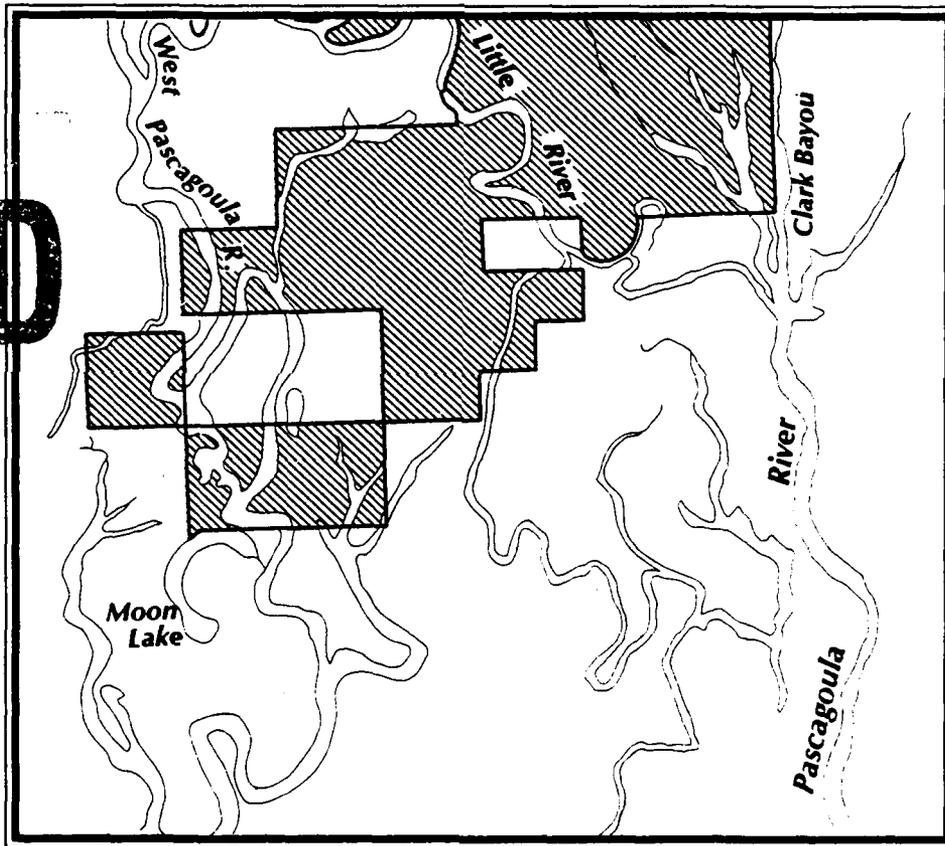




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HISTORIC RESOURCES ASSESSMENT OF THE
PASCAGOULA RIVER/DELTA,
TWIN OAKS AND MAHANNAH FARM TRACTS,
TENNESSEE-TOMBIGBEE WATERWAY
WILDLIFE MITIGATION PROJECT, MISSISSIPPI

H. Blaine Ensor
Eugene M. Wilson



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U.S. Army Corps of Engineers
Mobile District

Prepared by:
Panamerican Consultants, Inc.
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by
H. Blaine Ensor

with a
contribution by
Eugene M. Wilson

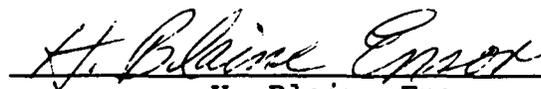
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July 1993



H. Blaine Ensor
Principal Investigator

ABSTRACT

An archaeological and historical reconnaissance of the Tennessee-Tombigbee Waterway Wildlife Mitigation Project, Jackson, Sharkey, Issaquena, and Warren Counties Mississippi was conducted by personnel from Panamerican Consultants, Inc. during the summer of 1992. No sites were recorded within the Pascagoula River/Delta tract.

No prehistoric sites were recorded in either the Twin Oaks or Mahannah Farm tracts. Three turn of the century railroad section houses were recorded in the Mahannah Farm tract, but these structures have been determined ineligible to the National Register of Historic Places by the Mississippi State Historic Preservation Office.

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Mr. Eugene Wilson of the University of South Alabama contributed sections on geomorphology and historic land use of the Pascagoula River/Delta tract; this is greatly appreciated.

