



Environmental Impact Analysis Process

Environmental Assessment of Invasive Weed Control

United States Air Force
Air Education and Training Command
Columbus Air Force Base, Mississippi

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**Environmental Assessment of Invasive Weed Control
Columbus Air Force Base,
Columbus, Mississippi**

1.0 Purpose of and Need for the Proposed Action

Columbus Air Force Base proposes to control kudzu (*Pueraria thunbergiana*) and privet (*Ligustrum sinense*), both invasive non-native species, in 18 different areas over a 2-3 year time period (Appendix B). The areas are located along roadways, edges of forested areas, and in openings and fields where full sunlight reaches the ground. Controlling these aggressive species is needed to prevent further displacement of native vegetation, and to protect and improve habitat that could potentially support rare species (Integrated Natural Resource Management Plan [INRMP] for Columbus Air Force Base, 2001). Additionally, the fruit of privet attracts bird species, which are a hazard to aircraft. The proposed project would meet several goals and objectives for the control of non-native invasive species in the Integrated Natural Resource Management Plan (2001). These goals include protecting rare, threatened, and endangered species that may occur on Air Force lands, and potential habitat that may be critical to their survival (Section 8.2.2, Goal 2, Objective 2.7); managing the grounds to optimize protection of existing ecosystems (Section 8.2.6, Goal 6, Objectives 6.7 and 6.9); and establishing an integrated pest management program to prevent or control pests (Section 8.2.7, Goal 7, Objective 7.1).

2.0 Description of the Proposed Action and Alternatives

To address the problem of privet and kudzu on Columbus Air Force Base, three alternatives were developed. The first alternative is the proposed action which involves using herbicides to control privet and kudzu. The second alternative is to use mechanical methods to control the privet and kudzu. The final alternative is to do nothing, which is referred to as the No Action alternative. A detailed description of each alternative is included in the following section.

a. Proposed action – Herbicide control of invasive weeds

The proposed action is to control the spread of kudzu (*Pueraria thunbergiana*) and privet (*Ligustrum sinense*) along roadways, edges of forested areas, and in openings and fields by treating them with herbicides, and retreating annually as required to maintain control. Over a 2 to 3 year period, one area with kudzu, fifteen areas with privet, and two areas with both kudzu and privet, would be treated (Table 1). The total acreage to be treated is approximately 22 acres (two acres of kudzu and twenty acres of privet).

Privet shrubs would be completely severed at the base by chainsaw. The stump, plus an area extending 2.5 cm from the stump in all directions, would be treated with a mixture of triclopyr (Garlon 3A) and imazapyr (Arsenal) (one part triclopyr to two parts clean water, plus 6 oz of imazapyr). The solution would be mixed and applied

in accordance with label specifications. A volume would be used that is adequate to cover the area, but not cause damage to non-target vegetation. Treatment would occur during late summer to early fall (August to mid September).

Kudzu foliage within Compartment 3, stand 12 would be treated with clopyralid (Transline) in a mixture of one-quart clopyralid to 100 gallons of water. Twenty-five gallons would be applied to each acre of kudzu. The kudzu is growing in an open area at the center of the stand. Kudzu foliage within Compartment 1, stands 07 and 08, would be treated with glyphosate (Accord) and a nonionic surfactant (Cide-Kick). The kudzu is growing in an open field, extending onto the banks of a drainage canal. Glyphosate is not as effective as clopyralid against kudzu, however it is labeled for use in and around water (Dow AgroScience Label). Control of the kudzu will require multiple treatments with glyphosate (Dow AgroScience label). Glyphosate would be mixed in a 1.5% solution with 1 quart of nonionic surfactant per 50 gallons of water. Fifty gallons would be applied to each acre of kudzu. The herbicide solutions would be mixed and applied according to label specifications.

The foliage of kudzu would be sprayed until wet using the proper equipment to ensure adequate coverage. Treatment would occur from the middle of June to the end of July. In Compartment 1, the kudzu would be treated initially and then retreated as soon as it resprouts. Approximately a month later, after full-leaf expansion, the treatment cycle would begin again. This cycle would be repeated until the kudzu no longer resprouts. Using herbicides to control and eradicate kudzu is the most effective method currently known (The Forestry Source 2003).

The following measures would be implemented as part of this alternative to reduce potential impacts that may result from controlling privet and kudzu with herbicides.

- All equipment used in performing work shall be of the proper type, sufficient size, operated at sufficient speed and be in such mechanical condition as to enable contractor to perform the work.
- Personnel applying herbicides shall have a chemical applicators license from the State of Mississippi. A State Certified Pesticide Applicator shall be available for consultation when application occurs.
- Privet stems would be cut as close to the ground as practical, leaving stumps no higher than 6 inches from ground level. In areas with high visibility (e.g. adjacent to family housing, occupied buildings, base entrances, recreational facilities) the privet shrubs would be removed, or moved into the forested areas.
- All herbicide label and Material Safety Data Sheet specifications shall be followed.
- Herbicide not labeled for application near water would not be applied within 30 feet of open water. No herbicide would be applied within 50 feet of government housing.

- Application of herbicides would be timed when rainfall is not expected for 24-48 hours. If heavy rains are predicted, application would be delayed.
- In Compartment 1, stands 07, 08, and 09 are in close proximity to occupied buildings, family housing, a base entrance, and a park area. Application of the herbicides would take place during low to no winds, preferably in the morning, and the areas would be clearly blocked (using fencing or rope) and signed for people to stay out. The adjacent building occupants and people living in the family housing would be notified at least a day before the treatments would occur.
- In Compartment 2 in the southern portion of stand 2, a fenced, recreational ball field is adjacent to the stand's southern boundary. Application of the triclopyr/imazapyr would take place during low to no winds, preferably in the morning, and the area would be clearly signed for people to stay out. Notification of the treatment would be posted at the field no less than a week before the treatments would occur.
- In Compartment 3, stand 12, the nature trail would be closed for 24 hours during and after treatment of the kudzu.
- In Compartment 4, application of triclopyr/imazapyr mixture would take place during low to no winds, preferably in the morning. The kennels and horse stables would be notified of the treatments at least a day before the treatments would occur.
- Native grasses and legumes would be planted after successful eradication of privet and kudzu from to help prevent reinvasion of the site.

Table 1. Proposed Treatment Areas

Compartment	Stand	Species
1	3 and 4	Privet
	7	Kudzu and privet
	8	Kudzu and privet
	9	Privet
2	2	Privet
3	1 and 2	Privet
	5	Privet
	8	Privet
	9	Privet
	12	Kudzu
4	4	Privet
	6	Privet
	7	Privet
	8	Privet
	9	Privet
	10	Privet

b. Mechanical and/or prescribed fire control of invasive weeds alternative

This alternative would use mechanical treatments and the application of prescribed fire instead of herbicides to control the privet and kudzu. Mechanical treatments and/or prescribed burning would occur in the same areas as described in Table 1. The use of prescribed fire, however, would be limited due to conflicts with training (smoke produced from burning hampers air operations), and the limited availability of favorable weather conditions.

Mechanical treatments would involve cutting down the privet shrubs and bushhogging the kudzu, followed by prescribed burning, if possible. These treatments, in addition to prescribed burning, would remove the aboveground vegetation. Repeatedly removing the aboveground vegetation portion would deplete the plant of root reserves, and place the plant under stress. This treatment may slow the spread of privet and kudzu, but would not eradicate the species, since roots would remain in the ground.

Using mechanical treatments and prescribed fire to eradicate kudzu and privet is limited in effectiveness. One possibility to increasing the effectiveness of mechanical treatment is to use more intense techniques, such as root raking and disking. However, these often increase and spread infestations by chopping roots into resprouting segments, and potentially transporting them via equipment (Miller 2003). Increased prescribed burning would cause invasive species to grow back very rapidly, which would cause the need for burns to be done even more frequently. Increasing prescribed burning would not be a valid option since doing so would negatively impact the number of training flying days available.

The following measures would be implemented as part of this alternative to reduce potential impacts that may result from controlling privet and kudzu.

