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NATURAL AREAS INVENTORY 1981



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FOR THE GREAT RIVER RESOURCE
MANAGEMENT STUDY - GREAT III
UPPER MISSISSIPPI - RIVER MILE 301-0

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Fifty-nine unique geologic or biological communities were identified. The inventory includes location, ownership, type, and significance of each site, along with a map series showing each area. This information is in the "Natural Areas Inventory, 1981" appendix. A "Recreation Area and Facility Inventory, 1981" appendix includes the name, location, and characteristics of recreation sites as well as individualized comments. A map series is included which shows the geographic location of area and facilities. Projections of future		

recreation use for the years 1990 and 2000 were translated into land needs and use-intensity measures. Accordingly, intensity of use (as measured in visitor days per acre of recreation land) may double by the year 2000, resulting in a deficit of nearly 36,000 acres of recreation lands.

NATURAL AREAS INVENTORY 1981

Prepared For:

The Great River Resource Management Study - GREAT III
Upper Mississippi
River Mile 301-0

Prepared By:

The Missouri Department of Conservation
Under Contract To
Oblinger-McCaleb
Architects, Engineers, Planners and Landscape Architects
Wichita, Kansas

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for publication and sale. Its
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ACKNOWLEDGEMENTS

Oblinger-McCaleb wishes to express appreciation to the Missouri Department of Conservation for preparation of this inventory. The Principal Investigator was Mr. Don Kurz of the Natural History Division.

This report was prepared as an Appendix to the "GREAT III Recreation and Natural Area Needs Assessment" under contract to the United States Department of the Army, Corps of Engineers - St. Louis District and its designated advisory body, the GREAT III Recreation Work Group.



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NATURAL AREA INVENTORY 1981

On January 22, 1981, the Missouri Department of Conservation entered into a contract with Oblinger-McCaleb Consultants of Wichita, Kansas to conduct a natural areas inventory along the Mississippi River. Information from this study will be used as part of the Great River Resource Management Study (GREAT III) for future assessments of environmentally sensitive areas along the Mississippi River corridor.

The length of the study area included that segment of the Mississippi River from Saverton, Missouri to the mouth of the Ohio River at Cairo, Illinois. This 301.2 mile section involved land and water occurring in Missouri and Illinois. Boundaries included both sides of the river from 100 yards behind the bluff tops on either bank. When no river bluff existed, as in the southern reach of the project area, the study included one mile of land on both sides of the river measured from the middle of the channel. In no instance were natural areas included that were more than one mile from the center of the river.

The inventory was a search for the following kinds of natural features:

- (1) Relatively undisturbed terrestrial or wetland natural communities
- (2) Habitats with endangered or rare plants or animals
- (3) Habitats with relict species
- (4) Outstanding geologic features
- (5) Areas used for natural science studies
- (6) Areas with unique natural features
- (7) Outstanding aquatic areas

Using detailed, systematic methodology, 116 potential natural areas were selected, examined, and rejected if the sites did not qualify. Each stage of the inventory relied on the previous stage and examined the remaining areas in more detail. The stages were as follows:

- Compiling available information
- Gathering background material
- Contacting people and agencies
- Reviewing literature
- Examining maps and aerial photographs
- Aerial survey
- Initial ground survey
- Final field survey

Information was recorded on a main data form; areas located on topographic map copies; natural communities, area boundaries, natural quality and other features marked on an aerial photo; and species checklists completed for plants and animals. Appendix II contains an example of the types of information collected from one of the natural areas. Final field survey forms for each area are on file with the Missouri Department of Conservation, the Illinois Department of Conservation, and Corps of Engineers - St. Louis District.

Fifty-nine natural areas and special features were located, equally divided between Missouri and Illinois. Twenty-eight of the Illinois areas were provided by the Illinois Department of Conservation from a previous comprehensive statewide natural areas inventory. The one area which was an exception was Devils Island. Some areas had more than one natural feature. The number of natural feature occurrences are as follows:

- 21 high quality terrestrial or wetland natural communities
- 10 habitats with endangered species
- 1 habitat with relict species
- 32 outstanding geologic features
- 9 natural study areas
- 0 unique natural features
- 3 outstanding aquatic areas.

Appendix I summarizes the natural areas located during the study. They are listed in alphabetical order by area name. General locations are shown on the key map. No attempt was made to rank these areas in priority order. When an endangered species was present an asterisk was used to indicate that this sensitive information was given in more detail in a separate document. Use of the term "type locality" shows the first place where bedrock exposure was originally identified, named, and described.

A list of animal species of concern along the Mississippi River is presented in Appendix III. Only general locations and habitats are given since their occurrences are not static, and they may be found over a wide range in the study area.

APPENDICES

Appendix I

SUMMARY OF NATURAL AREAS STUDY

Alton Geological Area, Madison County, Illinois Plate 8
Location: Sec. 10, 11, 14, T5N, R10W; Alton 7½'
Significance: Geologic area
Description: Outstanding exposure of St. Louis Limestone.
Ownership unknown. 9 acres.

Aux Vases Limestone, Ste. Genevieve County, Missouri Plate 15
Location: Sec. 13, T37N, R9E; Kaskaskia 7½'
Significance: Geologic area
Description: The type locality for Aux Vases Sandstone of the
Mississippian System is exposed on the bluff at the mouth
of River Aux Vases. Private Ownership. 20 acres.

Backbone South Geological Area, Jackson County, Illinois Plate 17
Location: Sec. 24, 25, T10S, R4W; Altenburg 7½'
Significance: Geologic area
Description: Outstanding exposure of the Clear Creek Chert and the
Backbone Limestone. Ownership unknown. 3.5 acres.

Bailey's Landing, Perry County, Missouri Plate 16
Location: Sec. 11, T35N, R12E; Crosstown 7½'
Significance: Geologic area
Description: Bedrock exposed in this area is the type locality
for the Bailey Formation of the Devonian System
(Lower Series). It is named for the exposures at the
former Bailey's Landing. Ownership private. 40 acres.

Bake Oven--Backbone North Geological Area, Jackson County, Illinois Plate 17
Location: Sec. 23, T10S, R4W; Altenburg 7½'
Significance: Geologic area, endangered species site*
Description: Outstanding exposure of the Grand Tower Limestone and the
Lingle Formation. Location for an Illinois endangered
species. Ownership unknown. 10 acres.

Bur-reed Slough, Pike County, Missouri Plate 1
Location: Sec. 23, T55N, R2W; Rockport 7½'
Significance: Wetland
Description: Bur-reed Slough is a fresh-water marsh and a designated
natural area. It is public land managed by the Missouri
Department of Conservation. 20 acres.

Bushburg Sandstone, Jefferson County, Missouri Plate 12
Location: Sec. 8, T41N, R6E; Herculaneum 7½'
Significance: Geologic area
Description: This is the type locality for the Bushburg Sandstone
of the Mississippian System. It is exposed at the
head of a ravine that opens to the Mississippi River.
Private ownership. 20 acres.

* Supplementary detail is available from the "Confidential List of Endangered
Species" prepared by the Missouri Department of Conservation, 1982.

Calico Bluffs, Jefferson County, Missouri Plate 13

Location: Sec. 9, 10, 15, 22, 23, 25, 31, 36, T40N, R6&7E; Selma 7½'

Significance: Geologic area

Description: Outstanding example of weathered cliffs. Massive cliffs vary from sheer faces to deep flutting. Wet weather falls are also common. In Sec. 9, along Plattin Creek, the type locality for the Plattin Formation occurs. Private ownership. 640 acres.

Cap Au Gris, Calhoun County, Illinois Plate 6

Location: Sec. 19, 20, 29, 30, T12S, R2W; Winfield 7½'

Significance: Hill prairie, geologic area, relict site

Description: Cap Au Gris contains a high quality hill prairie and an outstanding exposure of the Ordovician System. The north-facing slope provides refuge for two relict plants, wild sarsaparilla, Aralia nudicaulis and common chokecherry, Prunus virginiana. Ownership private. 105 acres.

Cape La Croix Bluffs, Scott County, Missouri Plate 19

Location: Sec. 28, 29, T30N, R14E; Scott City 7½'

Significance: Endangered species site*

Description: Cape La Croix Bluffs contains a Missouri endangered species. Ownership private. 25 acres.

Cape Limestone, Cape Girardeau County, Missouri Plate 19

Location: Sec. 5, T30N, R14E; Cape Girardeau 7½'

Significance: Geologic area

Description: Rock exposures on North Main and Broadway Streets are the type locality for Cape Limestone of the Ordovician System. Ownership unknown. 20 acres.

Cape Rock, Cape Girardeau County, Missouri Plate 19

Location: Sec. 28, T31N, R14E; McClure 7½'

Significance: Nature study area, endangered species site* geologic area

Description: Area used by local schools for nature study, it is also an endangered species site and the type locality for the Girardeau Limestone of the Silurian System. Ownership unknown. 40 acres.

Chautauqua Prairie, Jersey County, Illinois Plate 8

Location: Sec. 18, T6N, R11W and Sec. 13, 14, T6N, R12W; Grafton 7½'

Significance: Hill prairie, geologic area

Description: Chautauqua Prairie is a very high quality loess hill prairie and contains an outstanding exposure of the Fern Glen Formation. Ownership private. 109 acres.

Chester South Geological Area, Randolph County, Illinois Plate 15

Location: Sec. 32, T7S, R6W; Chester 7½'

Significance: Geologic area

Description: Outstanding exposure of the Menard Limestone. Ownership both private and Illinois Department of Transportation. 5 acres.

* Supplementary detail is available from the "Confidential List of Endangered Species" prepared by the Missouri Department of Conservation, 1982.

Clarksville Island, Calhoun County, Illinois Plate 3
Location: Sec. 7, 8, 16, 17, T8S, R4W; Annada 7½', Pleasant Hill West
7½', and Clarksville 7½'
Significance: Endangered species site*
Description: Clarksville Island is habitat for one resident endangered
species and serves as an important wintering area for the
bald eagle, Haliaeetus leucocephalus. Ownership private.
818 acres.

Cliff Cave, St. Louis County, Missouri Plate 12
Location: Sec. 13, T43N, R6E; Oakville 7½'
Significance: Geologic area, nature study area
Description: A well known cave that has been vandalized and its water
system polluted however, the cave and its related karst
plain have significance as a geologic site. The area is
used as a teaching facility by geology instructors. The
tract is public land managed by St. Louis County Parks
and Recreation. 100 acres.

Clinton Spring, Pike County, Missouri Plate 2
Location: Sec. 20, T54N, R2W; Louisiana 7½'
Significance: Geologic area
Description: Clinton Spring is encased by a concrete structure and
the water appears polluted. Although not of natural
area quality the rock exposed in the area serves as
the type locality for Noix Limestone of the Ordovician
System and Louisiana Limestone of the Devonian System
(Upper Series). Ownership unknown. 5 acres.

Coles Mill Geological Area, Randolph County, Illinois Plate 15
Location: Sec. 25, T7S, R7W; Chester 7½'
Significance: Geologic area
Description: Outstanding exposure of the Chesterean Series.
Ownership unknown. 2 acres.

Denmark Island, Pike County, Illinois Plate 1
Location: Sec. 12, T6S, R7W and Sec. 7, 18, T6S, R6W; Ashburn 7½'
Significance: Endangered species site*
Description: Denmark Island is habitat for several Illinois endangered
species. Ownership unknown. 210 acres.

Devils Island, Union and Alexander Counties, Illinois Plate 19
Location: Sec. 22, 23, 26, 27, 33, 34, T13S, R3W and Sec. 3, 4,
5, 6, 7, T14S, R3W; McClure 7½'
Significance: Endangered species site*
Description: Devils Island contains several Illinois endangered
species and serves as wintering grounds for the bald
eagle, Haliaeetus leucocephalus. Ownership unknown.
1800 acres.

* Supplementary detail is available from the "Confidential List of Endangered
Species" prepared by the Missouri Department of Conservation, 1982.

Drift Island, Pike County, Illinois Plate 1

Location: Sec. 7, 8, 16, 17, T6S, R6W and Sec. 1, 12, T6S, R7W;
Ashburn 7½'

Significance: Floodplain forest

Description: Drift Island is a high quality wet floodplain forest.
Ownership Illinois Dept. of Conservation. 573 acres.

Dupont Upland Hardwoods, Pike County, Missouri Plate 1

Location: Sec. 1, 12, T55N, R3W; Ashburn 7½'

Significance: Designated Missouri Natural Area

Description: Designated as a Missouri Natural Area on November 15, 1972. These public lands are managed by the Missouri Department of Conservation. The area contains a mixed stand of hardwood communities typical of the river hills of northeast Missouri. 80 acres.

Elsah Hill Prairie Area, Jersey County, Illinois Plate 8

Location: Sec. 17, 18, 19, 20, T6N, R11W; Grafton 7½',
Elsah 7½'

Significance: Hill prairie; school study area

Description: Elsay Hill Prairie Area is a very high quality loess hill prairie and a school study area owned by Principia College. Ownership private. 85 acres.

Fayville Geological Area, Alexander County, Illinois Plate 20

Location: Sec. 34, T15S, R3W; Thebes 7½'

Significance: Geologic area

Description: Outstanding exposure of the McNairy Formation.
Ownership private. 0.8 acres.

Gale Geological Area, Alexander County, Illinois

Location: Sec. 4, T15S, R3W; Thebes 7½'

Significance: Geologic area

Description: Outstanding exposure of the Thebes Sandstone Member.
Ownership partially private and public (Illinois Department of Transportation). 0.6 acres.

Gale North Geological Area, Alexander County, Illinois Plate 19

Location: Sec. 33, T14S, R3W; McClure 7½'

Significance: Geologic area

Description: Outstanding exposure of loess formations.
Ownership private. 2.0 acres.

Gale Site, Alexander County, Illinois Plate 19

Location: Sec. 4, T15S, R3W; Thebes 7½'

Significance: Endangered species site*

Description: Area contains an Illinois endangered species. Public land managed by Illinois Dept. of Transportation. 2 acres.

Glen Park Limestone, Jefferson County, Missouri Plate 12

Location: Sec. 5, T41N, R6E; Herculaneum 7½'

Significance: Geologic area

Description: In the face of an old quarry along the river bluffs above the Missouri Pacific R.R. tracks there occurs the type locality for Glen Park Limestone of the Devonian System (Upper Series). Private ownership. 40 acres.

* Supplementary detail is available from the "Confidential List of Endangered Species" prepared by the Missouri Department of Conservation, 1982.

Hamburg Southeast Geological Area, Calhoun County, Illinois Plate 4
Location: Sec. 2, T10S, R3W; Hamburg 7½'
Significance: Geologic area
Description: The Hamburg Southeast Geological Area represents an outstanding exposure of the Silurian System. Ownership private. 3.5 acres.

Indian Creek, Cape Girardeau County, Missouri Plate 18
Location: Sec. 3, 10, T32N, R14E; Ware 7½'
Significance: Geologic area
Description: Outstanding exposure of Bailey Limestone forming cliffs and one pinnacle. Ownership private and public. (Missouri Department of Natural Resources). 120 acres.

Jakes Bluff, Pike County, Missouri Plate 1
Location: Sec. 20, T55N, R2W; Ashburn 7½'
Significance: Endangered species site*
Description: Habitat for a state endangered species. Ownership private. 40 acres.

Jim Bluff, Ralls County, Missouri Plate 1
Location: Sec. 35, T56N, R3W; Ashburn 7½'
Significance: Upland forest
Description: Public land managed by the Missouri Department of Conservation, Jim Bluff contains a high quality mesic limestone upland forest. 40 acres.

Kelso Sanctuary, Cape Girardeau County, Missouri Plate 19
Location: Sec. 21, T31N, R14E; Cape Girardeau and McClure 7½'
Significance: Nature study area, mesic upland forest
Description: Area used by local schools for nature study; small areas of old growth mesic upland forest; north-facing slopes abundant and diverse with spring flora. Ownership private. 57 acres.

Kimmswick Bluff, Jefferson County, Missouri Plate 12
Location: Sec. 20, T42N, R6E; Valmeyer 7½'
Significance: Geologic area
Description: Bedrock exposed in this area contains the type locality for the Kimmswick Formation of the Ordovician System. Ownership unknown. 20 acres.

