules will be watered in thoroughly. A minimum of 1 gal[illegible] water will be applied to each colony area. Reapplication will be made [illegible] necessary. Apply gently to avoid disturbing ants. Use of high pressure watering equipment may disturb ants and cause migration, reducing product effectiveness. Best results will be obtained if applied in cool weather 65 - 80 degrees, or in early morning or late evening hours. New colonies will be treated as they appear.

The following precautions are recommended when applying this insecticide:

1. All pesticide applicators take cholinesterase baseline tolerance tests before and after treatment annually. Cholinesterase is an enzyme (neurotransmitter) necessary for proper nerve function that is inhibited or damaged by organophosphate insectides taken into the body by any route. The Forest Service (FS) authorizes its employees to take these tests under 29 CFR 1910.1000 series. The tolerance range established for FS employees is 4-10.2 microns/minute. Contact Ashe Nursery for information regarding testing procedures.

2. Post written notice of insecticide application on site. Use notice similar to that described in Appendix A. These signs should be visible on all treated sites in the area. These signs (cardboard) should remain until they biodegrade, usually within a few months. The purpose of posting these notices is to protect the general public who may be in the area.

3. Avoid inhalation of dust, smoke, or fumes. Respiratory protection is not normally needed under proper use conditions. NIOSH approved respirator may be used in dusty conditions. First aid procedure for inhalation is to remove to fresh air. Administer oxygen or artificial respiration if needed. Contact physician immediately if respiratory problems occur.

4. No military training will be allowed within 24 hour period following treatment.

5. Do not apply by bare hand. Wear gloves that pesticide cannot penetrate.

6. Avoid contact with skin, eyes, and clothing. Wear goggles, have eye wash facilities on site, wear long sleeved shirt, and cover neck by turning up collar.

7. Keep children and pets off treated areas until the material is washed into the soil and grass is dry.

8. Keep out of lakes, streams, and ponds. Do not contaminate water by cleaning of equipment or disposal of water. Apply this product only as specified on this label.

9. Store in cool, dry place. This product decomposes on heating to form a volatile, flammable, odorous, organic compound.

10. A periodic review will be made to insure that actions taken under this decision are implemented and within the scope of the original analysis and that the environmental consequences are as anticipated by the EA. Effectiveness of insecticide will also be evaluated. Any operation falling outside the scope of this EA would require a separate evaluation and decision. Alternative insecticides or remedies will be evaluated as more research becomes available.

11. Wash hands and face thoroughly with soap and water immediately afterward before eating or drinking or at earliest opportunity if pesticide contacts bare skin.

12. Dispose of containers off Forest Service land and according to applicable Federal, State, and local regulations.

13. A report of planned use of this pesticide will be submitted annually by the National Guard on the due date established by the Forest Supervisor in accordance with Clause 45 of the current Special Use Permit. The report will cover a 12-month period of planned use beginning three months after the reporting date. Information essential for review will be provided on Form FS-2100-2 (Pesticide Use Proposal - See Appendix F).

3. Treat individual RIFA colonies using Amdro fire ant insecticide (see Appendix C).

Application will be made by sprinkling 5 level tablespoons covering a 4" band beginning at outside base of colony and completely and uniformly encircling the colony. Ant colonies will not be disturbed and no insecticide will be applied directly on the colony. No more than 1.5 lbs. of Amdro bait will be applied per acre. Application will be made when ants are active. Note: for rapid population suppression, applications would best be applied in spring (March - May). However, summer and fall treatments generally result in gradual population suppression over a more extended period of time. Winter applications produce highly erratic results. Effectiveness of Amdro treatment generally peaks about 5 months after treatment. 1/

All areas shown on the attached map (Appendix B) infested with the RIFA's outside of floodplains, 30 horizontal feet from wetlands (Amdro is toxic to fish), and 25 feet from an active or inactive gopher tortoise burrows will be treated (see attached Biological Evaluation - Appendix D). Conduct transect survey as described in Alternative 2 prior to treatment.

Apply Amdro as described above annually during April - May and October - November in order to maintain effective RIFA control.