Mr. Richard Fuller of the Alabama State Museum of Natural History and Mr. Ned Jenkins of the Fort Toulouse State Park examined the ceramics.

The University of Alabama Cartographics Department, in particular Mr. Craig Remington, produced the project location and geomorphic maps.

Personnel at Panamerican Consultants contributed significantly to the outcome of this project. Mr. Robert Rice served as field assistant for the project; artifact photography, printing, and drafting chores were undertaken by Mr. Steve Hack. Ms. Lorraine Stevens, Ms. Cecile Mistovich, and Ms. Camille Stanley provided technical assistance in seeing the report to completion. Finally, Mr. Tim Mistovich, President of Panamerican Consultants, provided administrative and moral support throughout all phases of the project.

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PART I-THE PASCAGOULA RIVER/DELTA TRACT,
JACKSON COUNTY, MISSISSIPPI

CHAPTER 1 GENERAL INTRODUCTION

The purpose of this document is to provide the Mobile District, U.S. Army Corps of Engineers cultural resource managers with a summary of recent archival/background work and field reconnaissance of the Pascagoula Delta, Twin Oaks, and Mahannah land tracts in Jackson, Sharkey, Issaquena, and Warren Counties, Mississippi. The project area consists of three major tracts of land which are to be either acquired or potentially acquired as a result of the Tennessee-Tombigbee Waterway Wildlife Mitigation Project, Mississippi.

The report is divided into two major parts. The first part encompasses the Pascagoula River/Delta tract in Jackson County, Mississippi while the second encompasses the Twin Oaks and Mahannah Farm tracts in Sharkey, Issaquena, and Warren counties, Mississippi. The results from the archival/background research and field survey of the Pascagoula River/Delta tract will be discussed as Part I of the report; the results of the archival/background research and field survey of the Twin Oaks and Mahannah tracts will be presented as Part II.

The first tract is located in the Pascagoula River Delta in Jackson County, Mississippi. It encompasses approximately 15,000 acres (Figures 1 and 2). The area lies north of the city of Pascagoula and to the west of Highway 63. It extends northward into the Pascagoula Wildlife Management area and is bounded by a bluff line overlooking the Pascagoula River floodplain on the west (Figures 1 and 2).

The second tract, Twin Oaks, is located in Sharkey County, Mississippi to the east of Carey, Mississippi and west of the Delta National Forest (see Part II). It encompasses approximately 6,000 acres of floodplain backswamp terrain along the Little Sunflower River.

The third tract examined, the Mahannah tract, is located approximately 15 miles north of Vicksburg at Floweree, Mississippi (see Part II). The tract lies to the east of Steele Bayou and to the west of Highway 61. It encompasses approximately 12,000 acres, primarily of backswamp deposits.

Each part of the report presents separate environmental, archival/literature review, archaeological and historical background, results, research design/settlement model, and summary/recommendations sections.