Marys River Woods, Randolph County, Illinois Plate 15
Location: Sec. 28, T7S, R6W; Chester 7½'
Significance: Floodplain forest
Description: Marys River Woods is a very high quality wet-mesic floodplain forest. Ownership private. 43 acres.

McNabb Hollow, Calhoun County, Illinois Plate 4
Location: Sec. 19, T10S, R2W and Sec. 24, T10S, R3W; Hamburg 7½'
Significance: Hill prairie
Description: McNabb Hollow is a high quality loess hill prairie. Ownership private. 26 acres.

* Supplementary detail is available from the "Confidential List of Endangered Species" prepared by the Missouri Department of Conservation, 1982.

- North Hollow, Pike County, Missouri Plate 1
 Location: Sec. 1, 12, T55N, R3W; Ashburn 7½'
 Significance: Upland forest
 Description: Mostly on Missouri Department of Conservation land, North Hollow is a high quality mesic upland forest in the Lincoln Hills Section. 35 acres.
- Oakville Travertine Site, St. Louis County, Missouri Plate 12
 Location: Sec. 24, 25, T43N, R6E; Oakville 7½'
 Significance: Geologic area
 Description: Outstanding example of travertine formations. A cliff of St. Louis limestone contains wet weather falls, plunge pools, two caves, two large travertine columns and basins. This is the best known example in the state where travertine is formed outside of caves. Ownership private. 30 acres.
- Olin Tract, Madison County, Illinois Plate 8
 Location: Sec. 3, 4, T5N, R10W; Alton 7½'
 Significance: Hill prairie, school natural area
 Description: Olin Tract is a high quality loess hill prairie and a formally designated natural area. This public land is managed by Southern Illinois University-Edwardsville. 243 acres.
- Orchard Creek Geological Area, Alexander County, Illinois Plate 20
 Location: Sec. 21, T15S, R3W; Thebes SW 7½'
 Significance: Geologic area
 Description: Outstanding exposure of Girardeau limestone (type section). Ownership private. 2.5 acres.
- Oval Lake, Pike County, Missouri Plate 1
 Location: Sec. 22, 27, T55N, R2W; Rockport 7½'
 Significance: Wetland
 Description: Oval Lake is a very high quality marsh and pond documented to be over 160 years old. This public land is a designated natural area managed by the Missouri Department of Conservation. 40 acres.
- Pin Oak Lake, Pike County, Illinois Plate 1
 Location: Sec. 8, 9, 16, T5S, R7W; Hull 7½'
 Significance: Floodplain forest, shrub swamp/pond
 Description: Pin Oak Lake is a high quality wet-mesic floodplain forest and shrub swamp/pond. Ownership private. 298 acres.
- Prairie Slough Wildlife Area, Lincoln County, Missouri Plate 4
 Location: Sec. 1, 2, 12, T51N, R2E; Hamburg 7½'
 Significance: Wetland
 Description: Prairie Slough Wildlife Area contains several high quality shrub swamps, sloughs and marshes. The wetland complex is essentially unaltered, lacking levees, ditches, pumps or any other water level manipulation practices. The area is public land managed by the Missouri Department of Conservation. 150 acres.

* Supplementary detail is available from the "Confidential List of Endangered Species" prepared by the Missouri Department of Conservation, 1982.

Principia College Hill Prairie Area, Jersey County, Illinois Plate 8

Location: Sec. 20, 21, 22, 26, 27, 28, T6N. R11W; Elsayh 7½'

Significance: Hill Prairie; school study area

Description: A very high quality loess hill prairie, Principia College Hill Prairie Area also is a school study area. Ownership private. 522 acres.

Red Landing Rookery, Calhoun County, Illinois Plate 4

Location: Sec. 13, 24, 25, 36, T10S, R3W; Sec. 1, T11S, R3W, Sec. 19, 30, 31, T10S, R2W, and Sec. 6, 7, T11S, R2W; Hamburg 7½'

Significance: Endangered species site *

Description: Red Landing Rookery is habitat for an Illinois endangered species. Ownership private and public. (Illinois Dept. of Conservation). 1594 acres.

Rip Rap Landing Woods, Calhoun County, Illinois Plate 3

Location: Sec. 30, 31, 32, T8S, R3W; Annada 7½'

Significance: Floodplain forest

Description: Owned by the Illinois Department of Conservation, Rip Rap Landing Woods contains a high quality wet and wet-mesic floodplain forest. Ownership public. (Illinois Department of Conservation) 195 acres.

Ste. Genevieve Bluffs, Ste. Genevieve County, Missouri Plate 15

Location: Sec. 2, 12, T37N, R8W and Sec. 34, 35, T38N, R8W; Kaskaskia 7½'; Ste. Genevieve 7½'

Significance: Geologic area

Description: The type locality for the Ste. Genevieve Formation of the Mississippian System occurs as an outcrop along the bluffs of the Mississippi River. Private ownership. 200 acres.

Salt River Area, Pike County, Missouri Plate 1, 2

Location: Sec. 1, 2, T54N, R2W and Sec. 26, 27, 28, 29, 32, 33, 34, 35, 36, T55N, R2W; Ashburn 7½'; Louisiana 7½'; Rockport 7½'

Significance: Geologic area

Description: An exceptional example of an alluvial floodplain at the mouth of the Salt River. Oxbow lakes and other abandoned-channel lakes are very well-developed in this area which is public land managed by the Missouri Dept. of Conservation. Approximately 5,500 acres.

Saverton Site, Pike County, Missouri Plate 2

Location: Sec. 18, T54N, R1W; Louisiana 7½'

Significance: Geologic area

Description: Rocks exposed in the Mississippi River bluffs are the type locality for Grassy Creek Shale and Saverton Formations both Devonian (Upper Series). Ownership unknown. 40 acres.

* Supplementary detail is available from the "Confidential List of Endangered Species" prepared by the Missouri Department of Conservation, 1982.

Sheppard Point, Cape Girardeau County, Missouri Plate 18

Location: Sec. 13, 14, 23, 24, T32N, R14E; Ware 7½'

Significance: Geologic area, upland forest, endangered species site*

Description: Outstanding exposure of Sexton Creek and Bainbridge Formation (type locality) forming cliffs, both are of the Silurian System. A very high quality dry-mesic and mesic upland forest with western mesophytic flora. An endangered species site. This area has both private ownership and public (Missouri Department of Natural Resources). 200 acres.

Swarnes Hill Prairie, Calhoun County, Illinois Plate 4

Location: Sec. 26, 35, T9S, R3W; Hamburg 7½'

Significance: Hill prairie

Description: Swarnes Hill Prairie is a high quality loess hill prairie overlooking the Mississippi River. Ownership private. 34 acres.

Teszars Woods, Jefferson County, Missouri Plate 12

Location: Sec. 4, T42N, R6E, and Sec. 33, T43N, R6E; Oakville 7½'

Significance: Floodplain forest

Description: One of the best examples of a wet and wet-mesic floodplain forest in the Ozark Border Division, Mississippi River Section. The area is public land managed by the Missouri Department of Conservation. 49 acres.

Thebes Gap Geological Area, Alexander County, Illinois Plate 19

Location: Sec. 17, T15S, R3W; Thebes 7½'

Significance: Geologic area

Description: Outstanding view of a river diversion channel. The Commerce Gorge is a narrow segment of the Mississippi River Valley, where the river has a bedrock channel and is confined between bedrock valley walls. Ownership private. 2 acres.

The Pinnacle, Pike County, Missouri Plate 3

Location: Sec. 8, 9, T53N, R1E; Clarksville 7½'

Significance: Geologic area

Description: An outstanding geologic exposure of four major periods: Ordovician, Silurian, Devonian and Mississippian, as well as Pleistocene loess soils. Ownership private. 100 acres.

Tower Rock, Perry County, Missouri Plate 17

Location: Sec. 20, T34N, R14E; Altenburg 7½'

Significance: Geologic area, designated Missouri Natural Area

Description: Tower Rock is an erosional remnant/lost hill/bedrock island due to channel shifts in the Mississippi River. It was designated as a state natural area on November 15, 1972. It is public land managed by the Missouri Dept. of Conservation. 32 acres.

* Supplementary detail is available from the "Confidential List of Endangered Species" prepared by the Missouri Department of Conservation, 1982.

Two Branch Hollow Hill Prairie, Calhoun County, Illinois Plate 7

Location: Sec. 35, T13S, R2W; Brussels 7½'

Significance: Hill prairie

Description: Two Branch Hollow Hill Prairie is a very high quality loess hill prairie overlooking the Mississippi River. Ownership private. 8 acres.

Vancil Hollow, Cape Girardeau County, Missouri Plate 18

Location: Sec. 10, 11, 14, 15, T32N, R14E; Ware 7½'

Significance: Designated Missouri Natural Area

Description: Designated October 27, 1977 as a state natural area, Vancil Hollow supports an exceptionally rugged "riverbrakes" terrain supporting a western mesophytic forest type. It is public land managed by the Missouri Department of Natural Resources. 300 acres.

Westport Island, Lincoln County, Missouri Plate 4

Location: Sec. 13, 24, T51N, R2E and Sec. 18, 19, T51N, R3E; Hamburg 7½'

Significance: Bottomland forest and wetland

Description: Westport Island has very high quality wet-mesic and wet bottomland forest, shrub swamp and riverine sloughs. The oldest and best structured bottomland forest in the GREAT III study area. The island is public land managed by the Corps of Engineers and leased to the Missouri Department of Conservation. 366 acres.

West Point Landing Geological Area, Calhoun County, Illinois Plate 5

Location: Sec. 19, T12S, R2W; Foley 7½'

Significance: Geologic area

Description: West Point Landing Geological Area contains an outstanding exposure of the Ordovician System (type section). Ownership private. 45 acres.

* Supplementary detail is available from the "Confidential List of Endangered Species" prepared by the Missouri Department of Conservation, 1982.

Appendix II

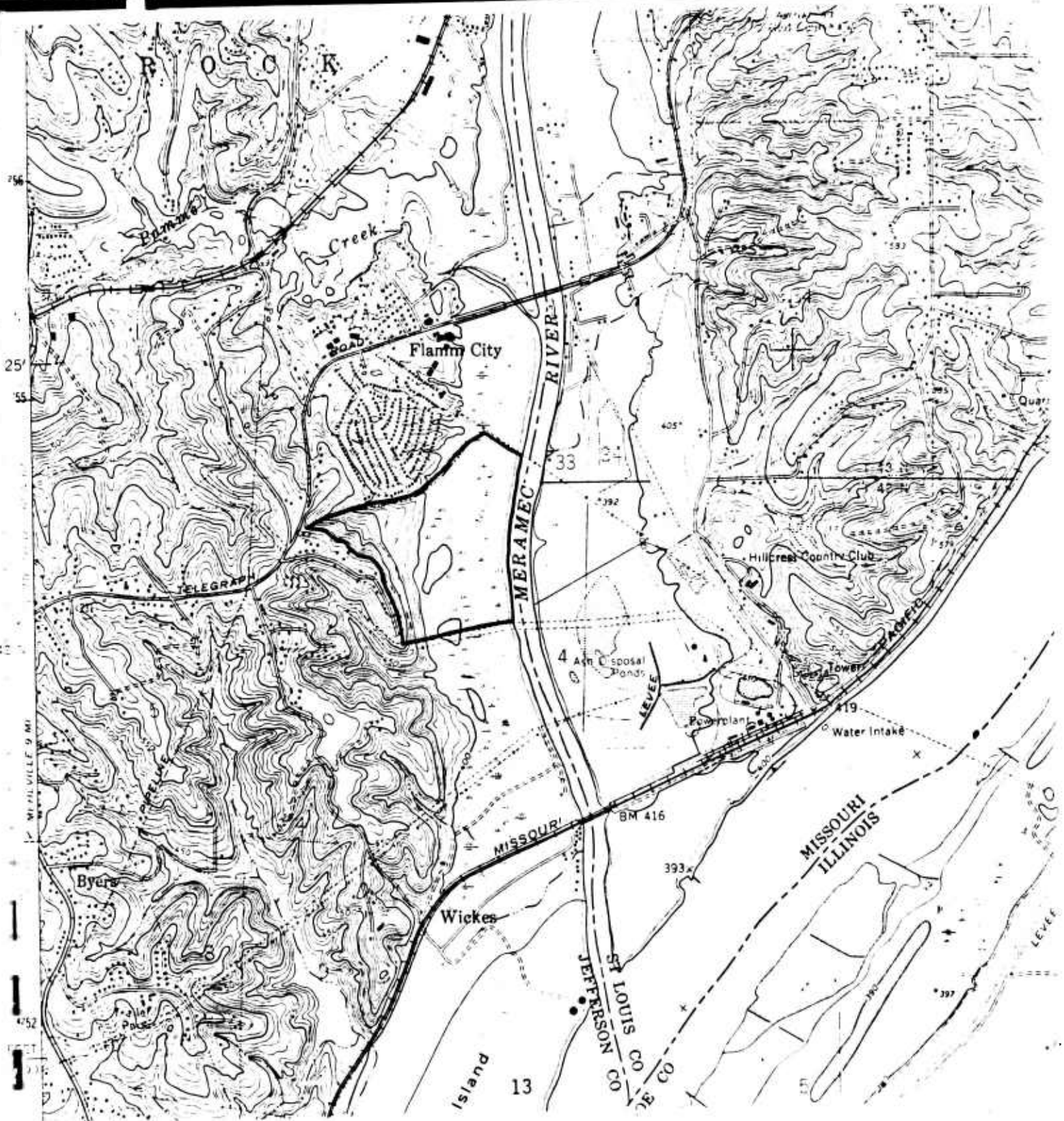
County JEFFERSON No. 83

Name of Area TESZARS WOODS

Quadrangle OAKVILLE 7½'

Location SEC. 4, T42N, R6E; SEC. 33, T43N, R6E

MISSOURI NATURAL AREAS INVENTORY



MISSOURI NATURAL AREAS INVENTORY
MAIN DATA FORM

BASIC INFORMATION

(1) County Jefferson (2) Ref. no. 83

(3) Area name Teszars Woods

(4) Significant features

a. Cat.	* Lgd.	b. Description of significant feature
I		Grade C wet and wet-mesic floodplain forest.

(5) Exceptional features and notable features

a. Cat.	* Lgd.	E/N	b. Description of feature
II		N	Quercus lyrata, Gleditsia aquatica, Forestiera acuminata

(6) Evaluator Don Kurz, David Tylka (7) Date June 11, 1981

LOCATION

(8) Legal location: T. 42N, R. 6E, 5 P. M., sec. 4 also
Sec. 33, T43N, R6E

(8') Access: Park at dead-end street at southwest corner of Flamm City subdivision.

(9) Topographic quadrangle Oakville 7 1/2'

NATURAL CHARACTERISTICS

(10) Altitude: a. minimum 390 b. maximum 560

(11) Geologic formation Mississippian Osagean Series

(12) Soil association (State) Hartville - Ashton - Cedargap - Nolin;
Menfro - Winfield

(13) Soil association (County) _____

NATURAL CHARACTERISTICS, con't.

(14) Natural community classification

*NC#	a. Natural community name	b. ND-S	c. Community - Type
1	wet-mesic floodplain forest	3N	forest
2	mesic upland forest	3N	forest
3	shrub swamp/pond	3N	wetland
4	successional field	3N	cultural
5	wet floodplain forest	3N	forest

(15) Diversity index 4

(16) Natural quality: (a) acreage of natural communities by grades, and (b) description

*NC#	A	B	C	D	E	Tot	Description of natural quality
1			67			67	mature growth
2			19			19	mature growth, moderate logging
3			5.6			5.6	low diversity, silting-in
4				20		20	regrowth
5			P				mature growth
TOT			91.6	20		112	(17) Total acreage of area

(18) Vegetation types

*NC#	Plant community name
1	Acer saccharum - Acer nigrum - Fraxinus pennsylvanica
2	Quercus rubra - Quercus alba - Cornus florida
3	Cephalanthus occidentalis / Lemna spp.
4	Cornus spp. - Sassafras albidum / Ampelopsis cordata
5	Acer saccharum - Forestiera acuminata

LEGAL STATUS & USE

(19) Ownership type: ① Pv ② Pc 3. Uk

(20) Number of owners 2+

(20') Owner or custodian and source: Missouri Department of Conservation

LEGAL STATUS & USE, con't.