- All equipment used in performing work shall be of the proper type, sufficient size, operated at sufficient speed and be in such mechanical condition as to enable contractor to perform the work.
- Minimize soil compaction by selecting proper equipment and operating it when conditions are conducive to low soil disturbance.
- Privet stems would be cut as close to the ground as practical, leaving stumps no higher than 6 inches from ground level.
- Areas that have exposed bare soil (lacking vegetation) after mechanical treatment should be seeded with a native species mix, possibly including an annual that would revegetate the site quickly.

c. No-Action alternative

Treatment of the kudzu and privet would not occur under this alternative. The areas of infestation would expand, and more native species would be displaced. If this alternative were selected, habitat that could potentially support rare species would continue to be threatened. As privet spread, more birds would be attracted to the infested areas, which would increase hazards to aircraft.

Even though the No Action alternative does not meet the purpose and need for the proposed action, it is included because it is required by the Council on Environmental Quality regulations (Section 1502.14(d)). The No Action establishes an environmental baseline from which to compare the effects of the other alternatives.

d. Alternatives considered but eliminated from detailed study

Using glyphosate in combination with triclopyr, rather than imazapyr, which can be soil active, glyphosate would be used in combination with triclopyr to control the privet. This alternative was eliminated from further study because glyphosate, in combination with triclopyr is not effective in controlling privet (Mistretta 2003). Since using glyphosate would not meet the purpose and need of the proposed action, this alternative will not be analyzed in more detail. Additionally, mitigation measures can be utilized to prevent potential negative effects to non-target vegetation if imazapyr is used.

3.0 Affected Environment

Columbus AFB is located approximately 10 miles northwest of the city of Columbus in Lowndes County, Mississippi. The installation size is approximately 4,903 acres. The Tombigbee River is located approximately one mile northwest and the Buttahatchee River is immediately north of the installation.

Since the proposed action and alternatives would not impact air quality or noise these resources will not be discussed further in this section.

a. Military Mission

The primary mission of Columbus AFB is to train American and allied officers to fly jet-powered aircraft. The current mission at Columbus AFB is to provide Specialized Undergraduate Pilot Training (SUPT) for USAF personnel, as well as students from foreign countries. The 14th Flying Training Wing provides support for administrative, transportation and supply, civil engineering, communications, security, financial, religious, educational, legal, social, and medical services, as well as morale, welfare, and recreational facilities and activities. Officers and airmen, throughout the base, perform primary and support roles that are of vital importance to mission accomplishment.

b. Land Use

The installation is divided into Management Emphasis Areas (MEA). The areas proposed for treatment are in the Natural Resources Multiple Use MEA (INRMP 2001). The compatible land uses in this MEA are open space and water. Outdoor recreation is conditionally compatible in this MEA, while developed or improved land is not compatible. Dispersed outdoor recreation, such as an exercise trail or obstacle course, is permitted if no major adverse impacts may result.

c. Water Quality

Domestic Water – The water supply for Columbus AFB is from the City of Columbus municipal water supply.

Wastewater/Storm water – The sanitary sewer from the base is treated at the City of Columbus wastewater facility. Storm water runoff is directed into drainage ditches that flow into an unnamed tributary that flows into Stinson Creek.

In the southern portion of the base within Compartment 1, a drainage canal divides stands 07 and 08. The drainage canal is constructed and drains into an unnamed tributary of Stinson Creek. Kudzu is growing within stands 7 and 8 and along the banks of the drainage canal.

d. Permits/Certifications required

A chemical applicators license from the State of Mississippi is required to apply herbicides. A State Certified Pesticide Applicator must be involved in the project and be available when application is occurring.

e. Hazardous materials

Hazardous materials and usage are reported to 14 CES/CEVP, Hazardous Materials Management Process office in accordance with Air Force Instruction (AFI) 32-7086, *HAZARDOUS MATERIALS MANAGEMENT*.

f. Soils

The soils on Columbus AFB are characteristic of river terrace and floodplain deposits. They range from well-drained to poorly drained, and are in the Prentiss Rosella Steens and Chaba Prentiss Guyton associations. The specific soil types are:

- CbA - Cahaba fine sandy loam - This is a well-drained soil on broad flats
- CL - Cahaba-Latonia association, occasionally flooded, well-drained soils
- Ro - Rosella silt loam - poorly drained soil on broad flats
- Cu - Columbus silt loam - moderately well-drained soil
- Pw - Prentiss-Urban land complex - moderately well-drained soils

g. Wetlands/Floodplains

Wetlands have been delineated on 181 acres of Columbus AFB. Approximately 1,550 acres are within the 100-year floodplain. None of the areas being proposed for treatment are located within a wetland or floodplain.

h. Wildlife

Columbus AFB contains woodland and grassland vegetative communities that provide habitat for a variety of wildlife species. Mammal species observed on base include the gray squirrel, southern flying squirrel, swamp rabbit, white-tailed deer, bats, and rodents. Bird species common to lowland areas of the base include red-shouldered hawk, Cooper's hawk, rock dove, Carolina wren, and wood duck.

No resident federally threatened or endangered species are known to occur on base.

i. Vegetation

The overstory vegetation varies in the areas proposed for treatment (Table 2). Overall, loblolly pine is the predominant species. However, several stands proposed for treatment contain oak species, eastern red cedar, and bottomland hardwood species. One area proposed for treatment is comprised of brush species and does not contain trees. Compartment 1 is the only compartment that contains eastern red cedar. Compartments 2, 3, and 4 have the majority of loblolly stands, with Compartment 4 also having one of the bottomland hardwood areas proposed for treatment.

j. Health and Human safety

The areas proposed for treatment are scattered in and amongst developed and undeveloped portions of the installation (Figure 1). Ground training does not take place in any of the areas. Several proposed treatment sites are located in close proximity to occupied buildings. Within Compartment 1, stand 08 is close to the Outdoor Recreation and Recycling Center buildings, stand 07 is adjacent to the Logistics and AAFES service station buildings, and stand 09 is adjacent to the Jet Engine Repair, Liquid Oxygen, and Jet Engine Test Cell buildings. Stands 07 and 08 are also adjacent to military family housing.

One of the base's nature trails traverses stand 12, Compartment 3.

The Military Working Dog Kennel is surrounded by stands 06, 07, 08 and 10 within Compartment 10. Additionally, stand 06 is adjacent to the Horse Stables.

Table 2. Vegetation Types

Compartment	Stand	Acres	Vegetation Species and Size
1	3 and 4	9.4	Sparse Oak – Eastern Red Cedar
	7	19	Laurel oak – Willow oak; >10.6 inches DBH ¹
	8	19	Oak-Eastern Red Cedar; >10.6 inches DBH
	9	7.5	Brush species
2	2	15.3	Loblolly pine; 5.0 – 10.6 inches DBH
3	1 and 2	12.5	Loblolly pine; 5.0 – 10.6 inches DBH
	5	45	Loblolly pine; >10.6 inches DBH
	8	51	Loblolly pine; >10.6 inches DBH
	9	4	Loblolly pine; >10.6 inches DBH
	12	21	Loblolly pine – Hardwood; >10.6 inches DBH
4	4	5.2	Bottomland hardwood-Yellow pine; >10.6 inches DBH
	6	20	Loblolly pine; 5.0 – 10.6 inches DBH
	7	7	Loblolly pine; 5.0 – 10.6 inches DBH
	8	3	Loblolly pine; 5.0 – 10.6 inches DBH
	9	1	Loblolly pine; 5.0 – 10.6 inches DBH
	10	18	Loblolly pine; 5.0 – 10.6 inches DBH

¹DBH = Diameter at Breast Height, provides some indication of age of the tree species.

k. Cultural resources

Columbus AFB contains three buildings that are recommended for listing in the National Registry of Historic Places (Cold War Era Buildings Survey, 2002), the Sac Alert building, the Alert Apron, and the Hound Dog Missile Multiple-Cubicle Magazine Storage building. Compartment 3, stand 5 is in close proximity to the Sac Alert Apron and the Hound Dog Missile Multiple-Cubicle Magazine Storage building.

Columbus AFB has no known archaeological resources.