The safety precautions described in Alternative 2 are also recommended for Amdro application, except for items #1 and 4. In addition, since Amdro is formulated in an oil bait (80% pregelled corn and 20% soybean oil), prolonged exposure to air may turn oil rancid and reduce attractiveness to ants. Use within 3 months of opening.

4. Apply Amdro as described in Alternative 3. Wait 3 days then apply Diazinon granules to colony (mound) only. Granules should be applied at 1/2 cup/colony for large colonies and reduced accordingly for smaller colonies. Rake granules into mound area in lieu of water. The purpose of the 3 day waiting period is to allow time for ants to pick up bait and take it to the queen inside the mound. The purpose of the Diazinon is to induce relocation and provide some kill via contact insecticide for worker ants who linger while the colony is dying out.

   Use application schedule as described in Alternative 3. Treat with Diazinon granules only when reinfestation occurs. Follow safety precautions as recommended in Alternatives 2 and 3.

Public Involvement

Interdisciplinary Team (ID) Members

The following Forest Service individuals participated in the formulation and analysis of the issues, alternatives and/or Environmental Assessment.

1/ "Seasonal Effectiveness of Amdro and Logic for Control of RIFA's", Collins, Callcott, Lockley, & Ladner. Jour. Economic Entomology, Toxicology, and Biochemistry Section.

ID Team:

Robert Smistik, District Planner, EA Preparer
Larry Walters, Camp Shelby Liaison, Lands and Fire Technician
Joe Duckworth, District Ranger (retired)
Mike Hurst, District Wildlife Biologist
Jay Boykin, District Silviculturist and Pesticide Coordinator.

The following Federal, State, County, or other departments/agencies have been contacted concerning this EA:

1. Homer Collins, Station Leader, Science and Technology, Imported Fire Ant Station, Gulfport, MS.
2. Dr. Tim Lockley, Researcher, Imported Fire Ant Station, Gulfport, MS.
3. Curt Lunchik, Section Head Occupational, Residential, Exposure Branch, EPA.
4. Larry Turner, Endangered Species Coordinator, EPA.
5. Dr. William Dykstra, Senior Reviewer, Toxicology Branch, Insecticide, Rodenticide, Support.
6. Marge Harney, Wildlife Biologist, U.S. Fish and Wildlife Service, Vicksburg, MS.
7. Bob Taylor, Silviculturist and Pesticide Coordinator, NF's in MS, Jackson, MS.
8. Paul Mistretta, R-8 Pesticide Coordinator, Atlanta, GA.
9. George Weaver, County Agent, Stone County Extension Service.
10. Jerry Windham, Erambert Seed Orchard Manager, U.S.F.S.
11. Charles Gramley, Ashe Nursery, Nursery Man
12. Lonnie Rayburn, Camp Shelby Range Control Officer

Issues

1. Effects of organophosphate insecticide (Diazinon) on human health and safety.
2. Effect of insecticides on floodplains and wetlands.
3. Effect of insecticides on proposed, endangered, threatened or sensitive species.
4. Effect of Amdro insecticide on human health and safety.
5. Effectiveness of insecticides on control of RIFA's.

Why Other Alternatives Were Not Selected

Alternative 1 was not selected because it does not allow for control of RIFA's and therefore would not provide for safe training conditions.

Alternative 2 was not selected because it would not provide cost effective immediate and long range control of RIFA's.

Alternative 3 was not selected because it would not provide immediate control of RIFA's.

Reasons for this Decision

Based on the analysis presented in the EA, I have selected Alternative 4 because:

1. Quality of water will be maintained and floodplains and riparian areas will be protected.

2. There will be no effect on potential, endangered, threatened or sensitive species or their habitats as a result of the activities in this alternative (Biological Evaluation in the EA).

3. Protects human health and safety.

4. Provides cost effective immediate and long range control of RIFA's.

National Forest Management Act (NFMA) Findings

The project will occur on land classified as unsuitable for timber production in the National Forests in Mississippi Land and Resource Management Plan.

Based on the EA which discloses that the proposed actions have been planned and will be implemented consistent with all applicable standards and guidelines of the Forest Plan, I have determined that actions included in this decision are therefore consistent with the FLRMP for the National Forests in Mississippi.