(21) Use of area

a. Cat 2.1 b. Description _____

(22) Manageability: 1. Yes 2. No

(22') Management problem description

off-the-road-vehicle traffic
trash dumping

Impact			Effort			
1	2	3	1	2	3	4
X	X	X		X		
	X			X		

(23) Preservation status

Cat	* %	*Description of preservation status
<u>4</u>	<u>75</u>	<u>intended for urban wild acres</u>
<u>6</u>	<u>25</u>	

(23') Attitude of owner or custodian toward preservation (contacted? No): owner of private land not contacted.

(24) Threats

a. Cat	* SF	b. Description of threat
<u>3</u>	<u>x</u>	<u>development of non-department land</u>

(24') Disturbances

* Lgd	A/N	Description of disturbance feature
	<u>A</u>	<u>several trails</u>
	<u>A</u>	<u>trash dumping on upper slope</u>

DISCUSSION OF PRESERVATION VALUES

(25) Teszars Woods contains a wet and wet-mesic floodplain forest of good natural quality with several plant species that are coastal plain relicts.

ADDITIONAL NOTES

(25') Although only grade C, this natural community with its coastal plain relicts represents the best of its type in the region.
Boundaries go beyond Missouri Department of Conservation property to add more forest and buffer.

SUPPLEMENTAL MATERIALS

(26) Species lists:

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> Woody plants | 5. <input type="checkbox"/> Limestone/Dolomite Glade Plants |
| 2. <input checked="" type="checkbox"/> Ferns and fern allies | 6. <input type="checkbox"/> Sandstone/Igneous Glade Plants |
| 3. <input checked="" type="checkbox"/> Summer birds | 7. <input type="checkbox"/> Other Species List |
| 4. <input checked="" type="checkbox"/> Amphibians, reptiles, and mammals | |

(26') Other materials:

1. Topographic map copy
2. Site map ASCS 1965 (photocopy)
3. Significant feature forms: I II III IV V VI VII
4. Other materials Natural History Land Acquisition Form

(27) Literature citations:

*Items continued from preceding pages:

MISSOURI NATURAL AREAS INVENTORY
WOODY PLANT LIST

Relative abundance

1. Rare 4. Abundant
2. Occasional 5. Very abundant
3. Common

Area Name Teszars Woods
County Jefferson No. 83
Section 4 T. 42N R. 6E
Investigator Kurz, Tyka
Date June 11, 1981

- | | | |
|------------------------------------|--------------------------------------|--------------------------------------|
| <u>4</u> Acer negundo | ___ Humulus lupulus | <u>3</u> Salix nigra |
| ___ Acer nigrum | ___ Ilex decidua | ___ Salix rigida |
| ___ Acer rubrum | ___ Juglans cinerea | ___ Sambucus canadensis |
| <u>4</u> Acer saccharinum | ___ Juglans nigra | <u>3</u> Sassafras albidum |
| ___ Acer saccharum | <u>2</u> Juniperus virginiana | ___ Smilax herbacea |
| ___ Aesculus glabra | <u>2</u> Lindera benzoin | ___ Smilax hispida |
| ___ Ailanthus altissima | ___ Lonicera flava | ___ Staphylea trifolia |
| ___ Alnus serrulata | <u>2</u> Lonicera japonica | <u>2</u> Symphoricarpos orbiculatus |
| ___ Amelanchier arborea | ___ Malus ioensis | ___ Tilia americana |
| ___ Amorpha fruticosa | <u>2</u> Morus alba | ___ Ulmus alata |
| <u>3</u> Ampelopsis cordata | <u>2</u> Morus rubra | <u>2</u> Ulmus americana |
| <u>3</u> Asimina triloba | ___ Nyssa sylvatica | <u>3</u> Ulmus rubra |
| <u>3</u> Betula nigra | ___ Ostrya virginiana | ___ Vaccinium arboreum |
| ___ Bumelia lanuginosa | <u>3</u> Parthenocissus quinquefolia | ___ Vaccinium vacillans |
| <u>3</u> Campsis radicans | ___ Physocarpus opulifolius | ___ Viburnum prunifolium |
| ___ Carpinus caroliniana | ___ Pinus echinata | ___ Viburnum rufidulum |
| ___ Carya cordiformis | <u>2</u> Platanus occidentalis | ___ Vitis aestivalis |
| ___ Carya illinoensis | <u>2</u> Populus deltoides | <u>3</u> Vitis cinerea |
| ___ Carya laciniosa | ___ Prunus americana | <u>2</u> Vitis riparia |
| ___ Carya ovalis | ___ Prunus mexicana | ___ Vitis vulpina |
| <u>2</u> Carya ovata | <u>2</u> Prunus serotina | ___ Xanthoxylum americanum |
| ___ Carya texana | ___ Ptelea trifoliata | <u>2</u> <u>Gleditsia aquatica</u> |
| ___ Carya tomentosa | <u>3</u> Quercus alba | <u>2</u> <u>Smilax sp.</u> |
| ___ Ceanothus americanus | ___ Quercus imbricaria | <u>2</u> <u>Rosa multiflora</u> |
| ___ Celastrus scandens | ___ Quercus macrocarpa | <u>2</u> <u>Rubus sp.</u> |
| <u>2</u> Celtis laevigata | ___ Quercus marilandica | <u>3</u> <u>Forestiera acuminata</u> |
| ___ Celtis occidentalis | <u>2</u> Quercus muhlenbergii | <u>2</u> <u>Quercus lyrata</u> |
| ___ Celtis tenuifolia | ___ Quercus palustris | ___ |
| <u>3</u> Cephalanthus occidentalis | ___ Quercus prinoides | ___ |
| <u>2</u> Cercis canadensis | <u>3</u> Quercus rubra | ___ |
| <u>3</u> Cornus drummondii | ___ Quercus shumardii | ___ |
| <u>2</u> Cornus florida | ___ Quercus stellata | ___ |
| ___ Cornus obliqua | ___ Quercus velutina | ___ |
| ___ Cornus racemosa | ___ Rhamnus caroliniana | ___ |
| ___ Cornus | ___ Rhamnus lanceolata | ___ |
| ___ Corylus americana | ___ Rhus aromatica | ___ |
| ___ Crataegus collina | <u>2</u> Rhus copallina | ___ |
| ___ Crataegus crus-galli | <u>2</u> Rhus glabra | ___ |
| <u>2</u> Crataegus | <u>3</u> Rhus radicans | ___ |
| <u>2</u> Diospyros virginiana | ___ Ribes missouriense | ___ |
| ___ Dirca palustris | ___ Robinia pseudoacacia | ___ |
| ___ Euonymus atropurpureus | ___ Rosa carolina | ___ |
| <u>3</u> Fraxinus americana | ___ Rosa setigera | ___ |
| <u>2</u> Fraxinus pennsylvanica | ___ Rubus allegheniensis | ___ |
| ___ Fraxinus quadrangulata | ___ Rubus occidentalis | ___ |
| ___ Gleditsia triacanthos | ___ Rubus orarius | ___ |
| ___ Gymnocladus dioica | ___ Salix caroliniana | ___ |
| ___ Hamamelis virginiana | ___ Salix interior | ___ |
| | | ___ Over for addit. species |

MISSOURI NATURAL AREAS INVENTORY

FERNS AND FERN ALLIES

Relative abundance

1. Rare
2. Occasional
3. Common
4. Abundant
5. Very abundant

- 2 Adiantum pedatum
- Asplenium bradleyi
- 2 Asplenium platyneuron
- Asplenium rhizophyllum
- Asplenium resiliens
- Asplenium ruta-muraria
- Asplenium trichomanes
- Athyrium filix-femina
- Athyrium pycnocarpon
- Athyrium thelypteroides
- Botrychium dissectum var. dissectum
- Botrychium dissectum var. obliquum
- 2 Botrychium virginianum
- Cheilanthes feei
- Cheilanthes lanosa
- Cystopteris bulbifera
- Cystopteris fragilis
- Dryopteris intermedia
- Dryopteris marginalis
- Equisetum arvense
- Equisetum hyemale
- Iscetes _____
- Lycopodium lucidulum
- 2 Onoclea sensibilis
- Ophioglossum engelmannii
- Osmunda cinnamomea
- Osmunda claytoniana
- Osmunda regalis
- Pella atropurpurea
- Peilaea glabella
- Polypodium polypodioides
- Polypodium vulgare

Area Name Teszars Woods
County Jefferson No. 83
Section 4 T. 42N R. 6E
Investigator Kurz, Tylka
Date June 11, 1981

- 3 Polystichum acrostichoides
- Pteridium aquilinum
- Selaginella apoda
- Selaginella rupestris
- Thelypteris hexagonoptera
- Thelypteris palustris
- Woodsia obtusa

Remarks: _____

MISSOURI NATURAL AREAS INVENTORY
SUMMER BIRD LIST

Area Name Teszars Woods
County Jefferson No. 83
Section 4 T. 42N R. 6E
Investigator Kurz, Tylka
Date June 11, 1981

American BITTERN
 Least BITTERN
 Brewer's BLACKBIRD
 Common BLUEBIRD
 BOBWHITE
 Indigo BUNTING
 CARDINAL
 Gray CATBIRD
 Yellow-breasted CHAT
 Black-capped CHICKADEE
 Carolina CHICKADEE
 CHUCK-WILL'S-WIDOW
 American COT
 Brown-headed COWBIRD
 Common CROW
 Black-billed CUCKOO
 Yellow-billed CUCKOO
 DICKCISSEL
 Mourning DOVE
 Rock DOVE
 Wood DUCK
 Great EGRET
 Snowy EGRET
 Common FLICKER
 Alder FLYCATCHER
 Great-crested FLYCATCHER
 Willow Flycatcher
 Blue-gray GNATCATCHER
 American GOLDFINCH
 Common GRACKLE
 Blue GROSBEAK
 Rose-breasted GROSBEAK
 Herring GULL
 Cooper's HAWK
 Marsh HAWK
 Red-shouldered HAWK
 Red-tailed HAWK
 Black-crowned Night HERON
 Great Blue HERON
 Green HERON
 Little Blue HERON
 Ruby-throated HUMMINGBIRD
 Blue JAY
 Dark-eyed JUNCO
 KESTREL
 KILLDEER
 Eastern KINGBIRD
 Belted KINGFISHER
 Horned LARK
 MALLARD
 Purple MARTIN
 Eastern MEADOWLARK
 Western MEADOWLARK

MOCKINGBIRD
 Common NIGHTHAWK
 White-breasted NUTHATCH
 Northern ORIOLE
 Orchard ORIOLE
 OVEN-BIRD
 Barred Owl
 Great Horned OWL
 Screech OWL
 Northern PARULA
 Eastern Wood PEWEE
 Ring-necked PHEASANT
 Eastern PHOEBE
 King RAIL
 Virginia RAIL
 American REDSTART
 REDWING
 ROADRUNNER
 ROBIN
 Upland SANDPIPER
 Yellow-bellied SAPSUCKER
 Loggerhead SHRIKE
 SORA
 Chipping SPARROW
 Field SPARROW
 Grasshopper SPARROW
 House SPARROW
 Lark SPARROW
 Song SPARROW
 Vesper SPARROW
 STARLING
 Bank SWALLOW
 Barn SWALLOW
 Rough-winged SWALLOW
 Tree SWALLOW
 Chimney SWIFT
 Scarlet TANAGER
 Summer TANAGER
 Brown THRASHER
 Wood THRUSH
 Tufted TITMOUSE
 Rufous-sided TOWHEE
 TURKEY
 Bell's VIREO
 Red-eyed VIREO
 Warbling VIREO
 White-eyed VIREO
 Yellow-throated VIREO

Black VULTURE
 Turkey VULTURE
 Blue-winged WARBLER
 Kentucky WARBLER
 Parula WARBLER
 Prairie WARBLER
 Prothonotary WARBLER
 Yellow WARBLER
 Yellow-throated WARBLER
 Louisiana WATERTHRUSH
 Cedar WAXWING
 WHIP-POOR-WILL
 Downy WOODPECKER
 Hairy WOODPECKER
 PILEATED WOODPECKER
 Red-bellied WOODPECKER
 Red-headed WOODPECKER
 Carolina WREN
 House WREN
 Short-billed Marsh WREN
 Common YELLOW-THROAT

Woodcock

MISSOURI NATURAL AREAS INVENTORY
REPTILES, AMPHIBIANS, AND MAMMALS

Area Name Teszars Woods
County Jefferson No. 83
Section 4 T. 42N R. 6E
Investigator Kurz, Tylka
Date June 11, 1981

Amphibians

- Spotted Salamander
- Marbled Salamander
- Smallmouth Salamander
- Eastern Tiger Salamander
- Central Newt
- Longtail Salamander
- Cave Salamander
- Slimy Salamander
- So. Redback Salamander
- American Toad
- Fowler's Toad
- Blanchard's Cricket Frog
- Northern Spring Peeper
- Gray Treefrog
- Western Chorus Frog
- Eastern Narrowmouth Toad
- Northern Crawfish Frog
- Plains Leopard Frog
- Bullfrog
- Green Frog
- Pickerel Frog
- Southern Leopard Frog

- Broadhead Skink
- Ground Skink
- Six-Lined Racerunner
- Western Slender Glass Lizard
- Western Worm Snake
- Eastern Yellowbelly Racer
- Prairie Ringneck Snake
- Great Plains Rat Snake
- Black Rat Snake
- Prairie Kingsnake
- Speckled Kingsnake
- Red Milk Snake
- Eastern Coachwhip
- Rough Green Snake
- Bullsnake
- Flathead Snake
- Eastern Hognose Snake
- Yellowbelly Water Snake
- Midland Water Snake
- Northern Water Snake
- Midland Brown Snake
- Northern Redbelly Snake
- Western Ribbon Snake
- Eastern Plains Garter Snake
- Eastern Garter Snake
- Central Lined Snake
- Rough Earth Snake
- Western Earth Snake
- Southern Copperhead
- Osage Copperhead
- Timber Rattlesnake
- Western Pygmy Rattlesnake

- Keen's Bat
- Indiana Bat
- Least Bat
- Silver-Haired Bat
- Eastern Pipistrel
- Big Brown Bat
- Red Bat
- Hoary Bat
- Western Lump-Nosed Bat
- Eastern Cottontail
- Woodchuck
- Eastern Chipmunk
- Eastern Gray Squirrel
- Eastern Fox Squirrel
- Southern Flying Squirrel
- Plains Pocket Gopher
- Beaver
- Western Harvest Mouse
- White-Footed Mouse
- Prairie White-Footed Mouse
- Eastern Wood Rat
- Southern Lemming Mouse
- Prairie Meadow Mouse
- Pine Mouse
- Muskrat
- Norway Rat
- House Mouse
- Meadow Jumping Mouse
- Coyote
- Red Fox
- Gray Fox
- Raccoon
- Long-Tailed Weasel
- Mink
- Badger
- Spotted Skunk
- Striped Skunk
- Bobcat
- White-Tailed Deer