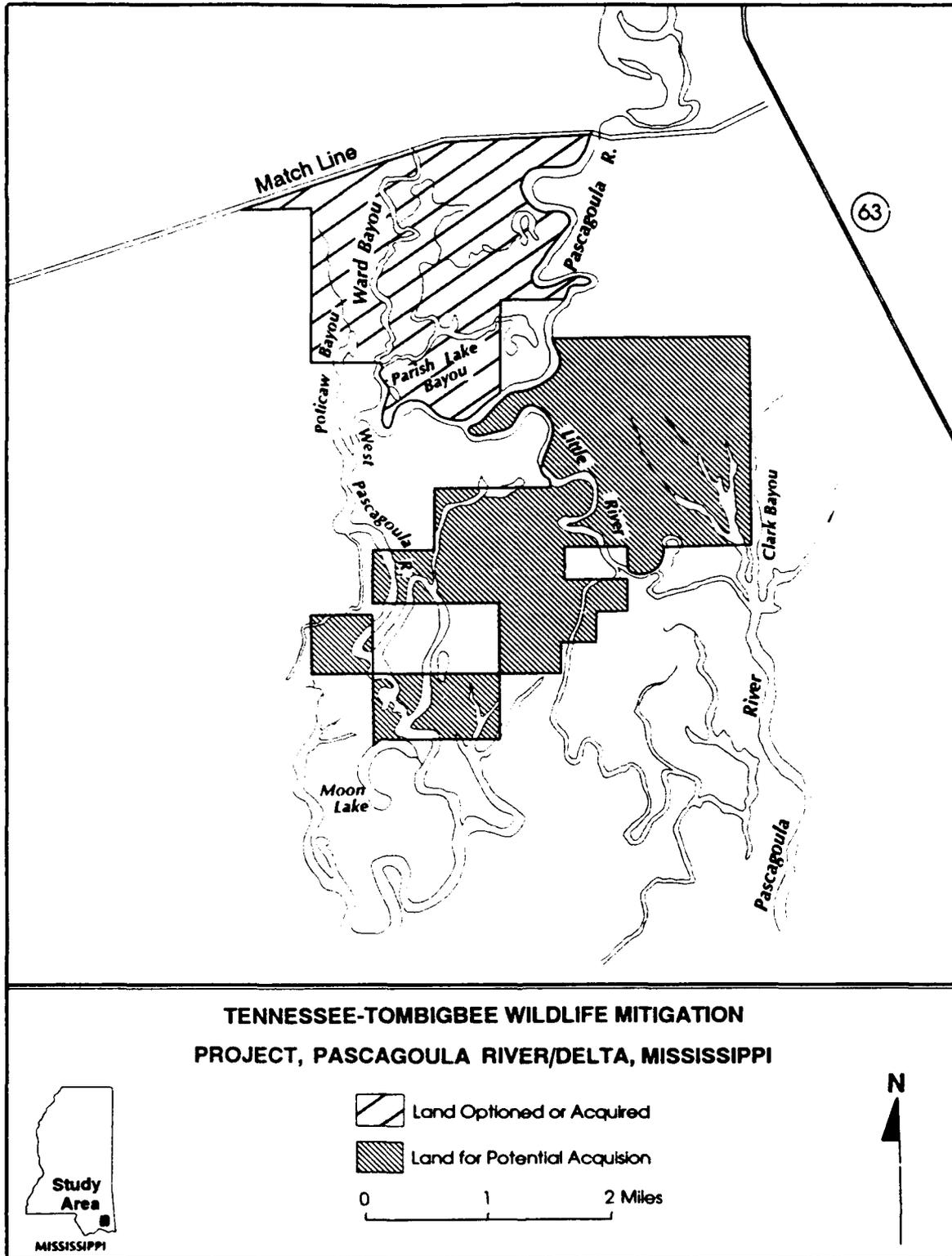


Figure 1. Southern Portion of the Tennessee-Tombigbee Wildlife Mitigation Project Area, Mississippi.