4.0 Environmental Consequences

a. Military Mission

Proposed action: Controlling and eradicating kudzu and privet would have positive effects on the military mission. If kudzu and privet continue to spread, native species habitats will decrease, potentially causing a species to be listed as rare at the state or federal level. Listed species require specific protection measures and management standards to be followed, which could negatively interfere with the mission. Through the proactive elimination of invasive species, native species habitat will be restored and protected, thus lessening the likelihood of listing. Additionally, by decreasing the number of privet shrubs, the likelihood is lower of large numbers of birds being attracted to the fruit of the privet. Lower numbers of birds is better for the mission. Eradicating kudzu will have neither a positive nor a negative direct effect on the

military mission. Using herbicides would more effectively eliminate privet and kudzu.

Mechanical control: This alternative would have similar effects as the proposed action. However, mechanical control would not be as effective in controlling kudzu and privet, and would therefore not have as positive effect on the military mission. Additionally, removal of privet at the stump would encourage new sprouts to grow, which is desirable browse for deer. Attracting more deer to the base would have negative effects on the military mission since deer can interfere with flight line operations. This alternative proposes the use of prescribed burning to aid in the control of kudzu and privet. Although limited burning is feasible on base, the smoke produced from burning would interfere with the number of training flying days available, which would negatively affect the military mission.

No Action: This alternative would have detrimental effects to the military mission by allowing privet and kudzu to expand its range. More native species habitat would be displaced. Privet would spread and increase the likelihood of birds in the area that are attracted to the plant's fruit.

b. Land Use

Proposed action: This alternative would be compatible with the Natural Resources Multiple Use MEA. Controlling kudzu and privet would support the goals identified for this MEA.

Mechanical control: Same as proposed action, although goals would not be accomplished to the same extent.

No Action: This alternative would be compatible with the Natural Resources Multiple Use MEA. However, the goals for this MEA would not be supported by this alternative.

c. Water Quality

Proposed action: Of the herbicides being proposed to control privet and kudzu, triclopyr, imazapyr, and glyphosate are very unlikely to leach into the groundwater under Columbus AFB. Clopyralid, the herbicide proposed to treat one kudzu area, has the most potential to leach into groundwater due to characteristics of the herbicide when it is applied in porous, well-drained soils. However, since clopyralid rapidly degrades in the soil its movement into groundwater is likely to be minimal, if at all (Syracuse Environmental Research Associates 1999). The soil in Compartment 3, stand 12 is the Cahaba-Latonia series, which is well-drained and occasionally flooded. Since the soil is well-drained the potential exists for the clopyralid to leach into the groundwater. However, it is unlikely to occur due to soil conditions that will rapidly degrade the clopyralid before it moves through the soil.

The only site with surface water runoff concerns is within Compartment 1, stands 07 and 08. The drainage canal in this area has potential to receive herbicides in surface water runoff. To prevent this, glyphosate plus a nonionic surfactant would be applied to the kudzu within the 30-foot buffer and on the banks of the canal. Glyphosate is labeled for use in and around water (Dow AgroSciences label). To reduce contamination of the surface water by any of the herbicides being used, application would not occur when rain is forecast.

Mechanical control: Exposure of bare soil resulting from use of heavy equipment in areas being treated for kudzu and/or privet could result in sedimentation entering adjacent streams or ponds if a heavy rain event occurs soon after treatment. This would have temporary, indirect effects on water quality. To reduce the likelihood of this effect, areas that have exposed bare soil (lacking vegetation) after mechanical treatment should be seeded with a native species mix, possibly including an annual that would revegetate the site quickly and reduce soil runoff. Timing mechanical treatments to drier periods of the year would also minimize effects from heavy rain.

No Action: This alternative would have no effects on water quality.

d. Permits/certifications required

Proposed action: A chemical applicators license would be required by anyone applying herbicides on base. A copy of this certification would be provided to the base personnel in 14CES/CEVP. The Tombigbee Ranger District (US Forest Service) provides natural resource management assistance to Columbus AFB. The staff on the Tombigbee Ranger District includes a State Certified Pesticide Applicator (Ross Hammonds as of 28 Oct 2003), and many Forest Service certified pesticide applicators. The Tombigbee staff is involved in the planning of the proposed action, and would be available for consultation as needed during project implementation.

Mechanical control: No permits or certifications are required.

No Action: No permits or certifications are required.

e. Hazardous Materials

Proposed action: The use of herbicides in this alternative would not have a negative impact on the hazardous material usage on base. The Material Safety Data Sheet would be submitted to 14 CES/CEVP prior to application of the herbicide. The quantity of herbicide used would be submitted to the same office after completion of the project.

Mechanical control: This alternative would have no effects on hazardous materials.

No Action: This alternative would have no effects on hazardous materials.

f. Soils

Proposed action: All of the herbicides proposed to control privet and kudzu have some degree of soil activity, except glyphosate. According to the label, glyphosate (Accord) has no herbicidal or residual activity in the soil (Dow AgroSciences 1999). Triclopyr (Garlon 3A) is active in the soil and is absorbed by plant roots. It is adsorbed by clay particles and organic matter. Triclopyr is rapidly degraded by soil microorganisms, and has a half-life of 30-60 days. Under warm, moist conditions, triclopyr degrades more rapidly. Triclopyr's toxicity to soil microorganisms is slightly toxic to practically non-toxic (DowAgro Specimen Label for Garlon 3A and Infoventures 2003). Direct effects on soils from triclopyr would be limited to a maximum of 120 days, at which point any residual herbicide in the soil would be completely broken down.

Imazapyr is active in the soil and can remain active for approximately 6 months to 2 years. However, it is strongly adsorbed by soil particles and is usually only found in the top few inches of soil. It has a half-life of 19-34 days. Sunlight and microorganisms contribute to the breakdown of imazapyr. Soil microorganisms are affected very little by imazapyr (BASF Label and Infoventures 2003). Imazapyr could have longer lasting direct effects on the soil, due to the potential for it to persist in soils up to 2 years. The combination of its half-life of 19-34 days and the small amount being used in this alternative (6 ounces/gallon of mixture) would minimize potential direct effects.

Clopyralid is active in the soil and is absorbed from the soil by plants. It does not bind tightly to soil, which results in potential movement through soil, especially those with rapid, to very rapid permeability. Microorganisms in the soil break down clopyralid rapidly. Its half-life is approximately 15 days. Leaching of clopyralid is reduced by the relative rapid degradation of clopyralid in soil. It is unknown what effect clopyralid has on soil microorganisms (DowAgro Label for Transline and Infoventures 2003). Since clopyralid does not strongly bind to soil particles it would have less direct effects on soil.

No indirect effects would occur to soils on Columbus AFB from using triclopyr, imazapyr, glyphosate, or clopyralid.

Mechanical control: Direct effects could potentially occur to soils during mechanical control of the kudzu and privet. Effects may include soil disturbance, soil compaction, and soil exposure resulting from use of equipment and prescribed burning. Minimize soil compaction by selecting proper equipment and operating it when conditions are conducive to low soil disturbance. Indirect effects may include sedimentation if vegetation is removed and the soil moves off-site. These effects would be temporary, however, until vegetation is reestablished.

No Action: There would be no effect on soils if this alternative were selected.

g. Wetlands/Floodplains

Proposed action: Since none of the areas proposed for treatment are located in wetlands or floodplains, no effects would occur as a result of this alternative. The constructed drainage canal located in Compartment 1 would not be classified as a wetland and does not have a floodplain associated with it.

Mechanical control: Same as proposed action.

No Action: Same as proposed action.

h. Wildlife

Proposed action: The herbicides proposed for use to control privet and kudzu have varying effects on wildlife. All of the herbicides have low to no toxic effects on aquatic animals and invertebrates. None of the herbicides bioaccumulate in the tissues of fish species. The only herbicide being proposed for use that has low toxicity to bees is imazapyr. Glyphosate is practically non-toxic to bees. Triclopyr and clopyralid are not toxic to bees. Imazapyr and glyphosate are practically non-toxic to mammals and birds. While triclopyr is slightly toxic to mammals, and is of low toxicity to birds. Clopyralid is of low toxicity to both birds and mammals (Infoventures 2003).