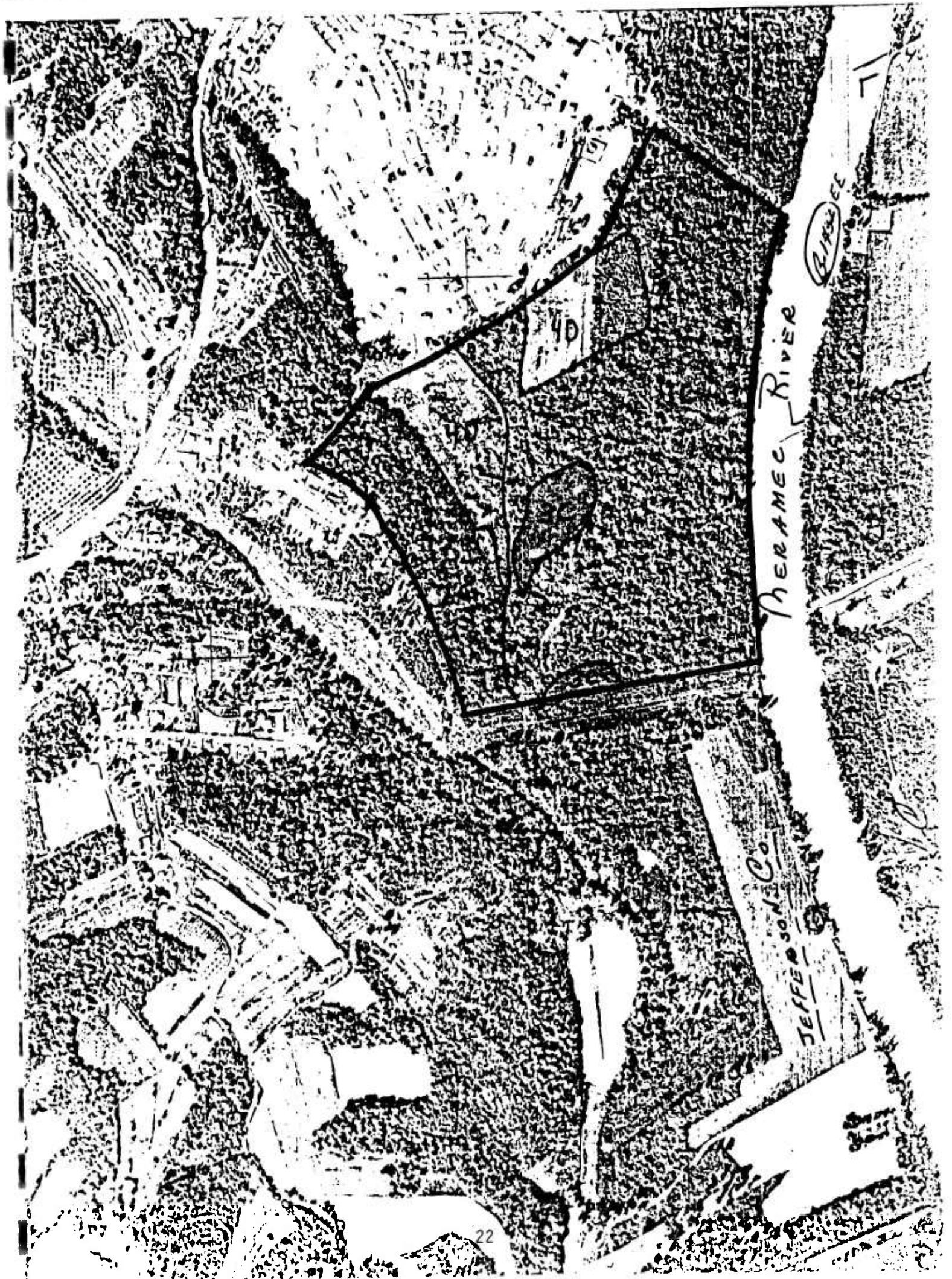
Reptiles

- Common Snapping Turtle
- Alligator Snapping Turtle
- Stinkpot Turtle
- Missouri Cooter
- Western Painted Turtle
- Red-Eared Slider
- Map Turtle
- Mississippi Map Turtle
- Ouachita Map Turtle
- False Map Turtle
- Three-Toed Box Turtle
- Ornate Box Turtle
- Midland Smooth Softshell
- Western Spiny Softshell
- Eastern Collared Lizard
- Northern Fence Lizard
- Southern Coal Lizard
- Five-Lined Skink

Mammals

- Opossum
- Short-Tailed Shrew
- Least Shrew
- Eastern Mole
- Little Brown Bat
- Gray Bat

Remarks: _____



PERAMEC RIVER

RIVER

JEFFERSON CO

40

19

Appendix III

Animal Species of Concern in the Study Area

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>	<u>Habitat</u>
Fat pocketbook pearly mussel	<i>Potamilus capax</i>	Endangered	Collections have been made between Lock and Dam #22 and Ashburn.
Alabama shad	<i>Alosa alabamæ</i>	Rare	Anadromous species that is known to spawn in the Meramec River, using the Mississippi River as a migration route. No recent records above mouth of Missouri River.
Alligator gar	<i>Lepisosteus spatula</i>	Rare	No recent records from above the mouth of the Missouri River. Generally distributed in the remainder of study area.
Lake sturgeon	<i>Acipenser fulvescens</i>	Endangered	Probably occurs as stray individuals rather than established populations. No recent records below the mouth of the Missouri River, but probably occurs there.
Pallid sturgeon	<i>Scaphirhynchus albus</i>	Endangered	No recent records from above the mouth of the Missouri River. Generally distributed in the remainder of study area.
Pugnose minnow	<i>Notropis emiliae</i>	Endangered	Formerly occurred in Mississippi River above mouth of Missouri River, but no recent records.

Animal Species of Concern in the Study Area (Cont.)

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>	<u>Habitat</u>
Sicklefin chub	<i>Hybopsis meeki</i>	Rare	No recent records from above the mouth of the Missouri River. Generally distributed in remainder of study area.
Sturgeon chub	<i>Hybopsis gelida</i>	Rare	No recent records from above the mouth of the Missouri River. Generally distributed in remainder of study area.
Alligator snapping turtle	<i>Macroclemys temminckii</i>	Rare	Occurs in sloughs, oxbow lakes, backwaters up to Hannibal.
Green water snake	<i>Nerodia cyclopion</i>	Rare	This species inhabits sluggish streams, lakes, and bayous in the lower Mississippi River Valley.
Massasauga	<i>Sistrurus catenatus</i>	Endangered	There are no recent records but the species has been known to occur in natural marshes north of the Missouri River.
Western hognose snake	<i>Heterodon nasicus gloydii</i>	Rare	The species prefers prairie habitat with sandy soil. It has been observed in Scott and Mississippi counties.
Cooper's hawk	<i>Accipiter cooperii</i>	Endangered	Habitat occurs in bottomland forests from St. Louis County north.

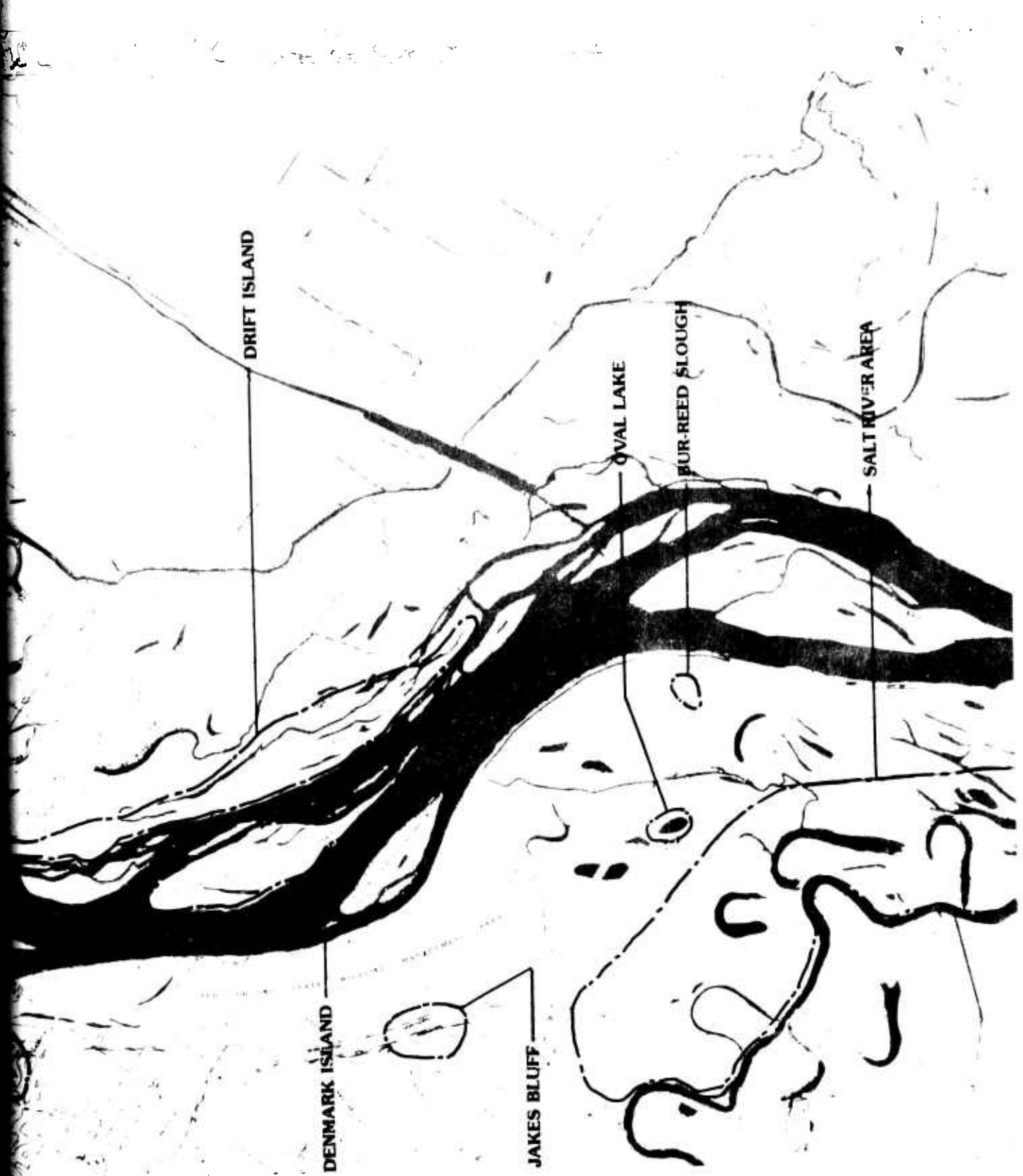
Animal Species of Concern in the Study Area (Cont.)

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>	<u>Habitat</u>
Double-crested cormorant	<i>Phalacrocorax auritus</i>	Extirpated	Records are over 10 years old. Habitat was dead trees or snags over standing water. The bird is colonial.
Least tern	<i>Sterna albirostris</i>	Endangered	Occurs on island sandbars north of St. Louis County. Due to fluctuating water levels the species may be extirpated.
Mississippi kite	<i>Ictinia mississippiensis</i>	Rare	Occurs in brushlands or open woods near water from the mouth of the Missouri River south.
Sharp-shinned hawk	<i>Accipiter striatus</i>	Endangered	Prefers upland forests from mouth of Missouri River north. Presently no breeding populations are known.