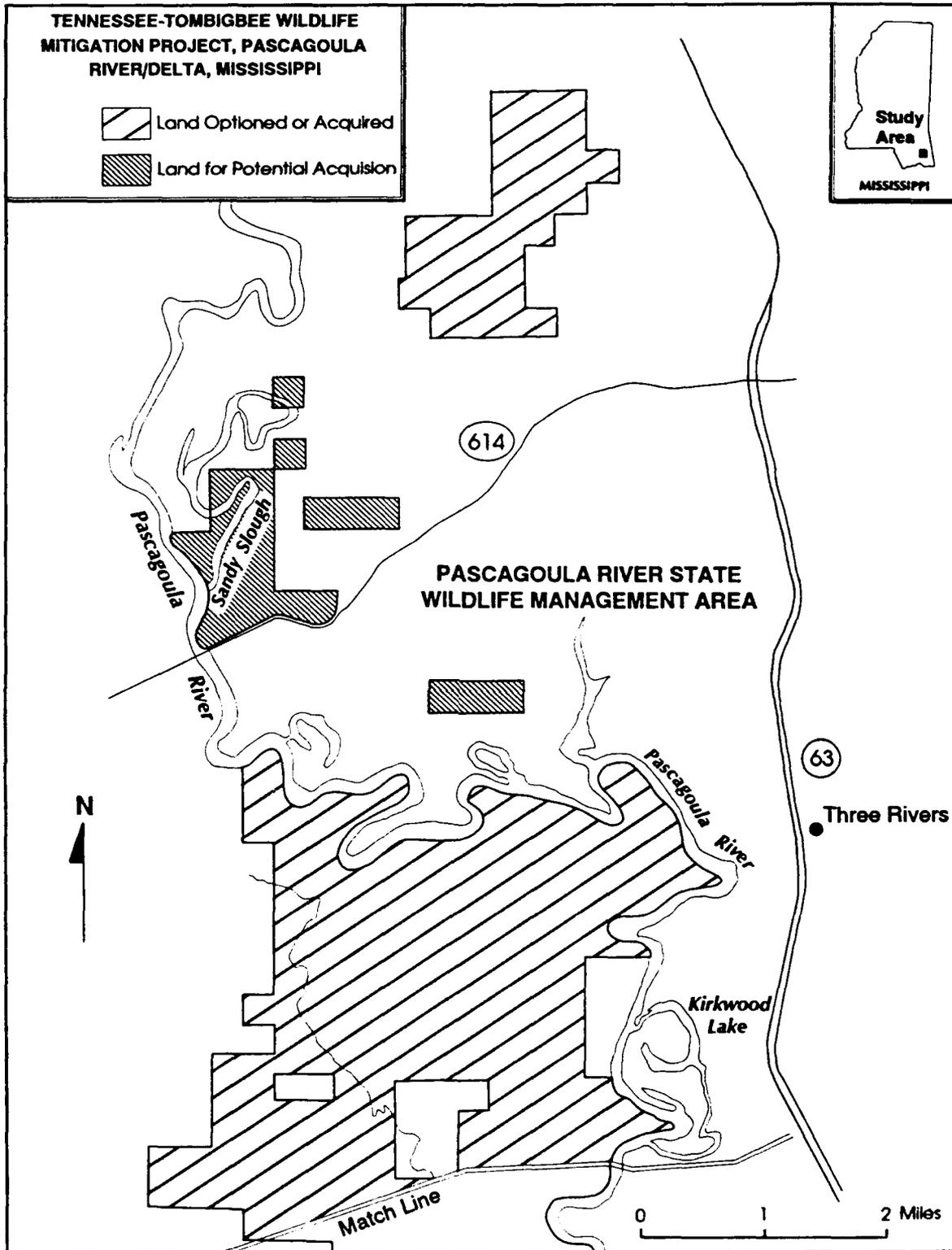


Figure 2. Northern Portion of the Tennessee-Tombigbee Wildlife Mitigation Project Area, Mississippi.

CHAPTER 2 ENVIRONMENTAL BACKGROUND

Project Setting

The study area is located within and adjacent to the Coastal Pine Meadows and Pine Hills area of extreme southeastern Mississippi (Morgan n.d.). The Pine Hills is characterized by a gently rolling terrain with an upland longleaf pine forest cover interspersed with hardwoods such as sweetgum (*Liquidambar styraciflua*), black gum (*Nyssa sylvatica*), live oak (*Quercus virginiana*), magnolia (*Magnolia virginiana*), holly (*Ilex* sp.), cypress (*Taxodium* sp.), and oak along creek bottoms. Slash (*Pinus elliotti*) and shortleaf (*Pinus echinata*) pine also occur at lower elevations. The Coastal Meadows division is marked by relatively flat, low terrain with mixed pine and hardwoods in addition to marsh and swamp areas (Lewis 1988). Gum, cypress, and magnolia are common in low swampy areas (Brown et al. 1944). Virtually the entire project area has been subjected to deforestation over the past 100 years.

This area is a portion of the Gulf Coastal Plain physiographic province which is traversed by numerous freshwater rivers draining interior settings. Broad alluvial floodplains which gradually broaden into deltaic plains have developed along the Pascagoula and Escatawpa watercourses. As the alluvial floodplains of these two rivers merge with the flat coastal zone, a mosaic of delta marsh, backswamp, swamp, and river channel environments emerges north of the city of Pascagoula. These constitute the makeup of the study area, which grades from a deltaic marsh/swamp into a riverine floodplain environment of point bars, natural levees, oxbow lakes, and backswamps. These environments are discussed in detail below.

The climate of the area may be characterized as typical Gulf Coast; it is warm and humid, with winter readings infrequently dropping below freezing. Precipitation is almost evenly spread throughout the year, with tropical storms sometimes producing heavy rainfall amounts during the summer and fall months (Brown et al. 1944).