Finding of No Significant Impact

Based on the EA and past experience with similar forest management activities, I have determined that the proposed actions, with the mitigating measures and management requirements applied, are not a major federal action, either individually or cumulatively, and will not significantly affect the quality of the human environment. Therefore the preparation of an environmental impact statement is not necessary. This determination is based upon the following factors found at 40 CFR 1508.27(b):

1. Public health and safety is not adversely affected.

2. Planned actions will not significantly affect any unique characteristics or features of the geographic area, such as wetlands, floodplains, etc.

3. The effects on the quality of the human environment are not likely to be highly controversial. This refers to controversy over the effects as presented in the EA rather than to the existence of opposition to the project itself.

4. The actions do not involve highly uncertain, unique, or unknown environmental risks.

5. The actions in this decision will not set a precedent influencing approval of future actions with significant effects.

6. The possible cumulative effects of the proposed actions have been analyzed with consideration for past and reasonable foreseeable future activities on adjacent private and public lands. Cumulative impacts over space and time will not be significant.

7. The proposed actions will have no adverse effecton any sites listed, or eligible for listing, in the National Register of Historic Places nor will they cause the loss or destruction of significant scientific, cultural or historical resources.

8. Implementing this decision will not adversely affect threatened or endangered species, or result in loss of any other species' viability, or create significant trends toward Federal listing of the species under the Endangered Species Act (from the Biological Evaluation in EA).

9. None of the actions threaten to lead to violations of federal, state, or local laws imposed for the protection of the environment. This will be ensured by carrying out the proposed actions in a way that is consistent with the

standards and guidelines, management requirements and mitigating measures established in the LRMP for the National Forests in Mississippi.

10. For water quality management, the direction of State approved Best Management Practices (BMP's) will be met through implementation of LRMP standards and guidelines for this project. These BMP's are from the State water quality management plan, and have been designed with the goal of producing water that meets state water quality standards. The project will be monitored to ensure the desired effects of BMP's are achieved. If effects are significantly higher than anticipated, because of unforeseen site factors or events, appropriate corrective measures will be considered and implemented.

11. There are no irreversible resource commitments and minimal irretrievable loss of timber production.

12. The physical and biological effects are limited to the area of planned activity.

13. Civil rights of consumers, minority groups, and women are not negatively affected.

14. Prime farmland, rangeland, and forest land are not negatively affected.

Implementation of this decision may occur after 7 days from the day after legal notice of this decision is published.

This decision is subject to appeal pursuant to 36 CFR 217. Any written notice of appeal of this decision must be fully consistent with 36 CFR 217.9, "Content of Notice of Appeal", including the reasons for appeal. It must be filed in duplicate with: Regional Forester, R-8 Southern Region, 1720 Peachtree Rd., NW, Atlanta, GA 30367-9102, no later than 45 days beginning the day after legal notice of this decision is published.

For further information contact Tony Tooke or Robert Smistik at telephone number 601-928-4422.

Kenneth K. Johnson

Kenneth Johnson
Forest Supervisor
100 W. Capitol St. Suite 1141
Jackson, MS 39629.

April 26, 1993
Date

USDA Forest Service
DeSoto National Forest
Black Creek Ranger District

NFMA Consistency Findings,
Decision Notice, and Finding of No Significant Impact
for Herbicide Application On Camp Shelby Ranger Facilities
Perry and Forrest Counties

An environmental assessment (EA) for this project documents three alternatives for maintaining various firing points, moving targets, target coffins, target lifter, towers, and observation points located on the Camp Shelby Special Use Permit area as described on attached map. The EA is on file in the Supervisor's Office in Jackson and the District Ranger's Office in Wiggins, Mississippi.

Based on analysis documented in the EA, it is my decision to adopt the actions of Alternative 2. The description of this alternative is as follows:

1. Apply pesticide on an annual basis as needed to prevent grass and herbaceous vegetation growth from affecting utilization/operation of range facilities during March thru September. There will be a maximum of two applications (Spring and Summer) during this period. The herbicide used will be a 2% solution of Roundup, at a rate not to exceed 1.5 lbs. active ingredient per acre. The method of application will be by mechanical and/or hand held sprayer. All areas within 2 feet of range facilities, such as small arms firing points, moving targets, target coffins, target lifters, towers, observation points, and outside of wetlands and floodplains and 30 horizontal feet from wetlands, and 25' from active or inactive gopher tortoise burrows will be treated. Total acres to be treated are unknown. All herbicide will be applied according to label instructions on the herbicide container and mitigation measures described on pp. II-57-64 of the Vegetation Management in the Coastal Plain/Piedmont, Vols. I and II (VMCP/P).