MAPS

NATURAL AREAS INVENTORY





DRIFT ISLAND

OVAL LAKE

FUR-REED SLOUGH

SALT RIVER AREA

DENMARK ISLAND

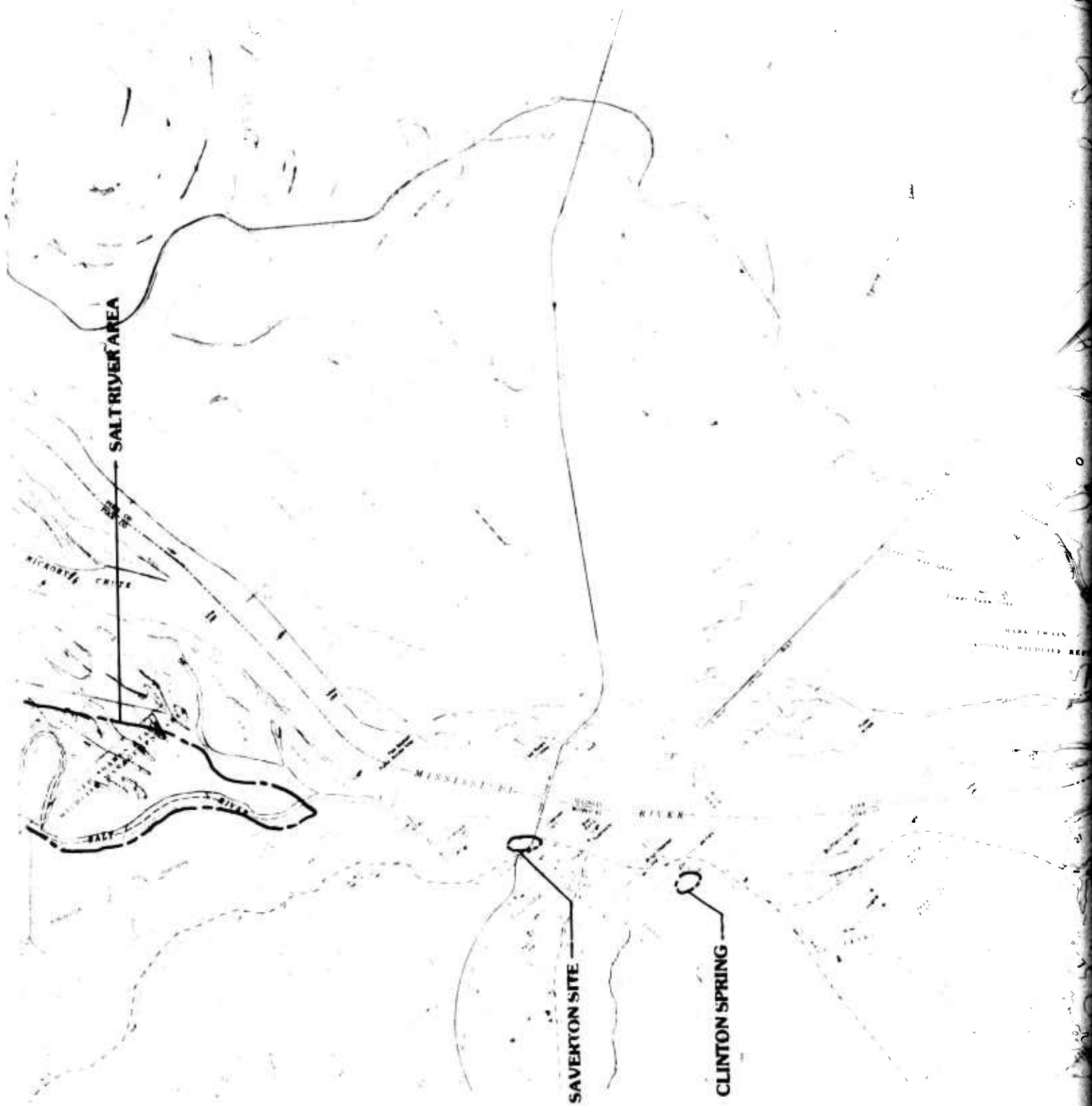
JAKES BLUFF

UNITED STATES GEOLOGICAL SURVEY

PLATE 1

1 2

NATURAL AREAS INVENTORY

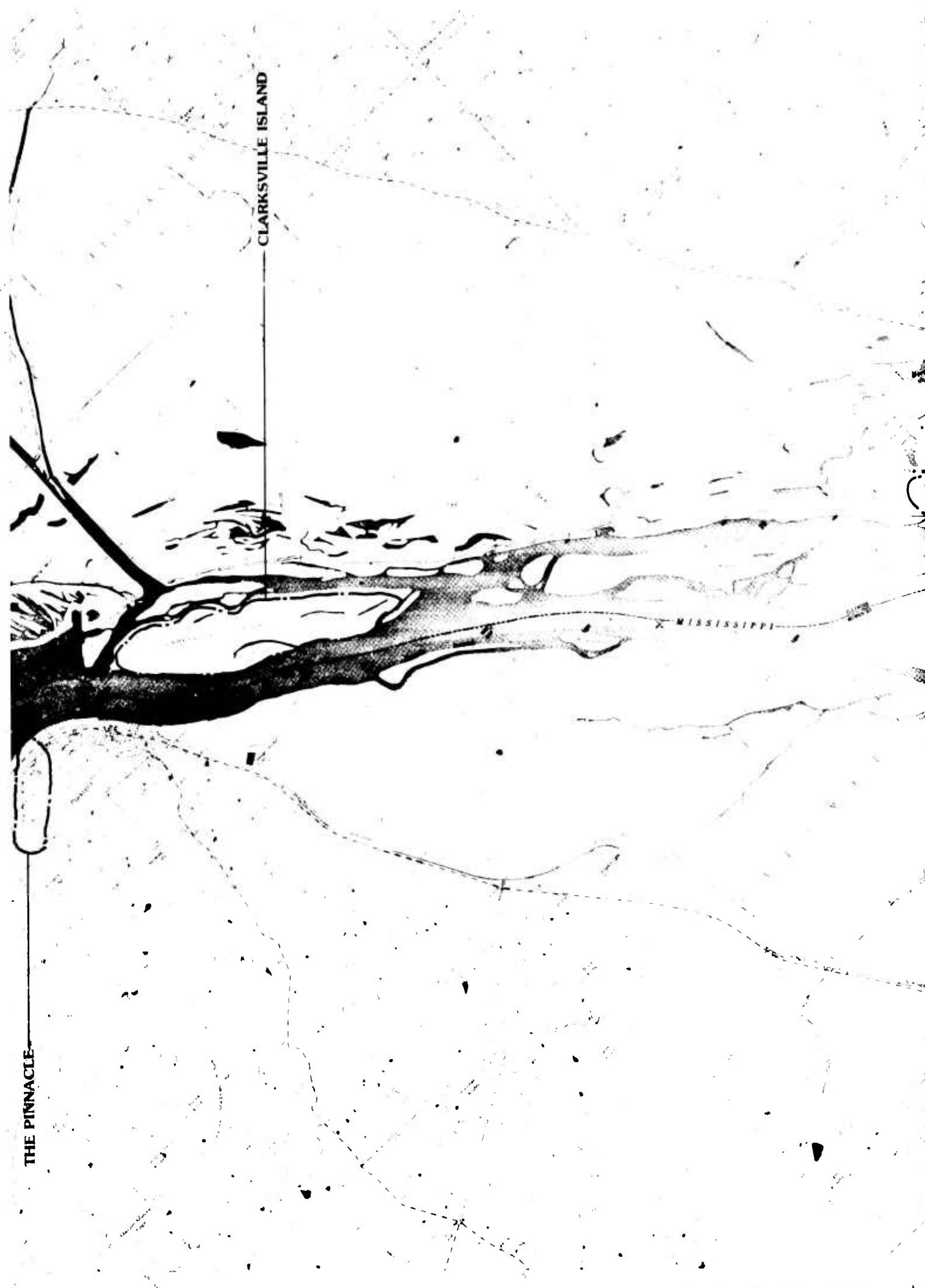


UPPER MISSISSIPPI RIVER
PLATE 2



U.S. GEOLOGICAL SURVEY
BULLETIN 1464
WASHINGTON, D.C. 20506

NATURAL AREAS INVENTORY



THE PINNACLE

CLARKSVILLE ISLAND

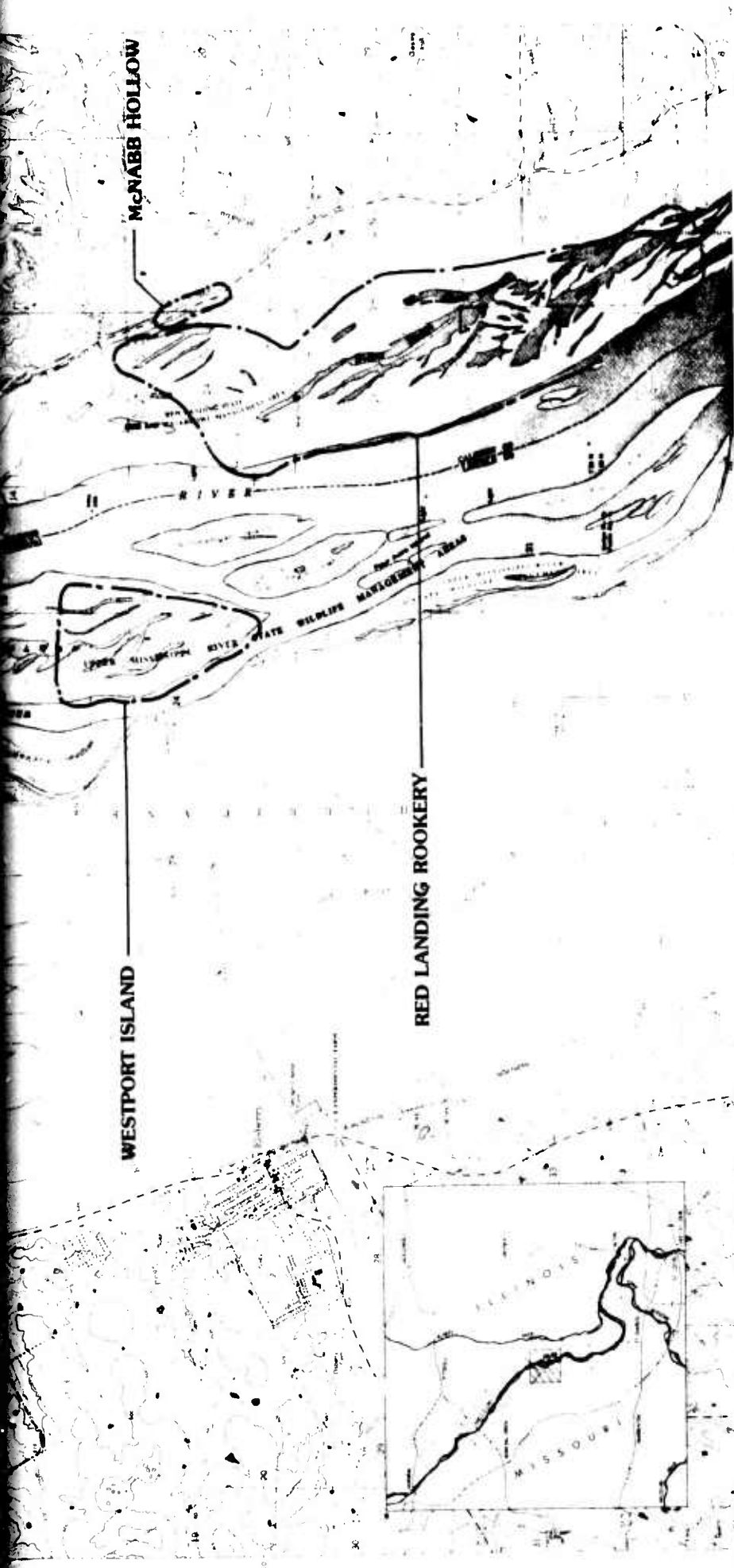
MISSISSIPPI

RIP RAP LANDING WOODS



UPPER MISSISSIPPI RIVER
FROM 25 MILE 260 TO MILE 273
PLATE 3

Prepared by the U.S. Geological Survey for the
Department of the Interior, Bureau of Land Management,
Bull. U.S. Geol. Surv. 14, 1908, p. 100. (G.P.O. : 1908.)



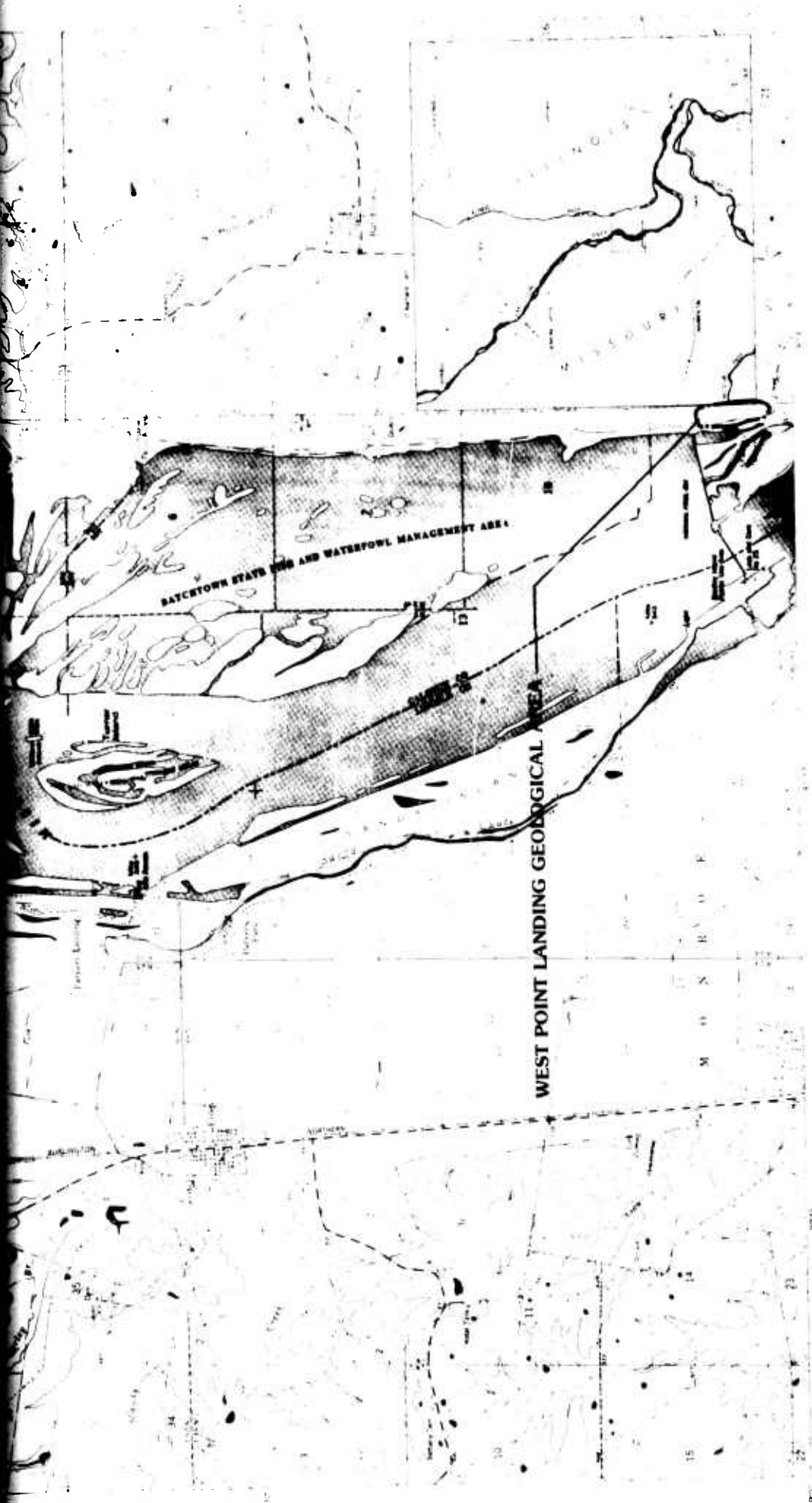
UPPER MISSISSIPPI RIVER
(POOL 25 MILE TO MILE 259)

PLATE 4

Prepared by the U.S. Geological Survey, for the
U.S. Army Corps of Engineers (St. Louis District)
and the Great River Resource Management Study (GREAT III)
Completed in 1975 from 1:50,000 scale topographic
maps dated 1972.

NATURAL AREAS INVENTORY





UPPER MISSISSIPPI RIVER
 (POOL 25-MILE 242 TO MILE 250)
PLATE 5

Prepared by the U.S. Geological Survey for the
 U.S. Army, Corps of Engineers (St. Louis District)
 and the Great River Resource Management Study (GREAT III)
 Completed in 1978 from 1:50,000-scale topographic
 maps (Sheet 105)

U.S. GEOLOGICAL SURVEY
 WATER RESOURCES DIVISION
 MISSOURI DISTRICT OFFICE
 1415 SOUTH 10TH STREET
 ST. LOUIS, MISSOURI 63104

12

NATURAL AREAS INVENTORY





UPPER MISSISSIPPI RIVER
 (FOOT 26 MILE 233 TO MILE 241)
PLATE 6

Prepared by the U. S. Geological Survey, for the
 U. S. Army Corps of Engineers, District Engineer,
 and the United States Fish and Wildlife Service,
 Columbia, Missouri. Scale 1:50,000. Date 1955.

12

NATURAL AREAS INVENTORY





Prepared by the U.S. Geological Survey for the
 U.S. Army, Corps of Engineers (St. Louis District)
 and the Great River Economic Management Study (GREAT II)
 Compiled in 1970 from 1:25,000-scale topographic maps dated 1970

SCALE 1:24,000
 CONTOUR INTERVAL 10 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1985

NATURAL AREAS INVENTORY



UPPER MISSISSIPPI RIVER
(POOL 26 MILE 205 TO MILE 218)
PLATE 8

SCALE 1:24,000

CONTOUR INTERVAL 10 FEET
NATIONAL GEOGRAPHIC SERVICE, WASHINGTON, D. C. 20540

2



Prepared by the U.S. Geological Survey for the
U.S. Army Corps of Engineers (St. Louis District)
and the Great River Resource Management Study (GRRMS)
Contract No. DA-36-001-AMC-0000
June 1974

NATURAL AREAS INVENTORY



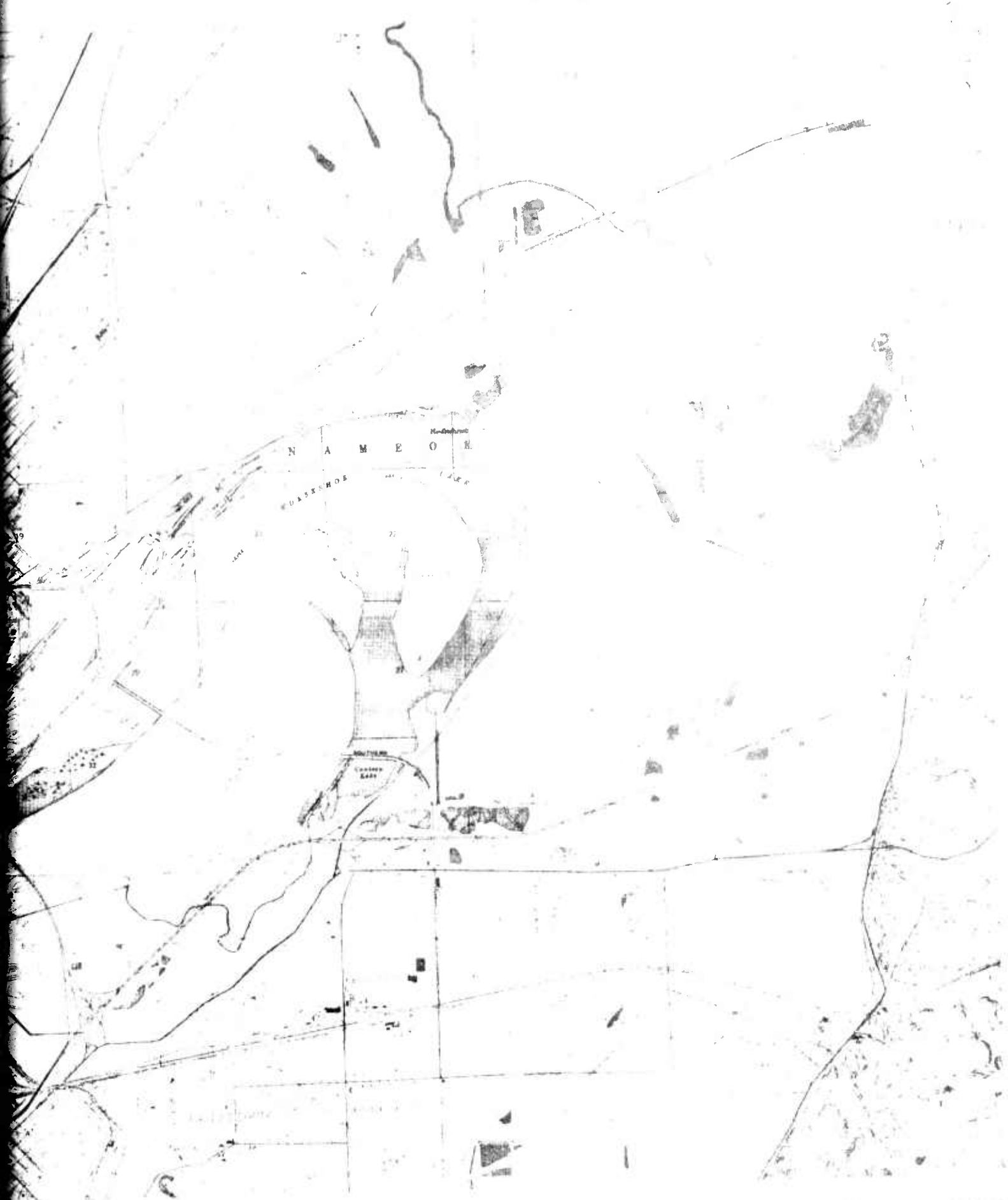
MIDDLE MISSISSIPPI RIVER
MILL 190 TO 202
PLATE 9

12



Prepared by the
U.S. Army, Corps of Engineers, Hydrographic Division
and the U.S. Army, Corps of Engineers, Map and Chart Division, 1963
Scale 1:50,000
Sheet 100-10-10