Mechanical control: Most animals that are mobile would temporarily relocate from the site that is being treated to prevent impacts from equipment. For those animals that are not rapidly mobile, some direct effects may occur from crushing. Reptiles, amphibians and invertebrates would be the most likely species to be impacted, due to slower response times. However, these species may also avoid impact by burrowing underground, taking refuge under woody debris, or fleeing the site. This alternative would have no direct effects on aquatic animals. Bees would not be affected by this alternative.

Indirect effects of mechanical control would be an increase in browse since privet sprouts from the roots after being cut down. Deer favor the young privet sprouts as browse.

The use of prescribed fire would not directly impact most wildlife species for the same reasons as explained above. Some amphibian species may be negatively impacted by fire if the intensity is so hot that their underground refuges are scorched. Generally, prescribed fire is conducted within strict parameters that minimize scorching. Prescribed fire would have positive benefits for many wildlife species by stimulating new plant growth that becomes a renewed source of food.

No Action: Wildlife may be indirectly affected by this alternative since the continued spread of kudzu and privet would remove native plant species and habitats, which would cause a decrease in habitat and food sources for wildlife.

i. Vegetation

Proposed action: Non-target vegetation could be impacted from the use of the proposed herbicides. The foliage of non-target species may be impacted through drift of the herbicide during application. The roots of non-target species may extend into the areas being treated and inadvertently take up herbicide that remains in the soil. The timing of herbicide application during low winds, and the use of certain techniques to apply herbicide, would prevent drift of herbicide onto non-target vegetation. Preventing uptake of herbicide by the roots of non-target vegetation is specific to how each herbicide reacts in soil.

Triclopyr is an herbicide that is effective against many plant species, including woody species such as privet. Small amounts of spray of triclopyr that lands on non-target vegetation can cause injury. It is also active in the soil and is absorbed by plant roots. It is adsorbed by clay particles and organic matter. Triclopyr is rapidly degraded by soil microorganisms, and has a half-life of 30-60 days. Since triclopyr is readily adsorbed by soil particles, its movement through the soil is minimized. The application method of treating the stumps of privet (specifically the cambium area which is next to the bark) and a small area encircling the stump would concentrate the desired deleterious effects on the privet and prevent the herbicide from coming into contact with the roots and/or foliage of other woody species. Direct effects from spray drift would be minimal from use of triclopyr due to the specific application technique used. Limited indirect effects may occur to non-target vegetation if their roots are within the treatment zone.

Imazapyr is an herbicide that is also effective against woody species. When combined with triclopyr in small amounts (6 ounces of imazapyr/gallon of 1 part triclopyr to 2 parts clean water), the imazapyr increases the efficacy of triclopyr and reduces the total amount of herbicide required to control the privet (Mistretta, 2003). Imazapyr is active in the soil and can remain active for approximately 6 months to 2 years. However, it is strongly adsorbed by soil particles and is usually only found in the top few inches of soil. It has a half-life of 19-34 days. Sunlight and microorganisms contribute to the breakdown of imazapyr (BASF Label and Infoventures 2003). Indirect effects on non-target vegetation may occur due to the length of time that imazapyr may remain in the soil.

Clopyralid is an herbicide that is highly effective against legumes, composites, and smartweeds. Clopyralid is active in the soil and is absorbed from the soil by plants. It is not strongly adsorbed by soil particles, which causes it to move through soil, especially those with rapid, to very rapid permeability. Glyphosate is an herbicide that is effective against many annual and perennial weeds, and woody plants. Glyphosate has no herbicidal or residual activity in the soil. It acts against target plants by being absorbed by the foliage. For this reason, it has potential to injure or kill non-target species if it comes in contact with foliage. Since kudzu grows in thick patches with no other vegetation underneath, non-target vegetation would not be

directly affected by either of these herbicides. Using techniques that minimize drift would also reduce exposure to non-target vegetation surrounding the kudzu sites.

Mechanical control: Non-target vegetation would be impacted by mechanical control techniques. The use of equipment would trample and crush non-target vegetation. Some species of vegetation would recover. Prescribed fire would directly affect non-target vegetation. Some of these effects would be positive, based on a species' adaptation or dependence on fire.

No Action: This alternative would result in negative indirect effects on vegetation since the kudzu and privet would continue to grow and reduce native species habitat. No direct effects would result from this alternative since no actions would be taken.

j. Health and Human Safety

Proposed action: Potential effects from herbicides on human health and safety can be categorized into effects to people who mix and/or apply the herbicide ("handlers"), and effects to people who may be in the area when the herbicide is being applied, or has been applied ("others"). Potential effects and protective measures vary based on the herbicide and the level of exposure. Labels and Material Safety Data Sheets (MSDS) for herbicides provide extensive information on hazards and required protective measures to eliminate the hazards associated with that particular herbicide. All label specifications and MSDS directions would be followed to prevent direct or indirect effects on human health and safety.

None of the herbicides being proposed to control kudzu and privet have been found to cause acute or chronic poisoning in humans (Infoventures 2003). However, each of them can cause injury when the proper protective equipment is not used. Triclopyr can cause irreversible eye damage. It is a skin irritant, and is harmful if swallowed or absorbed through the skin. Imazapyr is an irritant to the skin and eyes. The spray mist from imazapyr should be avoided. Clopyralid can cause eye injury. It is harmful if swallowed or absorbed through the skin. The vapors and spray mist from clopyralid should be avoided. Glyphosate is harmful if inhaled. The spray mist should be avoided.

To prevent exposure, handlers would wear personal protective equipment when mixing and applying herbicides. On each herbicide label under precautionary statements a list of personal protective equipment is provided. This list generally includes: long-sleeved shirt and long pants, shoes plus socks, and depending on the herbicide, protective eyewear such as goggles or face shield and rubber gloves. Handlers' hands would be washed every time before eating, drinking, chewing gum, using tobacco or using the toilet. Clothing would be washed daily and separately from other laundry.

For other people, the exposure levels from contacting vegetation or consuming treated vegetation, water, or animals would be below levels shown to cause harmful effects in laboratory studies (Infoventures 2003). However, to ensure that no exposure

would occur, restricting access to treated areas would protect others who may desire entry to use the area. Access to areas treated with triclopyr would be restricted for 48 hours after treatment (Dow AgroSciences 2002). No access restrictions are specified for imazapyr (BASF 2000). However, since it would be mixed with triclopyr, access would be restricted for 48 hours. Access to areas treated with clopyralid would be restricted for 12 hours after treatment (Dow AgroSciences 2003). Access to areas treated with glyphosate would be restricted for 4 hours after treatment (Dow AgroSciences 2001). Herbicide notice signs would be clearly posted, and would include the application date, the herbicide and safe reentry date. Areas would be roped off as needed.

Mechanical control: This alternative would potentially increase the amount of smoke produced from prescribed burning. Smoke may cause respiratory distress in people with certain health conditions. The fine particulate matter in smoke can also contribute to a decrease in air quality. The Columbus area is currently in attainment status for air quality. The amount of acreage being prescribed burned on Columbus AFB would not significantly contribute to a decrease in air quality in the region. Smoke that does not dissipate may settle into low areas at night causing difficult driving conditions. Smoke signs or personnel would be posted to alert drivers to road conditions.

No Action: This alternative would not result in any effects to health and human safety.

k. Cultural Resources

Proposed action: This alternative would not impact the buildings that are recommended for listing in the National Register of Historic Places, since the herbicides would not be applied to the structures. Since there are no known archaeological resources on Columbus AFB, no impacts would result from implementing this alternative.

Mechanical control: Same as proposed action.

No Action: Same as proposed action.

5.0 Cumulative Impacts

The proposed activity would be coordinated with other installation activities and would occur within the constraints of the Columbus AFB military mission. Invasive weed control is one component of a much larger base-wide pest management program. Pest management on base controls pests such as mosquitoes, cockroaches, fleas and ticks, fire ants, bees/wasps/hornets, termites, weeds, mice, rats, skunks, etc. Operations cover the entire base ranging from family housing, to airfield taxiways and runways, to golf courses. The Pest Management Shop implements an integrated pest management program according to the Pest Management Plan (reviewed annually and updated as

needed), which emphasizes a balanced use of prevention techniques, mechanical or exclusion options and chemicals.