2. A report of planned use of this pesticide will be submitted annually by the National Guard on the due date established by the Forest Supervisor in accordance with Clause 45 of the current Special Use Permit. The report will cover a 12-month period of planned use beginning three months after the reporting date. Information essential for review will be provided on Form FS-2100-2 (Pesticide Use Proposal - See Appendix B).

Description of other alternatives:

1. No action. Proposed action will not be implemented.
3. Same as Alternative 2, except manual cutting tools will be used instead of herbicides.

Issues

1. Effects on wetlands.
2. Effects on proposed, endangered, threatened or sensitive (PETS) species.

3. Effects on human health and safety.
4. Effects on cultural resources.

Why Other Alternatives Were Not Selected

Alternative 1 was not selected because it would not allow the Mississippi National Guard to fulfill training requirements as a result of not being able to control grasses and herbaceous vegetation around range facilities.

Alternative 3 was not selected because of greater possibility of accidental injury and higher cost/acre.

Reasons for this Decision

Based on the analysis presented in the EA, I have selected Alternative 2 because:

1. Quality of water will be maintained and floodplains and riparian areas will be protected.

2. There will be no effect on potential, endangered, threatened or sensitive species or their habitats as a result of the activities in this alternative (Biological Evaluation in the EA).

National Forest Management Act (NFMA) Findings

The project will occur on land classified as unsuitable for timber production in the National Forests in Mississippi Land and Resource Management Plan.

The activities in this decision that involve vegetative manipulation of tree cover comply with the seven requirements found at 36 CFR 219.27(b).

Based on the EA which discloses that the proposed actions have been planned and will be implemented consistent with all applicable standards and guidelines of the Forest Plan, I have determined that actions included in this decision are therefore consistent with the LRMP for the National Forests in Mississippi.

Finding of No Significant Impact

Based on the EA and past experience with similar forest management activities, I have determined that the proposed actions, with the mitigating measures and management requirements applied, are not a major federal action, either individually or cumulatively, and will not significantly affect the quality of the human environment. Therefore the preparation of an environmental impact statement is not necessary. This determination is based upon the following factors found at 40 CFR 1508.27(b):

1. Public health and safety is not adversely affected.

2. Planned actions will not significantly affect any unique characteristics or features of the geographic area, such as wetlands, floodplains, etc.

3. The effects on the quality of the human environment are not likely to be highly controversial. This refers to controversy over the effects as presented in the EA rather than to the existence of opposition to the project itself.

4. The actions do not involve highly uncertain, unique, or unknown environmental risks.

5. The actions in this decision will not set a precedent influencing approval of future actions with significant effects.

6. The possible cumulative effects of the proposed actions have been analyzed with consideration for past and reasonable foreseeable future activities on adjacent private and public lands. Cumulative impacts over space and time will not be significant.

7. The proposed actions will have no adverse effect on any sites listed, or eligible for listing, in the National Register of Historic Places nor will they cause the loss or destruction of significant scientific, cultural or historical resources. This is based on findings of site specific cultural resource surveys conducted in the project area and concurrence by the Mississippi State Historic Preservation Office.

8. Implementing this decision will not adversely affect threatened or endangered species, or result in loss of any other species' viability, or create significant trends toward Federal listing of the species under the Endangered Species Act (from the Biological Evaluation in EA).

9. None of the actions threaten to lead to violations of federal, state, or local laws imposed for the protection of the environment. This will be ensured by carrying out the proposed actions in a way that is consistent with the standards and guidelines, management requirements and mitigating measures established in the LRMP for the National Forests in Mississippi.