NATURAL AREAS INVENTORY



1
N



Prepared by the U.S. Geological Survey for the
U.S. Army, Corps of Engineers, St. Louis District
and the Great River Resource Management Study (GREAT III)
Completed in 1975 from 1:24,000 scale topographic
maps dated 1974

U.S. GEOLOGICAL SURVEY
ST. LOUIS DISTRICT
GREAT III
1975

NATURAL AREAS INVENTORY



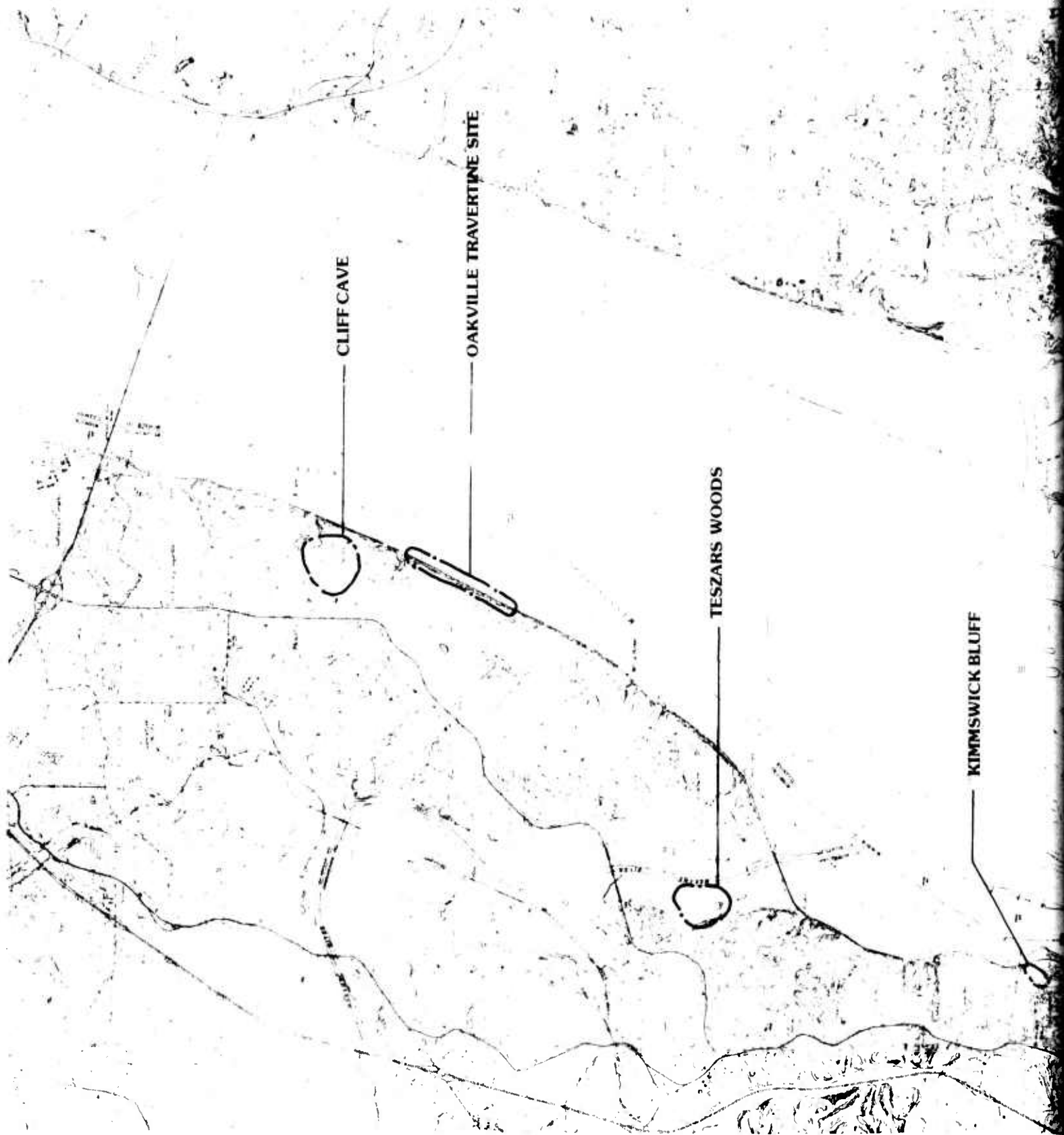
SCALE 1:74,000

1 2 3 4 5 6 7 8 9 10 11 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 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

CONTOUR INTERVAL 5 AND 10 FEET
NATIONAL GEODESIC SURVEY DATA OF 1929

MIDDLE MISSISSIPPI RIVER
(MILE 170 TO MILE 179)
PLATE 11

NATURAL AREAS INVENTORY



KIMSWICK BLUFF

GLEN PARK LIMESTONE

BUSHBURG SANDSTONE

MIDDLE MISSISSIPPI RIVER
WILLIAMS TO WATKINS
PLATE 12

12



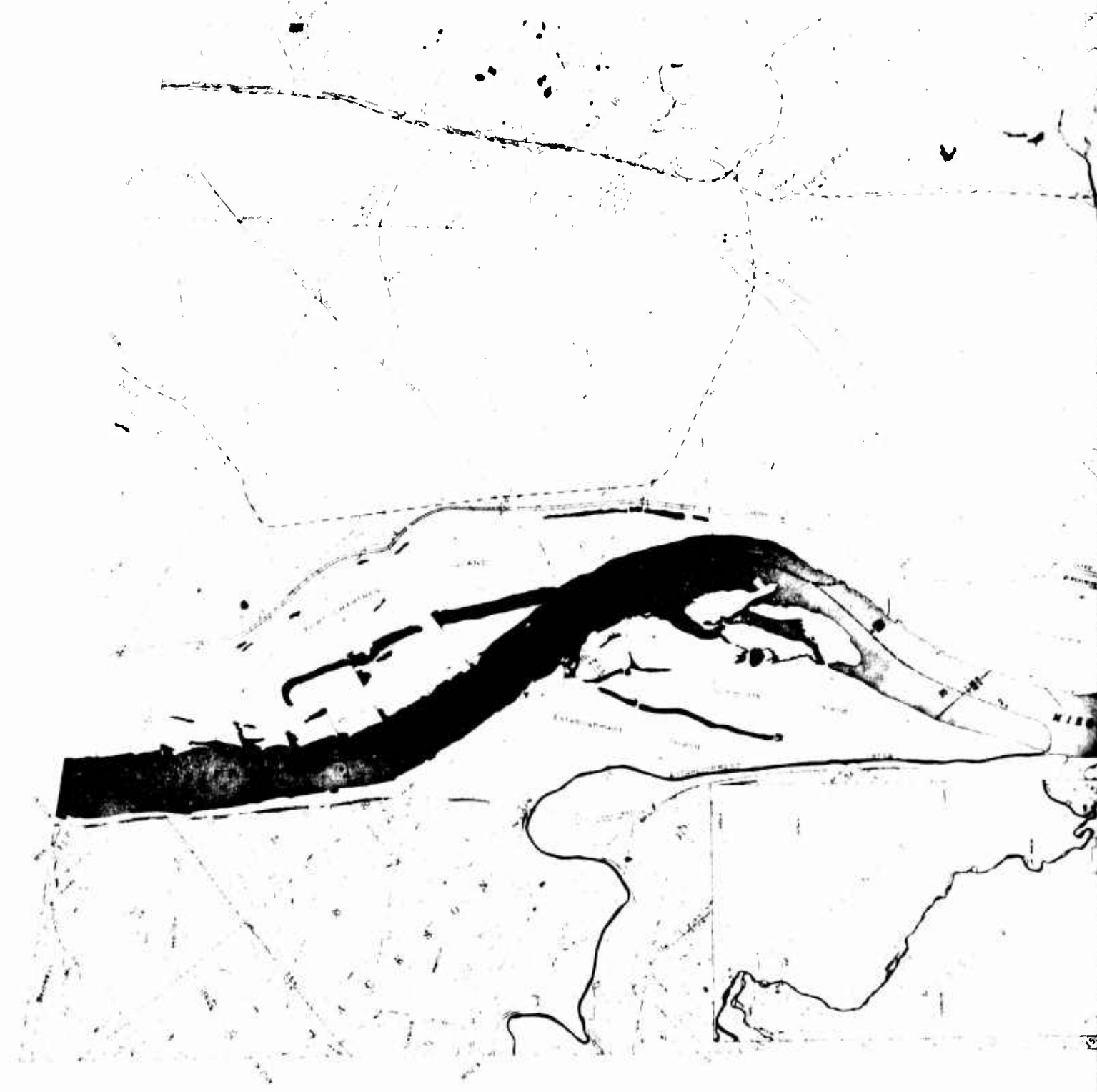
NATURAL AREAS INVENTORY

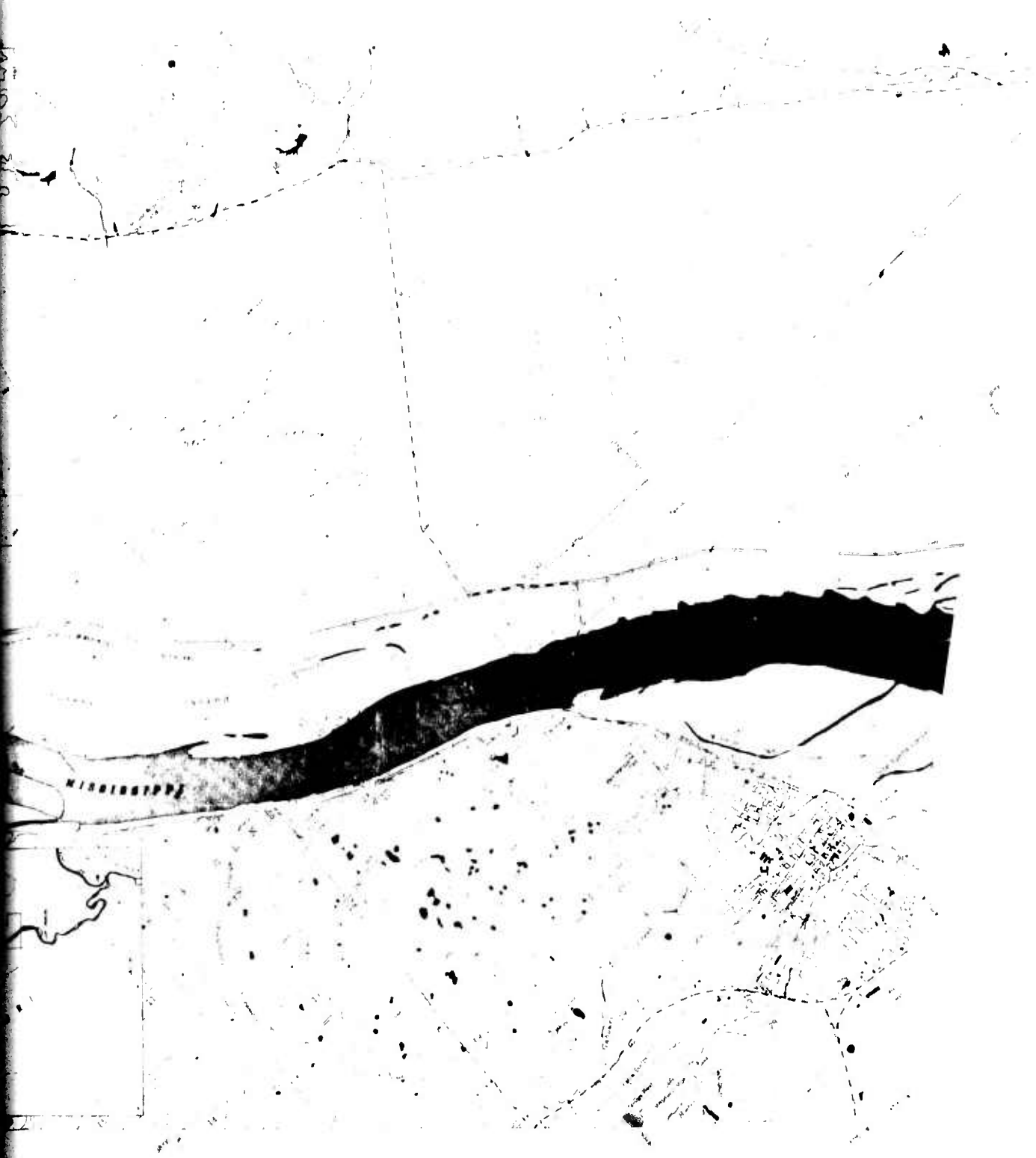




MIDDLE MISSISSIPPI RIVER
PLATE 13

NATURAL AREAS INVENTORY



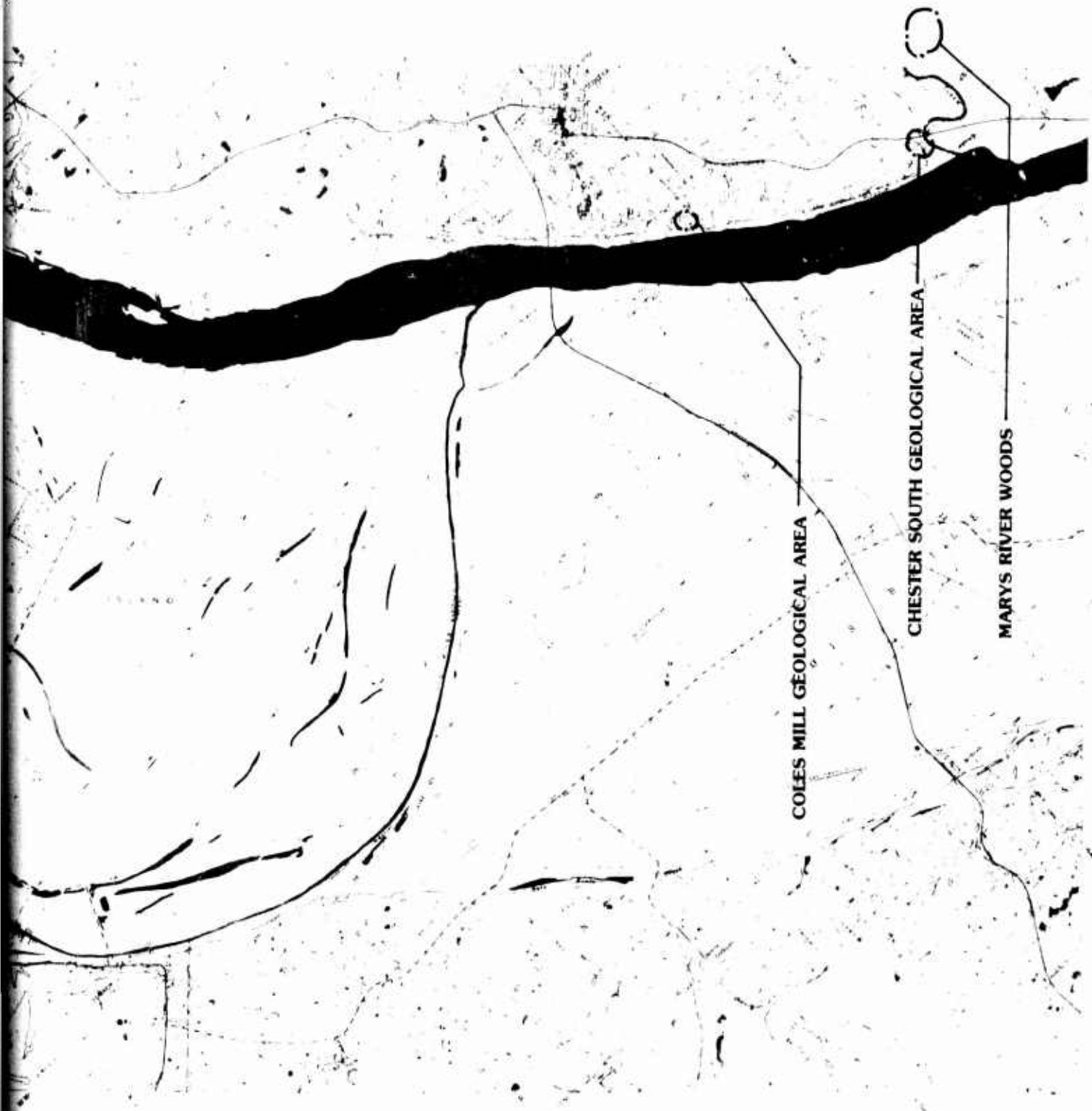


MIDDLE MISSISSIPPI RIVER
MILE 123 TO MILE 135
PLATE 14

Prepared by the U. S. Geological Survey for the
Flood Control Administration, District
and the Great River Levee and Management Study, PART III
Scale 1:50,000 (1 inch = 0.83 miles)