The soils of the study area are formed primarily in alluvial overbank deposits which range from fine to coarse in texture. Soil acidity is high, with most carbonates being leached out (United States Department of Agriculture 1964). Well-developed soils are present in alluvial terrace settings in the river floodplain north of the Pascagoula Delta proper.

Pascagoula River Geomorphology and Land Use

Eugene M. Wilson

Introduction

The area covered in the assessment of cultural resources in the Pascagoula River valley is approximately 12,000 acres. About 2,500 acres lie in the Pascagoula Delta, and the larger portion is in the Pascagoula River floodplain. Both undergo rapid natural changes as river meanders are cut off, channels shift, and the delta builds toward the Gulf of Mexico. Variations in water volume and velocity, erosion, deposition, subsidence, and changes in surface elevation due to slight tilting appear to have occurred.

More profound were the conditions that took place during the Pleistocene "ice ages" when continental glaciers covered much of the Northern Hemisphere. These enormous accumulations of ice over the land were the result of complex changes in earth-sun relations. Climate and ecological zones were altered, sea level fell, land connections between continents and islands formed, coastal bays emptied, and the gulf coastline retreated to a new position farther south. In fact, these drastic changes occurred many times during the Pleistocene epoch.

Summary of the Late Pleistocene-Holocene Events

Over the past 124,000 years, six lower sea levels have been identified; at no time did sea level rise to its present level (Bloom 1991:438). However, Otvos (1976) cited in Lamb (1983:131) has postulated a higher than present sea level ca. 90,000 to 70,000 B.P. in order to account for the low alluvial terraces on the Biloxi and Prairie formations of south Mississippi, also named the Helena-Creola surface in an earlier paper by Doering (1956:1855). Data from Bloom clearly show a sea level rise at 85,000 B.P. but with sea level still about 5 meters (m) below present.

The last major low sea level was at approximately 18,000 B.P.; sea level was then 130 m (426 feet) lower, possibly even to -160 m (-525 feet). During the past 17,000 years, overall, sea level has been rising rapidly with some fluctuations until about 6,500 B.P., when the continental glaciers were gone. Coleman places sea level 6 m lower at 8000 B.P. and at its present stand by 3,000 B.P. in southwest Louisiana, with no indication of higher levels afterward (Coleman 1966:62-64). At 6,500 B.P., sea level was around -9.5 m in Mobile Bay (May 1976:11), although some subsidence seems likely to have occurred there. Studies having "high quality" data according to Matthews (1990) place sea level at very close to -5 m by 5,000 B.P.

Recent sea level rise above the present remains a problem unreconciled. That it bears on the present consideration of archaeological site location is clear: rising sea level covered the old land surface; it caused reduction in velocity, sediment deposition, and burial of the former occupation sites of any earlier period. Thus, Paleoindian, Archaic, and Early Woodland sites that were in low-lying areas at lower sea level stands prior to ca. 3,000 B.P. were buried or destroyed by waves and rising sea level.

The picture is complicated, however, by several studies that present evidence of sea level rise to perhaps to 2 m above present level during the warmer and drier Hypsithermal Interval ca. 6000-3,000 B.P., or during the Archaic to Early Woodland time (Fairbridge 1960; Holmes and Trickey 1974; Stapor 1975). Further, the weight of accumulated sediments in the Mississippi River Delta appears to have caused subsidence and a slight westward tilting along the Mississippi coast. Lamb proposed that this also caused the capture of the Escatawpa River and its subsequent flow westward into the Pascagoula Delta (Lamb 1983:136). The tilting might have had an effect on the present assessment area by depressing occupation sites which may now be buried by sediment. This proposed tilting does not seem to have changed any elevations on the west side of the valley or at the city of Pascagoula, however. Thus, no precise data now exist with regard to sea level at specific times and places. However, by the end of the Hypsithermal Interval, ca. 3,000 B.P., sea level was within several feet of its present stand.

Pascagoula Floodplain and Delta

During the past 3000 years, the Pascagoula Delta took its present form, building and nearly filling Pascagoula Bay. This relatively shallow, low-energy estuary has no strong waves or currents to affect the distributaries. The "head of passes", or first separation of the distributaries, marks the end of the floodplain and the beginning of the delta. On the Pascagoula River this occurs at UTM 346,200 mE, 3,376,850 mN.