10. For water quality management, the direction of State approved Best Management Practices (BMP's) will be met through implementation of LRMP standards and guidelines for this project. These BMP's are from the State water quality management plan, and have been designed with the goal of producing water that meets state water quality standards. The project will be monitored to ensure the desired effects of BMP's are achieved. If effects are significantly higher than anticipated, because of unforeseen site factors or events, appropriate corrective measures will be considered and implemented.

11. There are no irreversible resource commitments and minimal irretrievable loss of timber production.

12. The physical and biological effects are limited to the area of planned activity.

13. Civil rights of consumers, minority groups, and women are not negatively affected.

14. Prime farmland, rangeland, and forest land are not negatively affected.

Implementation of this decision may occur after 7 days from the day after legal notice of this decision is published.

This decision is subject to appeal pursuant to 36 CFR 217. Any written notice of appeal of this decision must be fully consistent with 36 CFR 217.9, "Content of Notice of Appeal", including the reasons for appeal. It must be filed in duplicate with: Regional Forester, R-8 Southern Region, 1720 Peachtree Rd. NW, Atlanta, GA 30367-9102, no later than 45 days beginning the day after legal notice of this decision is published.

For further information contact Tony Tooke or Robert Smistik at telephone number 601-928-4422.

Kenneth K. Johnson

Kenneth Johnson
Forest Supervisor
100 West Capitol, Suite 1141
Jackson, MS 39269

April 23, 1993
Date

DECISION NOTICE AND FINDING OF NO SIGNIFICANT IMPACT
FOR PROPOSED HERBICIDE VEGETATION CONTROL ON BOMBING CIRCLE
BY MISSISSIPPI AIR NATIONAL GUARD AT
EAST AIR/GROUND RANGE
PERRY COUNTY, MISSISSIPPI

BLACK CREEK RANGER DISTRICT
DESOTO NATIONAL FOREST
U. S. FOREST SERVICE

he Environmental Assessment for this project documents three management alternatives. he Environmental Assessment is on file in the Supervisor's Office in Jackson and the istrict Ranger's Office in Wiggins, Mississippi. The project is located in Section 15. ownship 2 North, Range 10 West.

he purpose of this project is to maintain visibility of the bombing circle for Air ational Guard operations.

lternatives Considered

1. No Action.

2. Apply 1-2% solution of rodeo herbicide with backpack sprayer in and around rubber tires. The circumference of outer perimeter is 825' and 5' wide and the circumference of the inner circle is 448' and 3' wide.

3. Maintain visibility of perimeters by removing tires, discing and replacement of tires as necessary for herbaceous weed control.

Based on analysis documented in the Environmental Assessment, it is my decision to adopt alternative 2.

Alternative 1 was not selected because visibility impairment of bombing circle due to vegetation growth would result in the Air National Guard not meeting training requirements.

Alternative 3 was not selected because excessive erosion would occur.

I have determined through the environmental assessment that this is not a major federal action that would significantly affect the quality of the human environment; therefore, an environmental impact statement is not needed. This determination is based on the following factors:

1. There are no irreversible resource commitments and minimal irretrievable loss of timber production.

2. There are no significant cumulative effects.

3. No known threatened or endangered species are negatively affected.

4. No activity is proposed in a roadless area.

5. The physical and biological effects are limited to the area of the planned activity.

6. Floodplains and wetlands are not negatively effected.

7. This project is within the scope of and consistent with the Land and Resource Management Plan for the National Forests in Mississippi, USDA, 1985.

8. Civil rights of consumers, minority groups, and women are not negatively affected.

9. Prime farmland, rangeland, and forest land are not negatively affected.

Implementation of this decision may occur no sooner than 7 days after date legal notice of this decision is published.

This decision is subject to appeal pursuant to 36 CFR 217.7. A notice of appeal must be filed with the Regional Office, 1720 Peachtree Road, N.W., Atlanta, GA 30367, within 45 days of the date legal notice of this decision is published. Simultaneously send a copy of the notice of appeal to my office, Forest Supervisor, National Forests in Mississippi, Suite 1141, 100 West Capitol, Jackson, MS 39269.

For further information, contact Bruce Macko, at the address below or telephone number (601) 965-5495.

Kenneth R. Johnson

KENNETH R. JOHNSON
Forest Supervisor
Suite 1141, 100 West Capitol
Jackson, MS 39269

May 18, 1990
Date