NATURAL AREAS INVENTORY

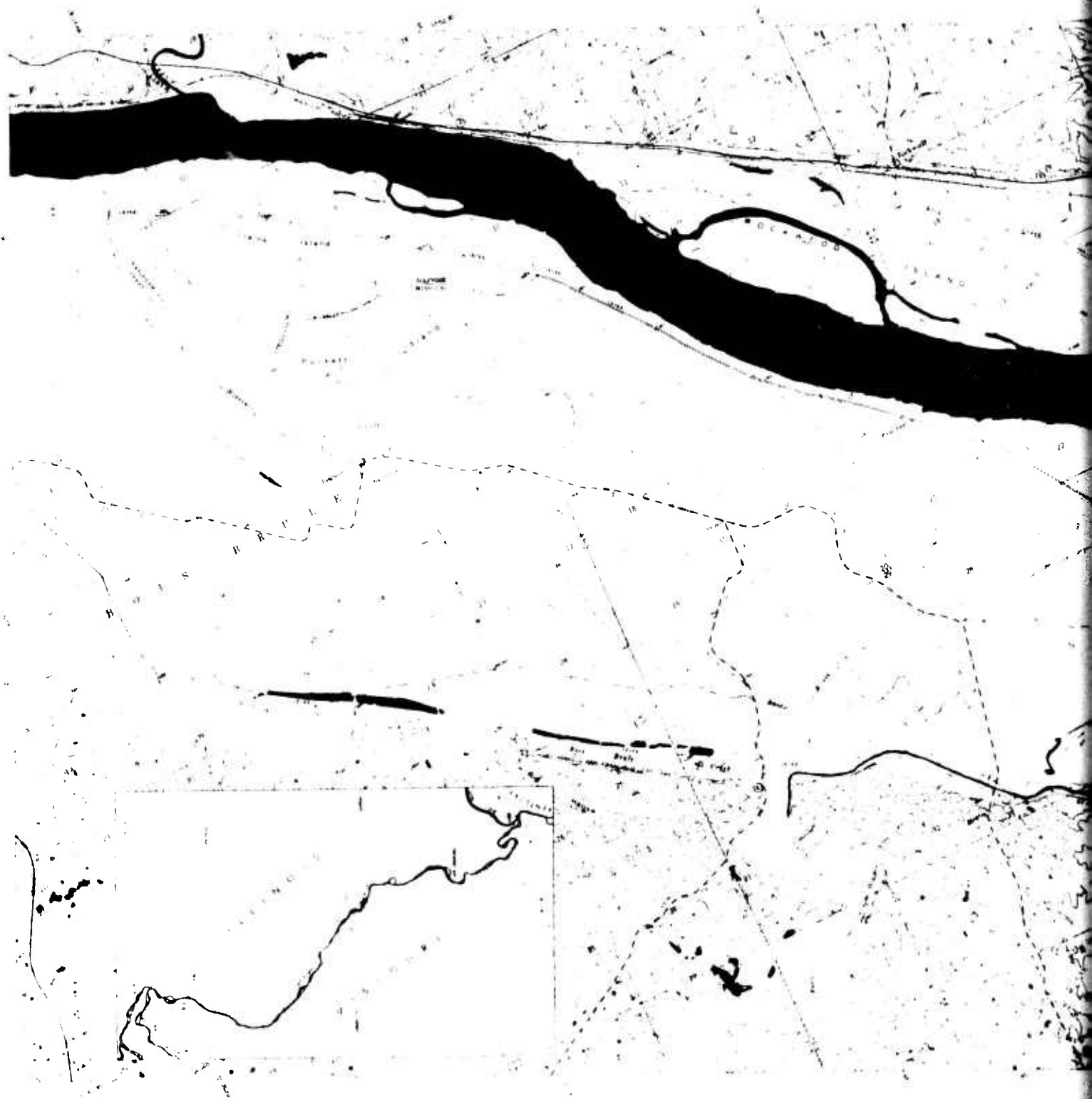


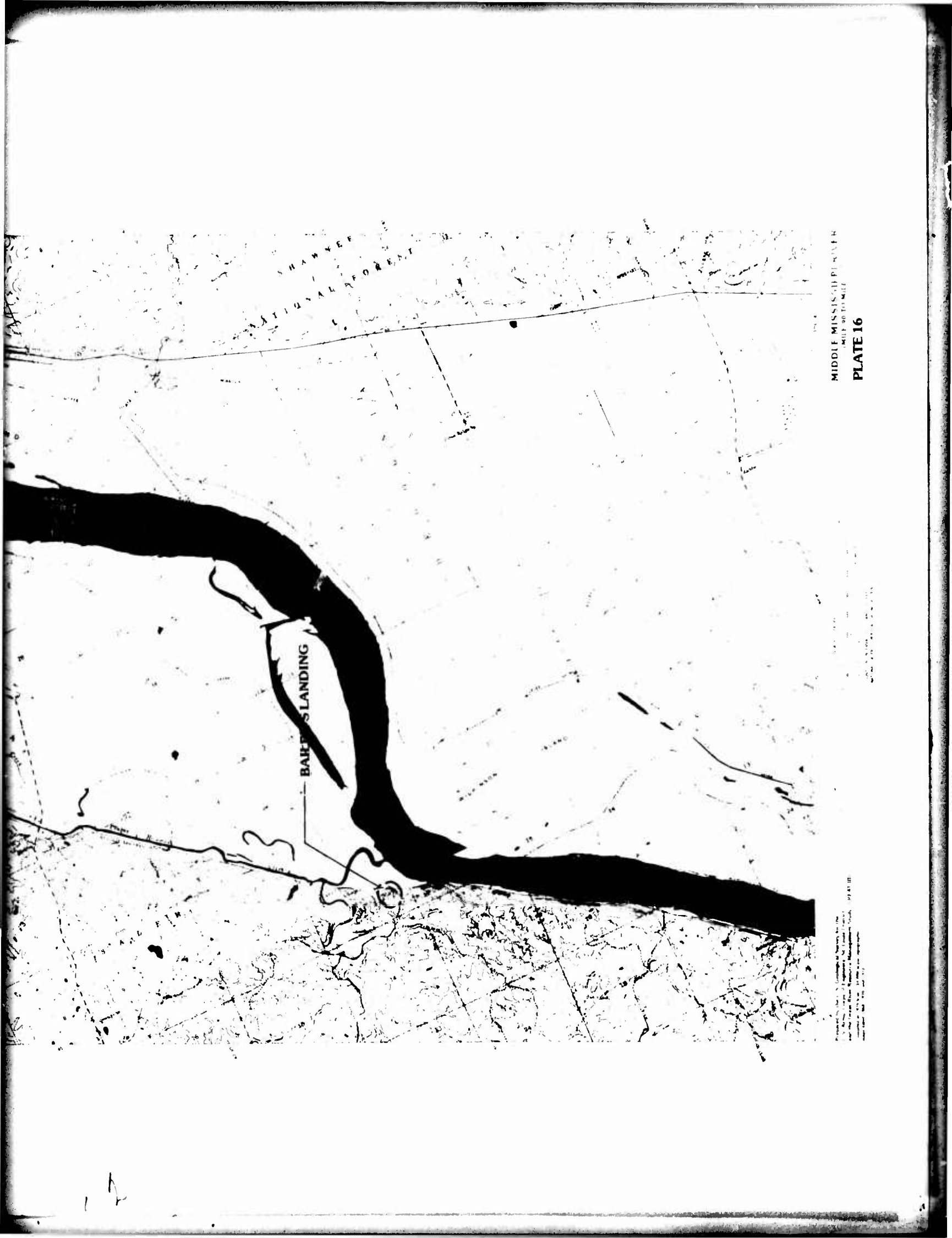


MIDDLE MISSISSIPPI RIVER
MILL FOR 1911 MISS. GEO.
PLATE 15

1 2

NATURAL AREAS INVENTORY





SHAWNEE
NATIONAL FOREST

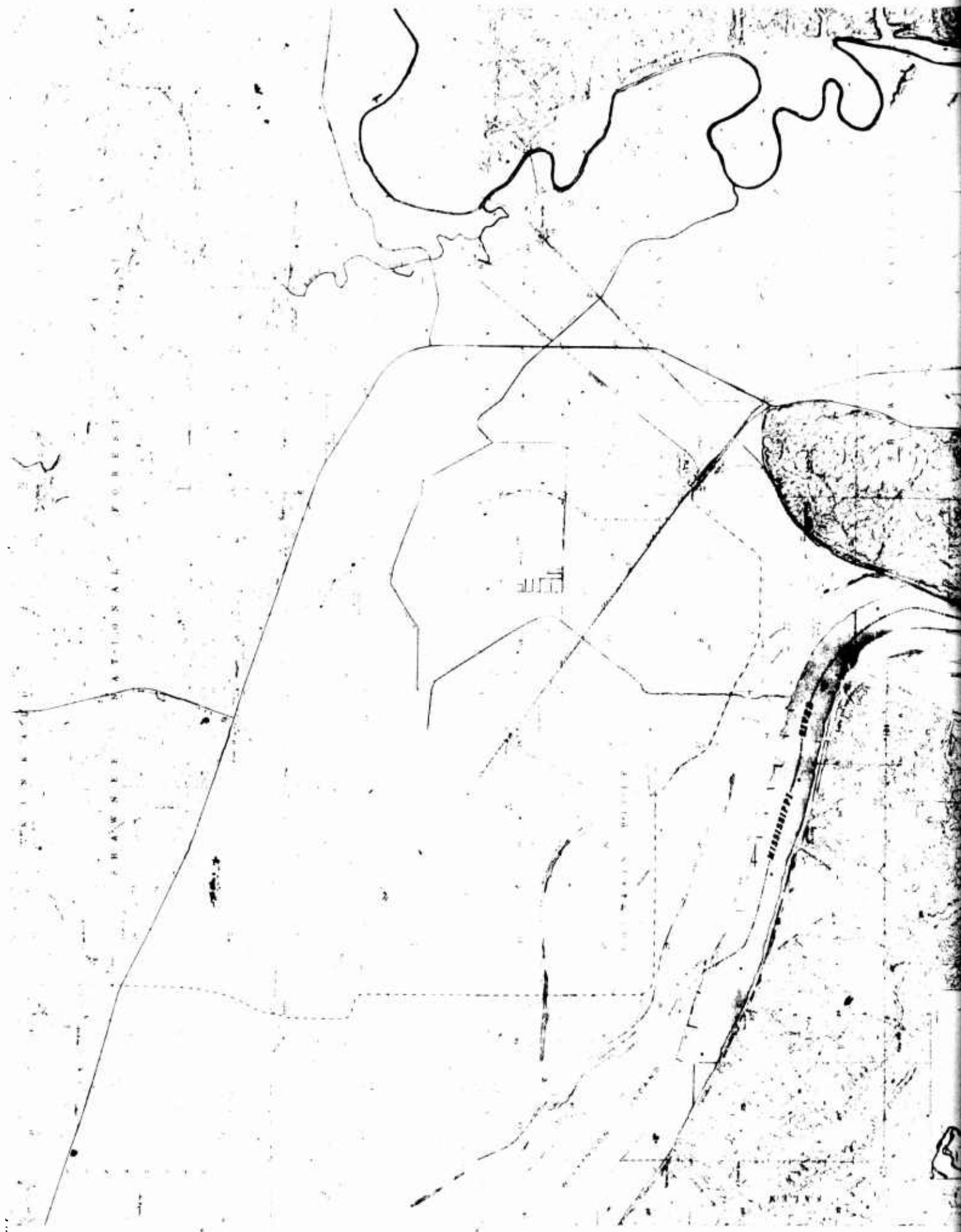
BAILEY'S LANDING

MIDDLE MISSISSIPPI RIVER
MILE 00 TO 10 MILE
PLATE 16

Published by the U.S. Geological Survey, Reston, Va.
This map is a reproduction of a map published by the
U.S. Geological Survey, Washington, D.C., in 1947.
Scale: 1:50,000
Copyright, 1947, U.S. Geological Survey