Herbicides are used as needed by the Pest Management Shop for weed control on runways, taxiways, parking ramps, golf courses and athletic fields. In fiscal year 2002, 1385 lbs of active ingredient were used basewide. In fiscal year 2003 that figure increased to 1644 lbs of active ingredient. Herbicides are mixtures of an active ingredient and inert ingredients, diluents, surfactants or other adjuvants. The herbicides proposed in this EA would be used once, with limited reapplications as necessary to control the privet and kudzu. The exception is the use of glyphosate to control kudzu in and around a drainage canal, which would require multiple retreatments for successful control of the kudzu.

The proposed action of controlling invasive weeds would use a total of approximately 34.80 lbs of active ingredient. This represents 2.0 to 2.5% of the total weight of active ingredient used on base in fiscal years 2002 and 2003. While the proposed action would contribute to herbicide use on base, the total amount of active ingredient proposed would not cause a substantial increase in usage basewide. The amount of herbicides proposed for use in this project, in combination with ongoing herbicide use, would not lead to negative cumulative effects.

6.0 Conclusion

Controlling the invasive weeds privet and kudzu on Columbus AFB would have an overall positive environmental effect for the base. Following the measures outlined in Section 2.0 "Description of the Proposed Action and Alternatives" would mitigate any potential negative environmental effects.

The mechanical control of invasive weeds alternative would be limited in effectiveness of controlling the privet and kudzu, which would lead to continued spread of the invasive weeds. Additionally, the level of prescribed burning that would be required to effectively control the invasive weeds, would potentially have an impact on the ability to conduct the military mission.

The no action alternative would not control the spread of kudzu and privet and would contribute to declining native species habitats.

Based on the review of the facts and analysis contained in the Environmental Assessment, I conclude that the proposed action would not have significant impact either by itself or considering cumulative impacts. The action would result in a Finding of No Significant Impact. Accordingly, the requirements of the National Environmental Policy Act, regulations promulgated by the President's Council on Environmental Quality, and 32 CFR Part 989 (Environmental Impact Analysis Process) have been fulfilled, and an Environmental Impact Statement is not required and will not be prepared.

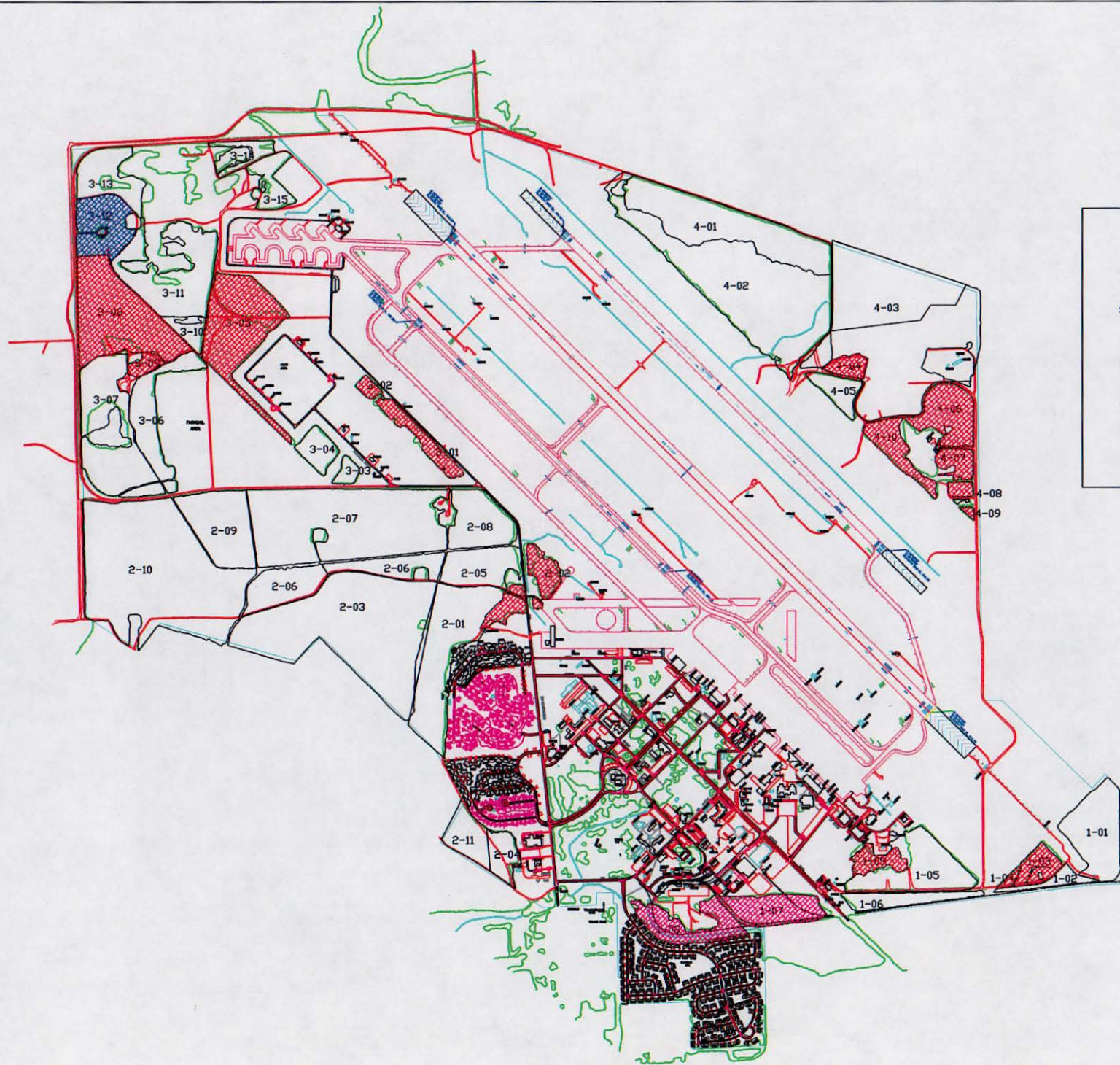
7.0 Summary of Findings

<i>Resource</i>	<i>Alternatives</i>		
	Proposed Action	Mechanical	No-Action
Military Mission	Positive	Limited positive; potential negative with increased deer browse and prescribed burning	Negative
Land Use	Positive	Positive	Negative
Water Quality	Minimal potential for leaching of clopyralid into the groundwater in Compartment 3.	None	None
Permits/Certification required	Chemical applicator license required	None	None
Hazardous Materials	MSDS and quantity reporting is required	None	None
Soils	Temporary negative	Temporary negative	None
Wetlands/Floodplains	None	None	None
Wildlife	Limited negative to no effect	Limited negative to no effect	Negative
Vegetation	Potential for negative effects on non-target vegetation	Temporary negative effects on non-target vegetation	Negative
Health and Human Safety	None	None	None
Cultural Resources	None	None	None

Appendix A – References

- BASF Corporation. *Label Booklet for Arsenal (Imazapyr)*, 2000.
- Department of Defense. *Integrated Natural Resources Management Plan for Columbus Air Force Base, Columbus Mississippi*, 2001.
- Dow AgroSciences. *Label Booklet and Supplemental Labeling for Transline (Clopyralid)*, 2003.
- Dow AgroSciences. *Material Safety Data Sheet for Transline (Clopyralid)*, 1999.
- Dow AgroSciences. *Label Booklet for Garlon 3A (Triclopyr)*, 2002.
- Dow AgroSciences. *Material Safety Data Sheet for Garlon 3A (Triclopyr)*, 2001.
- Dow AgroSciences. *Label Booklet for Accord (Glyphosate)*, 1999.
- Dow AgroSciences. *Material Safety Data Sheet for Accord (Glyphosate)*, 2000.
- The Forestry Source. "Here's How to...Control Kudzu" Vol.8, No.5. Society of American Foresters, 2003.
- Infoventures. *Clopyralid Pesticide Fact Sheet*. [Online] 21 October 2003.
<http://www.infoventures.com/e-hlth/pesticide/choyrali.html>
- Infoventures. *Glyphosate Pesticide Fact Sheet*. [Online] 28 October 2003.
<http://www.infoventures.com/e-hlth/pesticide/glyphos.html>
- Infoventures. *Imazapyr Pesticide Fact Sheet*. [Online] 21 October 2003.
<http://www.infoventures.com/e-hlth/pesticide/imazapyr.html>
- Infoventures. *Triclopyr Pesticide Fact Sheet*. [Online] 21 October 2003.
<http://www.infoventures.com/e-hlth/pesticide/triclopy.html>
- Miller, James H. *Nonnative Invasive Plants of Southern Forests, A Field Guide for Identification and Control*, 2003. USDA Forest Service, Southern Research Station. GTR SRS-62
- Mistretta, Paul. US Forest Service Region 08, Regional Pesticide Specialist. Personal Communication, October 2003.
- Syracuse Environmental Research Associates. *Clopyralid (Transline) - Final Report*, 1999. Prepared for the USDA Forest Service. SERA TR 99-21-11/12-Old