Although the Pascagoula River is still filling the bay, it does not show features of rapid progradation as does the neighboring Mobile Delta. Strongly developed southward extending natural levees are absent except at the end of the west distributary. Instead, compaction and subsidence are indicated by the rounded or oval shapes of the various lakes in the marshes in the lower delta. The smaller upper or northern part of the delta is largely swamp and grades quickly into the floodplain, marked by meandering channels and oxbow lakes. The floodplain surface elevation increases northward so that former river channels 5 miles north of the delta are as much as 5 to 10 feet above the present active Pascagoula River water level observed in the summer of 1992. The range between low water and flood stages is relatively great.

High water flood at Cumbest Bluff landing (UTM 349,600 mE, 3,384,400 mN) on the east side of the assessment area has reached an elevation of 20 feet, according to the owners of the landing. According to weather records, flood water levels in the delta from rain in April 1900 reached 26 feet above low water; in June another flood almost as great was recorded. The hurricane of July 7-8, 1916 produced a record flood of 27 feet from rains (20 inches in 3 days, 12 inches in 23 hours) at Merrill on the upper Pascagoula River (Cain 1953:202-203). But great differences between low water and floods are common, as the high floodplain erosional and depositional features attest.

Elevated surfaces in the Pascagoula River floodplain are much higher than in the Mobile River Delta, although the high ground may still become flooded. As a result, a distinctive upland mixed forest is present. Old channels partially filled with stagnant water are dominated by bald cypress (*Taxodium distichum*), but adjacent higher areas include shortleaf pine (*Pinus echinata*), cedar (*Juniperus virginiana*), and various oaks. This unusual floodplain condition is described by other visitors to the John Goff Slough area in the Pascagoula River State Wildlife Management Area (Schueler 1980:93-95).

The floodplain contains relatively great relief resulting from great seasonal volume fluctuations with accompanying erosion and deposition. Meandering, the development of large river bends, is characteristic of all coastal plain rivers as they flow through mostly loose or poorly cemented sedimentary deposits. The turbulent water flow in a meander scours the outside channel bottom, and the banks collapse into the river. At the same time, the spiraling cross-channel movement causes deposition on the inside of the bend on the opposite shore, forming a "point bar." The entire bend or loop of the meander may be cut through at flood stage, leaving a horseshoe-shaped channel, or "oxbow lake." The point bars are also subject to channel cutting, in which case an elliptical island forms with a river channel on either side. At other times, entire segments of a river may be abandoned as rivers begin a new course. The old channels are termed "bayous" on the lower Mississippi River. On the Pascagoula floodplain "dead river," "creek," "lake," or "slough" are used for these old channels. "Bayou" is not used in river place names except in the lower part of the floodplain and in the Pascagoula Delta.

Along the banks of meandering rivers, flood overflow waters deposit sediment, gradually building up the banks and forming a natural levee. The relatively high volume and velocity of water that moves through the Pascagoula River at flood above the lower floodplain creates channels and deposits with relatively high relief of 5 to 10 feet; these are the more characteristic landforms of the Pascagoula floodplain. Natural levees are more noticeable where elevations below 5 feet occur farther south near the delta.

Human Land Use of the Pascagoula River

Prehistoric and historic occupation sites, unless floating or well raised above flood levels, would necessarily be used summer and autumn at low water. Sites are possible along natural levees and higher floodplain elevations and along the terraces that form the sides of the valley. The low terrace on the eastern side of the valley continues from the George County-Jackson County line, where the surface is 50 to 60 feet elevation, to sea level at Mississippi Sound east of Pascagoula. In contrast, the elevations along the western side of the floodplain can reach over 150 feet.

CHAPTER 3 DOCUMENTATION AND LITERATURE REVIEW

Archival/Records Search

Background research for the Pascagoula River/Delta portion of the Tennessee-Tombigbee Wildlife Mitigation Project was undertaken during early July 1992. The Mississippi State site files in Jackson were examined, along with other materials including reports and maps, to gain familiarity with cultural resources in the project area. Additionally, reports pertaining to this study area were examined at the U.S. Army Corps of Engineers office in Mobile. A set of color infrared photos was obtained for the Pascagoula Delta tract.