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NATURAL AREAS INVENTORY

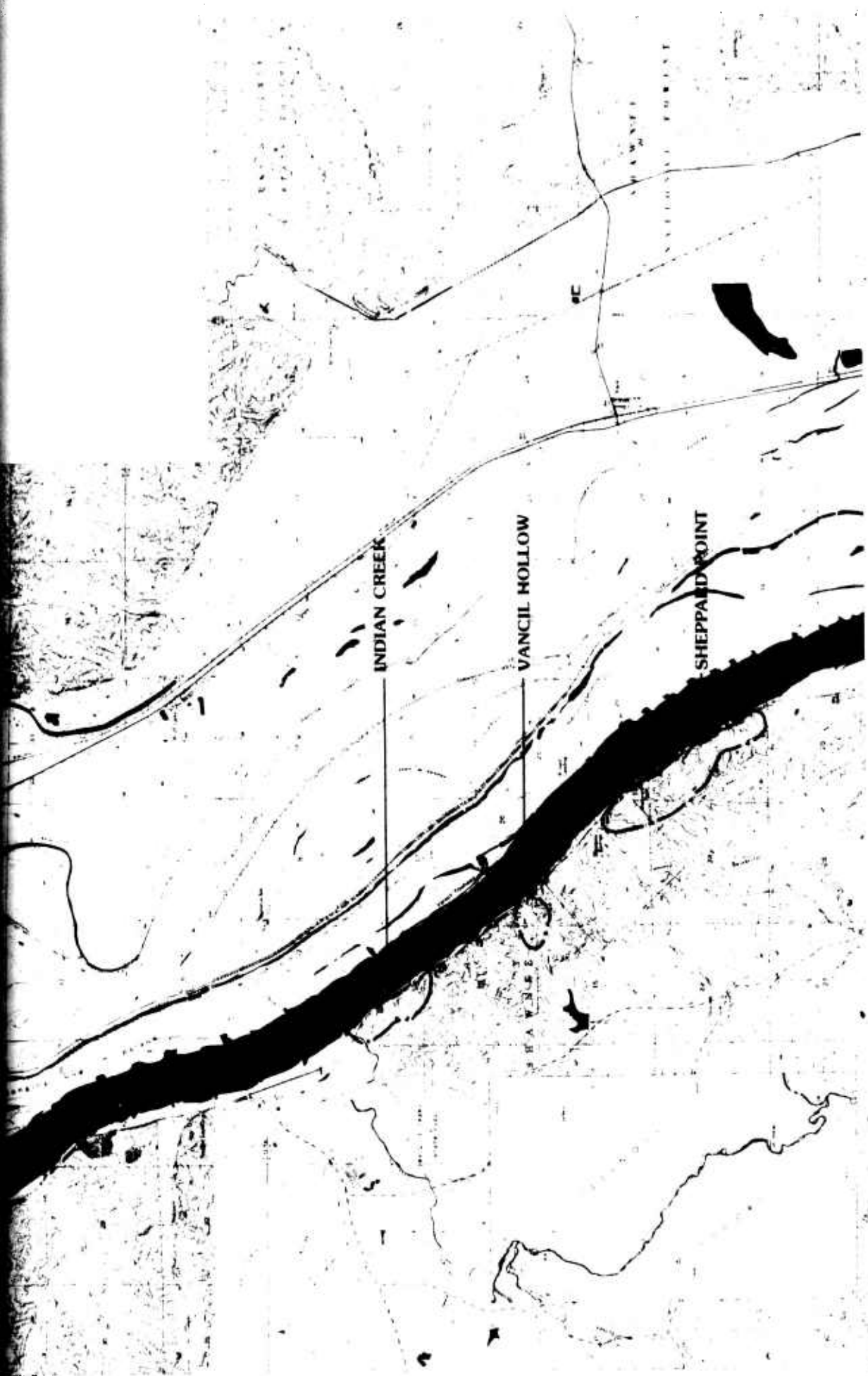




MIDDLE MISSISSIPPI RIVER
PLATE 17

NATURAL AREAS INVENTORY





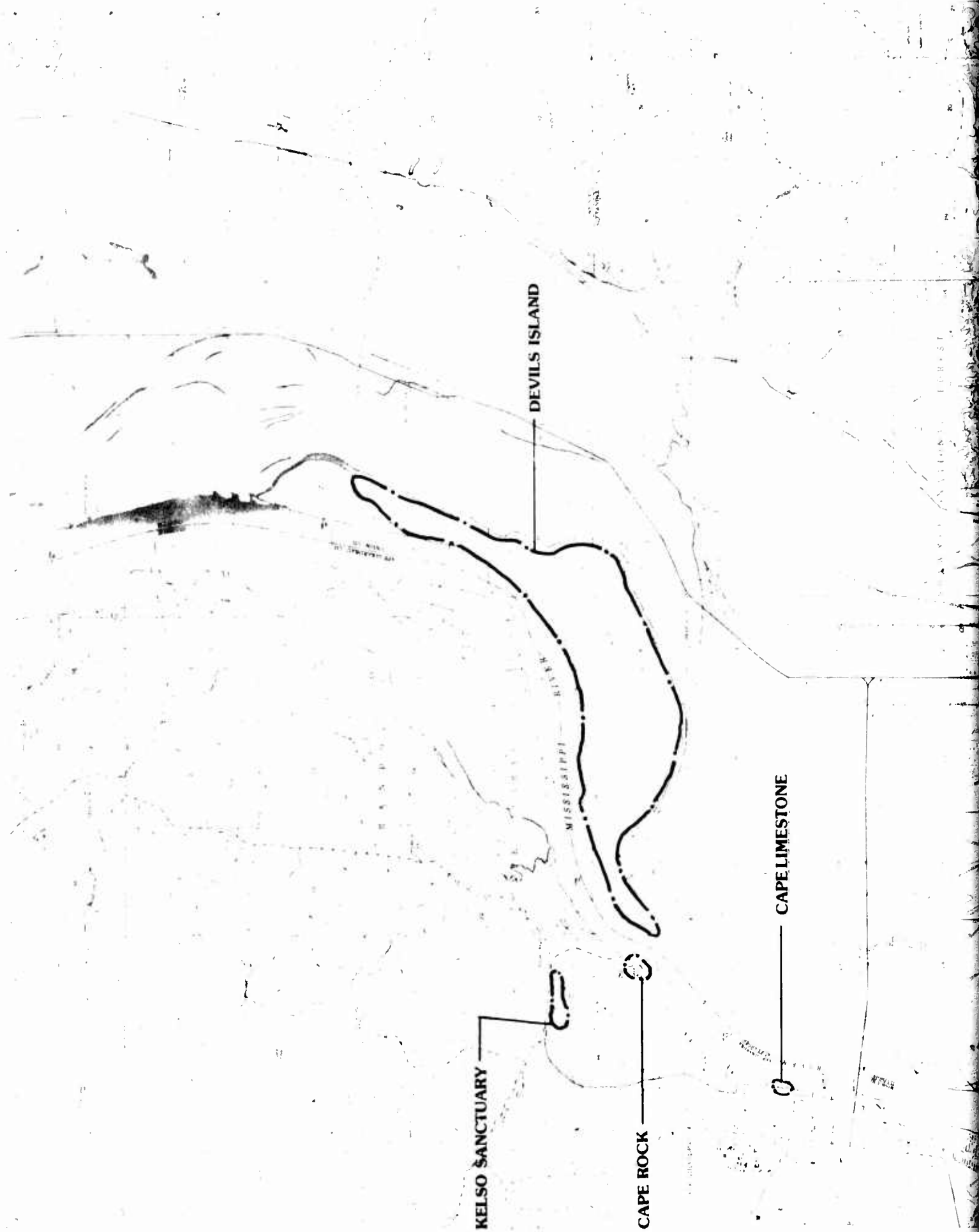
MIDDLE MISSISSIPPI RIVER
MAP NO. 1001

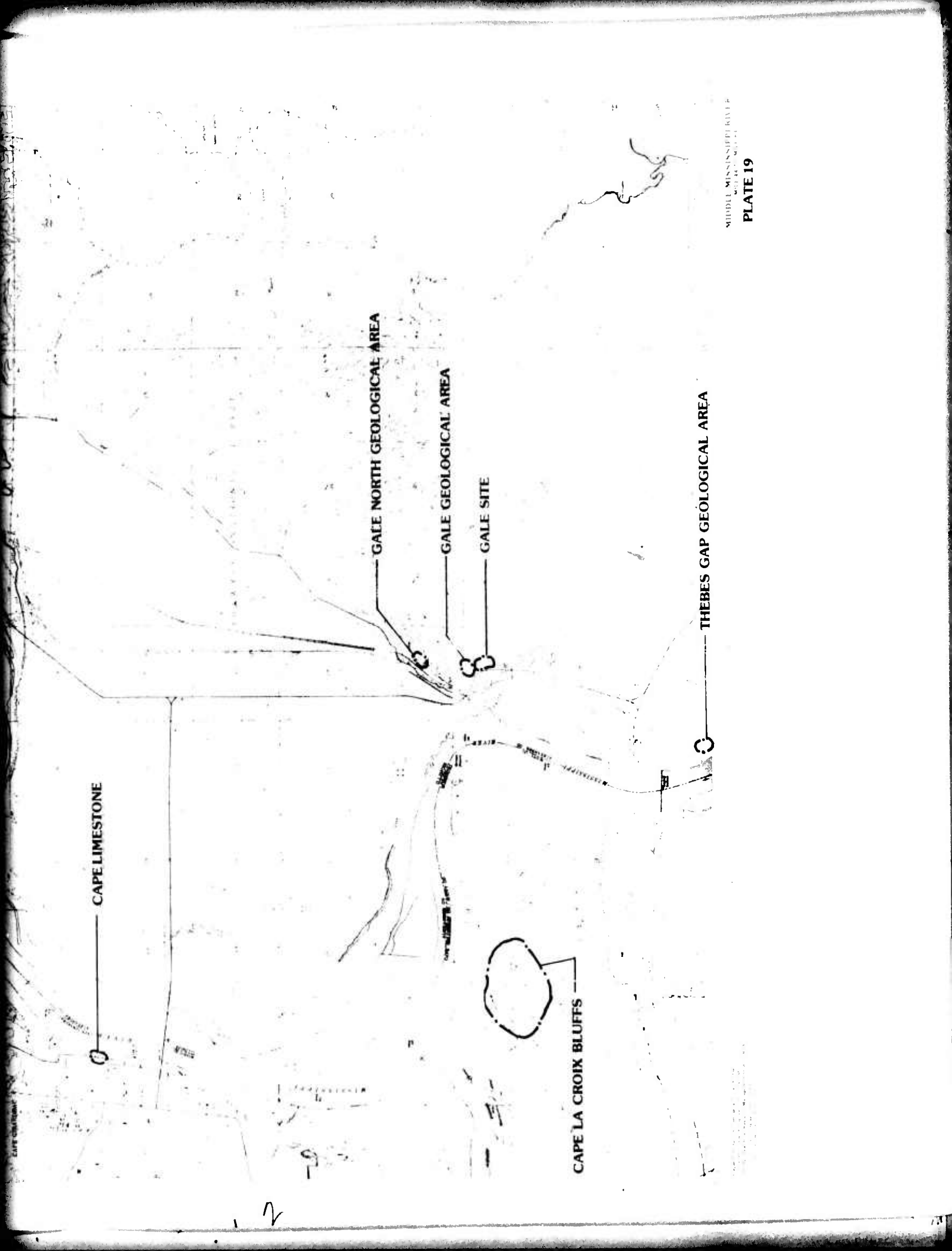
PLATE 18

Produced by the U.S. Geological Survey, Reston, Virginia, in cooperation with the U.S. Army Corps of Engineers, Vicksburg, Mississippi. The map is a reproduction of a map published in 1964. The map is available in microfiche and microfilm editions. For more information, contact the U.S. Geological Survey, Reston, Virginia 20192.

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NATURAL AREAS INVENTORY





MIDDLE MISSISSIPPI RIVER
GEOLOGICAL SURVEY
PLATE 19

CAPE LIMESTONE

GALE NORTH GEOLOGICAL AREA

GALE GEOLOGICAL AREA

GALE SITE

THEBES GAP GEOLOGICAL AREA

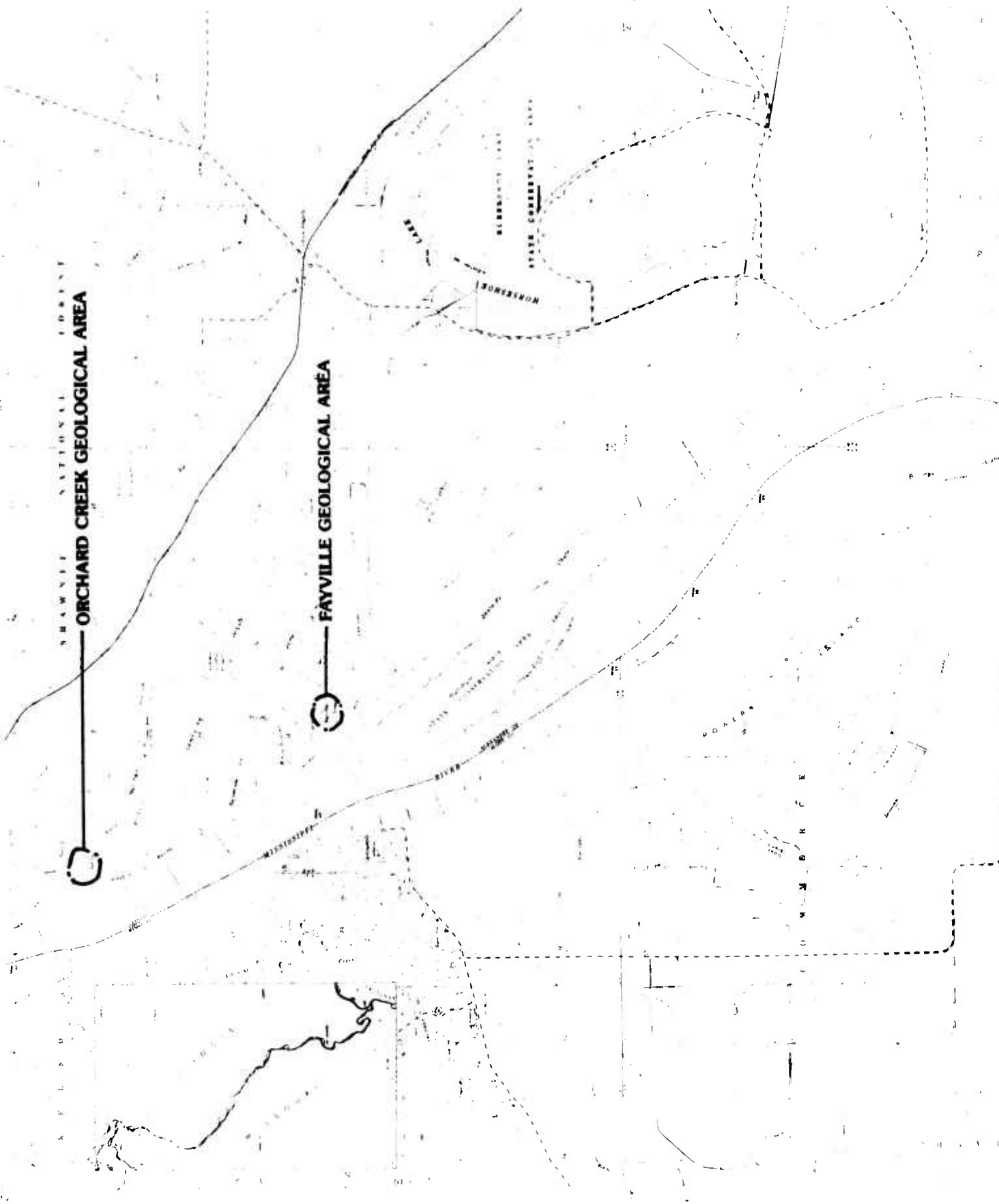
CAPE LA CROIX BLUFFS

2

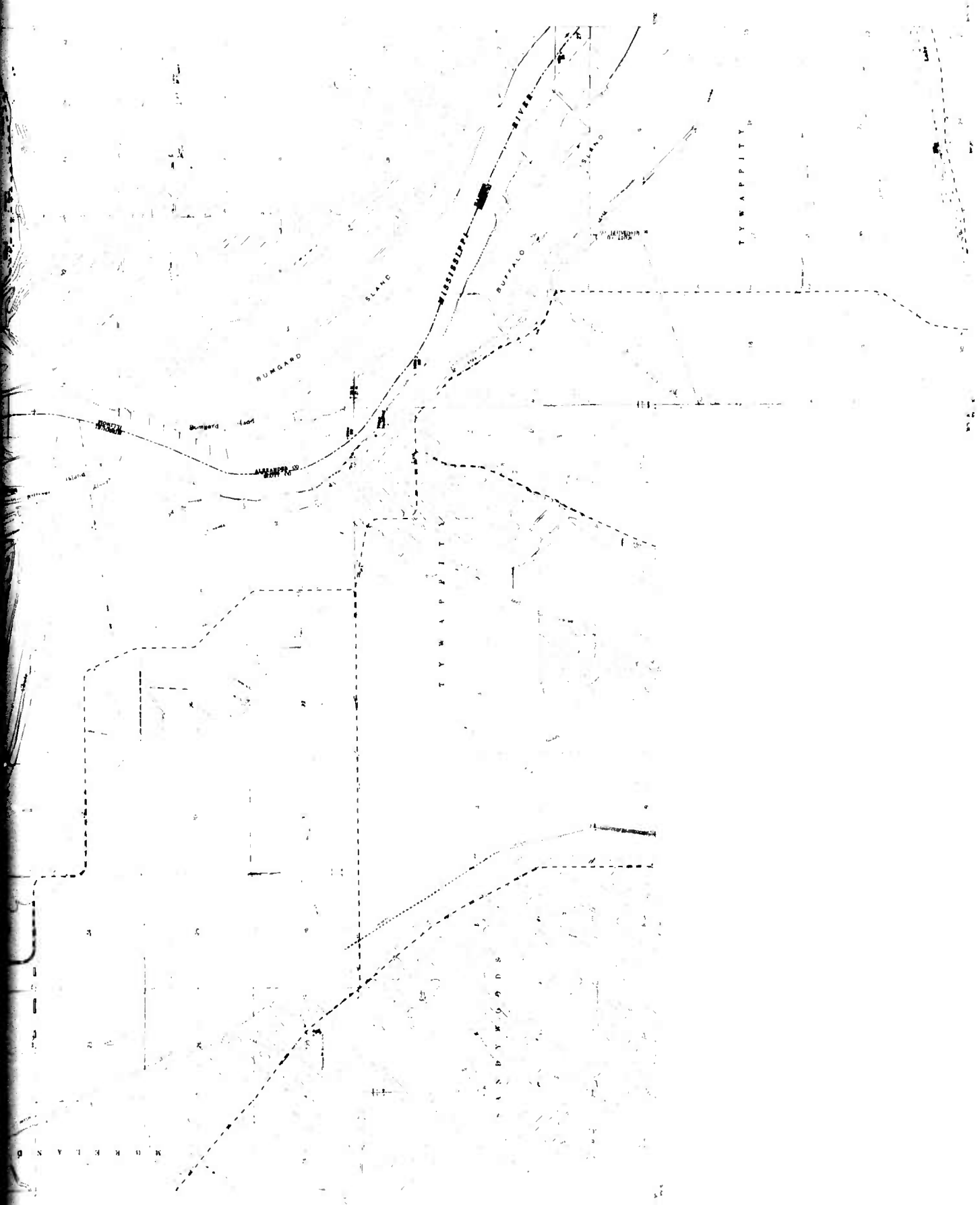
NATURAL AREAS INVENTORY

SHAWNEE NATIONAL FOREST
ORCHARD CREEK GEOLOGICAL AREA

FAYVILLE GEOLOGICAL AREA



MIDDLE MISSISSIPPI RIVER
PLATE 20



Prepared by the U.S. Army Corps of Engineers, New Orleans District, under the authority of the Chief of Engineers, U.S. Army Corps of Engineers, New Orleans, Louisiana, 1954.

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NATURAL AREAS INVENTORY