Appendix B – Map of Proposed Treatment Areas



LEGEND

#-##

COMPARTMENT AND
STAND NUMBER



PRIVET TREATMENT



KUDZU TREATMENT



BOTH KUDZU AND
PRIVET TREATMENT



LEGEND

#-##	COMPARTMENT AND STAND NUMBER
	PRIVET TREATMENT
	KUDZU TREATMENT
	BOTH KUDZU AND PRIVET TREATMENT

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

COLUMBUS AIR FORCE BASE

Name of Action: Invasive weed control

Proposed Action: Columbus Air Force Base proposes to control kudzu (*Pueraria thunbergiana*) and privet (*Ligustrum sinense*), both invasive non-native species, in 18 different areas over a 2-3 year time period (Figure 1). The areas are located along roadways, edges of forested areas and in openings and fields where full sunlight reaches the ground. Controlling these aggressive species is needed to prevent further displacement of native vegetation (Integrated Natural Resource Management Plan for Columbus Air Force Base, 2001). Additionally, the fruit of privet attracts bird species, which are a hazard to aircraft. The proposed project would meet several goals and objectives for the control of non-native invasive species in the Integrated Natural Resource Management Plan (2001).

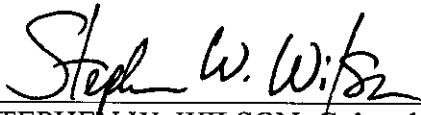
Two other alternatives were assessed – mechanical control of invasive weeds alternative and no action alternative.

The mechanical control of invasive weeds alternative was not selected because it would be limited in effectiveness of controlling the privet and kudzu, which would lead to continued spread of the invasive weeds. Additionally, the level of prescribed burning that would be required to effectively control the invasive weeds would potentially have an impact on the ability to conduct the military mission.

The no action alternative was not selected because it would not control the spread of kudzu and privet and would contribute to declining native species habitats.

Anticipated Environmental Effects: The application of the herbicides triclopyr and imazapyr to control privet, and either clopyralid or glyphosate (depending on the area) to control kudzu could potentially impact non-target vegetation. However, timing the application of the herbicide to periods of low to no wind would minimize any impact. Soils would be temporarily impacted by the accumulation of herbicides in the soil. The application techniques would minimize movement of the herbicides through the soil. This would reduce impacts to non-target vegetation as well as surface water. Health and human safety would not be impacted by the use of herbicides. To ensure the protection of health and human safety, protective measures would be used for both herbicide handlers and those who could come in contact after application. Protective measures for handlers that are specified on the herbicide label would be followed. Protective measures for other people include prior notification, blocking access to treated areas and posting precautionary signs around the treated areas.

Conclusion: An environmental impact statement is not required. A Finding of No Significant Impact is justified.



STEPHEN W. WILSON. Colonel, USAF
Commander, 14th Flying Training Wing



Date

Appendix C – List of Preparers

Frank Lockhart, Environmental Planner (Star Digital), Columbus AFB
Sarah Fafinski, Natural Resources Manager, Columbus AFB
Kyle VanWhy, Wildlife Biologist, Columbus AFB
Kimberly Bittle, Deputy District Ranger, Tombigbee National Forest
Steve Goodson, Prescription Forester, Tombigbee National Forest
Kris Kovar, Timber Management Assistant, Tombigbee National Forest
Kim Kennedy, Forest Planner, National Forests in North Carolina

Appendix D – Interagency Correspondence



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 14TH FLYING TRAINING WING
COLUMBUS AIR FORCE BASE MISSISSIPPI

26 September 03

Mr. Michael F. Smith, REM
Chief, Environmental Flight
555 Simler Boulevard, Suite 108
Columbus AFB MS 39710-6010

Ms. Kathy Lunceford
Vicksburg Ecological Service
Fish and Wildlife Service
6578 Dogwood View Parkway, Suite A
Jackson MS 39213

Dear Ms. Lunceford

The 14th Flying Training Wing at Columbus Air Force Base is preparing an environmental assessment (EA) under the National Environmental Policy Act of 1969 for the proposed control of kudzu (*Pueraria thunbergiana*) and privet (*Ligustrum sinense*), both invasive, exotic plant species. Transline (clopyralid) would be used to control kudzu, and Garlon 3A (triclopyr) and Arsenal (imazapyr) would be used for privet. Over a 3-year period, twenty sites would be treated within 360 acres. Application of the herbicide would be specific to the target vegetation. The proposed locations are identified on the attached maps. This action is necessary to enable the base to accomplish its mission requirements, as well as to prevent the loss of native plant habitat and potential rare species habitat.

To assist with this EA, please advise us if there are any federally threatened or endangered species known to exist in the areas of the base where treatments would occur (see attached maps). Please provide your response by 27 October 03.

Thank you in advance for your assistance in this matter. If there are any questions, please contact Mr. Frank Lockhart, Star Digital at (662) 434-3130.

Sincerely

A handwritten signature in cursive script, reading "Michael F. Smith", is positioned above the typed name.

MICHAEL F. SMITH, REM

Attachment (1)



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Mississippi Field Office
6578 Dogwood View Parkway, Suite A
Jackson, Mississippi 39213

October 7, 2003

Mr. Michael F. Smith
Columbus Air Force Base
555 Simler Boulevard, Suite 108
Columbus AFB, Mississippi 39710-6010

Dear Mr. Smith:

The U.S. Fish and Wildlife Service (Service) has received your letter dated September 26, 2003, regarding the preparation of an environmental assessment for exotic plant control for the 14th Training Wing at the Columbus Air Force Base (CAFB), Lowndes County, Mississippi. Our comments are submitted in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661-667e), and the Endangered Species Act (16 U.S.C. 1531 et seq.).

You propose chemical treatment on 360 acres over a period of three years. Proposed chemicals include Transline (clopyralid) to control kudzu (*Pueraria thunbergiana*) and Arsenal (imazapyr) to control privet (*Ligustrum sinense*).

Six federally listed mussel species are found adjacent to CAFB in the Buttahatchie River: the endangered heavy pigtoe mussel (*Pleurobema taitianum*), the endangered southern combshell mussel (*Pleurobema penita*), the endangered southern clubshell mussel (*Pleurobema decisum*), the endangered ovate clubshell mussel (*Pleurobema perovatum*), the threatened orange-nacre mucket (*Lampsilis perovalis*), and the threatened Alabama moccasinshell mussel (*Medionidus acutissimus*). All of the listed species require clean, swiftly moving waters with pools and riffles. Previous activities in the Buttahatchie River watershed have created bank sloughing, stream captures, increased water turbidity, and decreased flows. Additional work activities that increase sedimentation and water turbidity could have adverse impacts on these species.

Also, the threatened bald eagle (*Haliaeetus leucocephalus*) could be found in the general vicinity of the proposed project. The bald eagle is the only species of "sea eagle" regularly occurring on the North American continent. The bald eagle is predominantly a winter migrant in the southeast; however, increasing occurrences of nesting have been observed. The bald eagle nests in the transitional area between forest and water. Their nests are constructed in dominant living pines or bald cypress trees. Eagles often use alternate nests in different years with nesting activity occurring between September and January of each year. Young are usually fledged by mid-summer.

The bald eagle is very sensitive to human disturbance, especially during the courtship, mating, and nesting season. Therefore, the Service recommends a survey for bald eagle nests and activity within 1500 feet of each of the proposed project sites. If any evidence of the bald eagle is found, please contact this office.

The following information is needed to adequately assess the effect of chemical usage on the above described federally listed species:

1. Is Transline labeled for this type of application? Is it an agriculture or forest resources approved herbicide?
2. Glyphosate herbicides kill privet but are not soil active (not absorbed by nearby vegetation through the soil). Arsenal is soil active and will kill adjacent hardwoods. How will the chemicals be applied?: foliar, basal injection, or cut stump application?

We will provide additional comments when our office receives the requested information. If you have any questions, please feel free to contact this office, telephone: (601) 321-1132.

Sincerely,

A handwritten signature in cursive script, appearing to read "Kathy W. Lunceford".

Kathy W. Lunceford
Mississippi Environmental Coordinator

ENCLOSURE



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 14TH FLYING TRAINING WING
COLUMBUS AIR FORCE BASE MISSISSIPPI

23 Oct 03

Mr. Michael F. Smith, REM
Chief, Environmental Flight
555 Simler Boulevard, Suite 108
Columbus AFB MS 39710-6010

Ms. Kathy Lunceford
Vicksburg Ecological Service
Fish and Wildlife Service
6578 Dogwood View Parkway, Suite A
Jackson MS 39213

Dear Ms. Lunceford

Thank you for your 7 Oct 03 response to our memo of 26 Sep 03 regarding preparing an environmental assessment for exotic plant control on Columbus AFB. Following is the additional information you requested.

1. Is Transline labeled for this type of application? Is it an agriculture or forest resources approved herbicide?

The initial labeling for Transline was limited to "selective control of broadleaf weeds in noncropland areas, industrial manufacturing and storage sites, right-of way, and wildlife openings, including grazed areas on these sites, tree plantations, and rangeland and permanent grass pastures." A copy of the labeling is attached. Transline has supplemental labeling for "Control of certain problem weeds in forest sites, including use in tree plantings". The label was accepted by the EPA on 9 Sep 1999. It has been specifically supplemented for control of kudzu in forests, utility rights-of-way, roadsides, and other non-crop areas. The EPA accepted the labeling on 27 Mar 03.

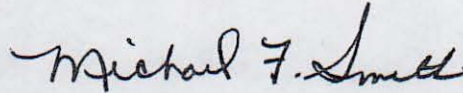
2. Glyphosate herbicides kill privet but are not soil active (not absorbed by nearby vegetation through the soil). Arsenal is soil active and will kill adjacent hardwood. How will the chemicals be applied?: foliar, basal injection, or cut stump applications?

The privet would be controlled using cut stump application of Garlon 3A (triclopyr) - Arsenal (imazapyr) mixture. The privet would be completely severed at the base by chainsaw. The stump, plus an area extending 2.5 cm from the stump in all directions, would be treated. A volume would be used that is adequate to cover the area, but not cause damage to non-target vegetation. Treatment would occur during late summer to early fall (August to mid September).

According to the literature, application of Arsenal from late June through med-September would produce little or no evidence of soil activity. The efficacy of Garlon 3A is increased, and the application rate reduced, by mixing with the Arsenal.

Thank you in advance for your assistance in this matter. If there are any questions, please contact Mr. Frank Lockhart, 14 CES/CEVN, (662) 434-3130.

Sincerely

A handwritten signature in cursive script, reading "Michael F. Smith".

MICHAEL F. SMITH, REM

Attachment
Transline label

Supplemental Labeling



Dow AgroSciences LLC

9330 Zionsville Road

Indianapolis, IN 46268-1054 USA

Transline*

EPA Reg. No. 62719-259

Control of Kudzu in Forests, Utility Rights-of-Way, Roadsides, and Other Non-Crop Areas

ATTENTION

- It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
- This labeling must be in the possession of the user at the time of application.
- Read the label affixed to the container for Transline* herbicide before applying. Carefully follow all precautionary statements and applicable use directions.
- Use of Transline according to this supplemental labeling is subject to all use precautions and limitations imposed by the label affixed to the container for Transline.

Directions for Use

Refer to product label for General Use Precautions, Mixing and Application instructions.

Pints of Transline per Acre Equivalent to Rates in fl oz or mL per 1000 sq ft		
2/3 pint/acre	1 pint/acre	1 1/3 pint/acre
1/4 fl oz (7.3 mL)	3/8 fl oz (11 mL)	1/2 fl oz (15 mL)

Application Timing

For control of kudzu, apply Transline between late June and early October, as long as the kudzu is actively growing and not under drought stress. The ideal time to apply Transline is during vigorous growth and just prior to or during flowering. For best results on control of all other labeled weed species, apply Transline when weeds are small and actively growing. Extreme growing conditions such as drought or near freezing temperatures prior to, at, and following time of application may reduce weed control. Only weeds that have emerged at the time of application will be affected. Wet foliage at the time of application may decrease control.

The treatment with Transline will be rainfast within 2 hours after application.

Tank Mixtures

Transline may be tank mixed with labeled rates of other herbicides provided the tank mix product is labeled for the timing and method of application for the site to be treated and tank mixing is not prohibited by the label of the tank mix product. Carefully follow applicable directions for use, precautions and limitations on the label of each product use; tank mixtures with other products may cause plant injury.

Broadcast Application (Ground or Aerial)

Apply at a rate of 2/3 to 1 1/3 pt/acre of Transline. Sequential applications may be made as long as the total rate per annual use season does not exceed 1 1/3 pt/acre. The lower rate of 2/3 pint per acre provides acceptable control of weeds only under highly favorable plant growing conditions and when plants are no larger than 3 to 6 inches tall. Spray volumes of 20 gallons or more per acre for ground, roadside and rights-of-way applications and spray volumes of 5 gallons or more per acre or more for aerial applications will ensure adequate coverage. Transline can be applied in an invert emulsion using oil and an appropriate inverting agent. Follow label directions of the inverting agent.

Spot Applications to Control Labeled Weed Species

Hand held sprayers may be used for spot applications of Transline if care is taken to apply the spray

uniformly and at a rate equivalent to a broadcast application. When applied as a spot treatment, apply to weeds on a spray-to-wet basis (not to runoff). Contact with foliage of cottonwood/poplar trees should be avoided or limited to lower branches. Application rates in the following table are based on an area of 1000 sq ft. Mix the amount of Transline (fl oz or mL) corresponding to the desired rate in one or more gallons of spray. To calculate the amount of Transline required for larger areas, multiply the table value (fl oz or mL) by the area to be treated in "thousands" of square feet. For example, if the area to be treated is 3500 sq ft, multiply the table value by 3.5 (calculation: $3500 \div 1000 = 3.5$).

Use Precautions and Restrictions:

- **Chemigation:** Do not apply this product through any type of irrigation system.
- There are no grazing restrictions following application of Transline when used at labeled rates.
- Applications of Transline over actively growing conifers may cause some needle curling. Tree injury in the form of needle curling may be increased by the addition of a surfactant or crop oil with broadcast applications of Transline. Do not use a surfactant or crop oil unless previous experience shows such injury can be tolerated.
- Application of Transline to broadleaf (hardwood) tree species may cause some leaf burning and malformation. This injury is transient in nature, except plants in the legume family (see below). Addition of surfactant or crop oil may increase the severity of this injury.
- True firs (grand, noble, and Pacific silver firs) show more needle curling than other conifers when higher rates are used. Use lower rates in rate range for broadcast applications or use directed sprays where possible if needle curling is undesirable.
- Application of Transline to plants in the legume family (such as locust, mimosa, redbud, and lupine) or to box elder, persimmon or sassafras will cause severe damage or destruction of such plants.
- Do not use in forest nursery beds.

*Trademark of Dow AgroSciences LLC

A2A / Transline / Sec 3 Supp Kudzu FPL / 04-08-03
D06-113-008
EPA accepted: 03/27/03
Initial printing.



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 14TH FLYING TRAINING WING
COLUMBUS AIR FORCE BASE MISSISSIPPI

27 Oct 03

Mr. Michael F. Smith, REM
Chief, Environmental Flight
555 Simler Boulevard, Suite 108
Columbus AFB MS 39710-6010

Ms. Kathy Lunceford
Vicksburg Ecological Service
Fish and Wildlife Service
6578 Dogwood View Parkway, Suite A
Jackson MS 39213

Dear Ms. Lunceford,

Mr. Kyle Van Why, USDA Wildlife Biologist, administered a tree survey on Columbus AFB for control of privet and kudzu. The survey included a 1,500 foot radius from each site (see attached map) which includes all the commercial forest stands on base. A copy of the survey is enclosed.

A complete walk around site survey indicated no signs of nesting eagles or habitat suitable for nesting eagles. The trees consist of pine and hardwood species, are of uniform heights (no isolated, taller trees) and, are not in close proximity to large water bodies (approximately a two mile distance). Additionally, a portion of the site survey is associated with urban areas, which will discourage nesting bald eagles. Please contact Mr. Frank Lockhart, (662) 434-7958 with any questions.

Sincerely

A handwritten signature in black ink, appearing to read "Michael F. Smith", is written above the typed name.

MICHAEL F. SMITH, REM

Attachment (2)
Wildlife Hazard Assessment
Map



United States
Department of
Agriculture

Animal and
Plant Health
Inspection Service

Wildlife Services

P.O. Drawer FW
Mississippi State, MS 39762
(662) 325-3014 - office
(662) 325-3690- fax

27 October 2003

Sarah Fafinski
Naturals Resources Manager
14 CES/CEV
555 Simler Blvd Suite 108
Columbus AFB, MS 39710

USDA-Wildlife Services has been conducting a 12 month Wildlife Hazard Assessment (WHA) on Columbus Air Force Base (CAFB) beginning in June 2003. The WHA dictates that bird surveys are conducted to document species occurrence, density, and habitat use in relation to the airfield and to assess potential strike hazards on and around the base. Approximately 12 surveys per month are conducted with ancillary observation of species noted to aid in documenting occurrence. As of yet no bald eagles have been documented using areas on CAFB. Bald eagle nest surveys were conducted on CAFB in July with no nest structures or nesting eagles observed. Additionally, CAFB lacks many of the habitat requirements, which bald eagles require. Nesting and perch trees are limited since a considerable amount of CAFB is comprised of managed pine or pine/hardwoods. Foraging sites are also limited due to the lack of large water bodies on the base, the species composition of the bases single lake, and the control of other potential prey for flight safety purposes.

There have been no documented bald eagle sightings on CAFB during previous endangered species surveys. This historical information along with the habitat composition of CAFB and the lack of food resources indicate that it is unlikely that bald eagles would reside on base property.

USDA-Wildlife Services will continue to conduct bird surveys and document species through Summer 2004, if any observations of bald eagles occur or bald eagle nesting activity is observed your office will be contacted. Please contact me if you have any questions regarding these preliminary findings.

Sincerely,

Kyle Van Why
Wildlife Biologist
USDA-Wildlife Services
14 OSS/OSAB
595 1st St. Suite 3
Columbus AFB, MS 39710
662-434-2027
kyle.vanwhy@columbus.af.mil



APHIS-Protecting American Agriculture and Public Safety

EO 12372
WEEKLY LOG
PGM=N150

STATE OF MISSISSIPPI
STATE CLEARINGHOUSE FOR FEDERAL PROGRAMS

DATE 09/25/03
09/30/03

MS APPLICANT NO.: MS030929-001
IMPACT AREA(S): LOWNDES

APPLICANT:
COLUMBUS AIR FORCE BASE MS.
DEPARTMENT OF THE AIR FORCE
555 SIMLER BLVD., SUITE 108
COLUMBUS MS 39710-6010

CONTACT: FRANK LOCKHART
PHONE: (662) 434-3130

FEDERAL AGENCY: DEPARTMENT OF AIR FORCE

FUNDING: FEDERAL
LOCAL
TOTAL

APPLICANT
OTHER

STATE
PROGRAM

DESCRIPTION: THE 14TH FLYING TRAINING WING AT COLUMBUS AIR FORCE BASE
IS PREPARING AN ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED
CONTROL OF KUDZU AND PRIVET.

CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER

1301 WOOLFOLK BLDG., SUITE E - JACKSON, MS 39201 (601) 359-6762

- THIS IS AN ACKNOWLEDGEMENT ONLY -

STATE AGENCIES MUST REVIEW CERTAIN PROPOSALS PRIOR TO
RECEIVING MISSISSIPPI INTERGOVERNMENTAL REVIEW PROCESS CLEARANCE.
THE MISSISSIPPI DEPARTMENT OF ARCHIVES AND HISTORY REVIEWS ANY
PROPOSALS INVOLVING CONSTRUCTION, SUCH AS A HIGHWAY OR AN
APARTMENT COMPLEX FOR COMPLIANCE WITH CULTURAL RESOURCES AND
HISTORIC PRESERVATION. MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL
QUALITY, OFFICE OF POLLUTION CONTROL, REVIEWS APPLICATIONS IN
ACCORDANCE WITH THE FEDERAL WATER POLLUTION CONTROL ACT. THE
MISSISSIPPI DEPARTMENT OF MARINE RESOURCES REVIEWS APPLICATIONS
FOR CONSISTENCY WITH THE COASTAL PROGRAM.

IF APPLICATIONS ARE FOR PROJECTS OF LOCAL IMPACT, THEY
SHOULD BE SENT TO THE APPROPRIATE PLANNING AND DEVELOPMENT
DISTRICT AT THE SAME TIME. PLEASE NOTE THAT ONE OF OUR
REQUIREMENTS IS THE USE OF STANDARD FORM 424. THE DEPARTMENT
OF FINANCE AND ADMINISTRATION PREPARES AND DISTRIBUTES A WEEKLY
LOG LISTING PERTINENT INFORMATION CONTAINED ON THIS FORM. OUR
ADDRESS IS 1301 WOOLFOLK BLDG., SUITE E - JACKSON, MS 39201 AND
OUR PHONE NUMBER IS (601)359-6762.



STATE OF MISSISSIPPI
DEPARTMENT OF FINANCE AND ADMINISTRATION

MEMORANDUM

TO: COLUMBUS AIR FORCE BASE MS.
DEPARTMENT OF THE AIR FORCE
555 SIMLER BLVD., SUITE 108
COLUMBUS MS 39710 6010

DATE: OCT 16 2003

FROM: STATE CLEARINGHOUSE FOR FEDERAL PROGRAMS

SUBJECT: REVIEW COMMENTS - Activity:
THE 14TH FLYING TRAINING WING AT COLUMBUS AIR FORCE BASE
IS PREPARING AN ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED
CONTROL OF KUDZU AND PRIVET.

State Application Identifier Number MS030929-001

Location: LOWNDES

Contact: FRANK LOCKHART

The State Clearinghouse, in cooperation with state agencies interested or possibly affected, has completed the review process for the activity described above.

INTERGOVERNMENTAL REVIEW PROCESS COMPLIANCE:

- () We are enclosing the comments received from the state agencies for your consideration and appropriate actions. The remaining agencies involved in the review did not have comments or recommendations to offer at this time. A copy of this letter is to be attached to the application as evidence of compliance with Executive Order 12372 review requirements.
- () Conditional clearance pending Archives and History's approval.
- (✓) None of the state agencies involved in the review had comments or recommendations to offer at this time. This concludes the State Clearinghouse review, and we encourage appropriate action as soon as possible. A copy of this letter is to be attached to the application as evidence of compliance with Executive Order 12372 review requirements.
- () The review of this activity is being extended for a period not to exceed 60 days from the receipt of notification to allow adequate time for review.

COASTAL PROGRAM COMPLIANCE (Coastal area activities only):

- () The activity has been reviewed and complies with the Mississippi Coastal Program. A consistency certification is to be issued by the Mississippi Department of Marine Resources in accordance with the Coastal Zone Management Act.
- () The activity has been reviewed and does not comply with the Mississippi Coastal Program.

cc: Funding Agency (As requested by applicant)