Archaeologists familiar with cultural resources in the Pascagoula study area were contacted. Discussions were held with John Blitz and Baxter Mann, who were conducting survey and testing along the Mississippi coast at the time of the present study. Robert Morgan of the Mississippi Department of Archives and History provided access to unpublished documents concerning the prehistory of the study area. Local informants were interviewed to obtain information regarding site locations. Mr. Bertis Goff of the Pascagoula Wildlife State Management Ranger Office provided information which led to the discovery of the Goff Slough Mounds and Borrow Pit Complex.

Examination of the state site files in Jackson revealed that only a single prehistoric site, 1JA511, had been previously recorded in the Pascagoula delta project area. Some seven prehistoric sites had been recorded close to the project area, while many more had been recorded in the general vicinity of the study area, especially toward the coast in the vicinity of Pascagoula Bay.

Literature Review

There has been surprisingly little archaeological research in the vicinity of the Pascagoula River/Delta. There have been a few attempts at providing synthetic statements for the area, but these have been plagued by a general lack of data. Earlier researches into the archaeology of the area were conducted by Moore (1905) and Lazurus (1959a, 1959b, 1959c, 1959d). Some of the most noteworthy studies include those of Blitz (1982, 1983), Greenwell (1984), Knight (1984), Lewis (1982, 1988, 1992), Marshall (1982), Mistovich et al. (1983), Morgan (n.d.), and Solis and Walling (1982).

Richard Marshall (1982) conducted excavations at the Goode Lake sites on the Escatawpa River slightly east of the project area. He reports the results of these investigations and provides

an attempt at synthesizing what little was known at that time of lower Pascagoula River archaeology.

Solis and Walling (1982) reported on their testing at Greenwood Island sites 22JA618 and 22JA516. Mistovich et al. (1983) conducted a cultural resources reconnaissance of Pascagoula Harbor, while Mistovich et al. (1990) carried out a literature, archival, and historic review of submerged cultural resources in the lower Pascagoula and Escatawpa Rivers.

In addition to the published reports, articles, and monographs dealing with the archaeology of the Pascagoula River/Delta area, all reports filed with the Mississippi Department of Archives and History pertaining to the study area were examined. The majority of these reports were small surveys conducted outside the project area. Only the most informative will be discussed in this review.

Keller and Campbell (1982) conducted a survey of a transmission line which crossed the project area. They conducted systematic shovel testing at 30 m increments along the 200-foot-wide right-of-way except in high probability areas such as natural levees or "river terraces" where the spacing was reduced to 15 m. Keller and Campbell (1982:29) indicate that where the transmission corridor crosses the Pascagoula River floodplain, only the uplands were surveyed, since the floodplain area was too wet for pedestrian survey. However, they make the following observations which are pertinent to the study area. They indicate at that time that the Pascagoula River floodplain consisted of:

a series of slow moving channels, backswamps, abandoned cut-offs, swamps, and other areas of standing water interspersed with small and low hammocks that are seasonally flooded. Human settlements in such areas is felt to have been sporadic at best and location of such types of habitation would be unlikely during the course of a normal archaeological survey (Keller and Campbell 1982:29).

They go on to state that potential areas for habitation would include "elevated areas associated with former stream surfaces" and note that these should be visible to surveyors. The survey did record turpentine camps in eroded bluff locations overlooking the Pascagoula River floodplain, but the authors conclude, after Larson (1980), that population density in the floodplain was probably never high due to seasonal flooding and frequent shifting of stream channels.

In 1988, Heartfield et al. (Heartfield, Price, and Greene, Inc. 1988) reported on a survey of a portion of the Pascagoula River floodplain which recorded twelve sites. However, information in the report is sketchy, as no data on survey methods or acreage surveyed was included. Their results do, however, indicate a rela-

tively high potential for prehistoric sites as well as historic Indian sites on the floodplain. Like Keller and Campbell (1982), these authors suggest that post-Archaic sites will most often be located on sandier soils of natural levees, levee remnants, and other relatively high topographic features. They also suggest that floodplain sites are probably buried and terrace sites may be eroded. They note the ubiquity of raised logging or tram roads in the floodplain, but indicate that the potential for house sites is low due to the threat of flooding.

In 1988, Brockington and Associates surveyed a proposed canal route which lies approximately 300 m to the east of the project area in Jackson County (Poplin et al. 1988). The 700-meter-long canal route traversed a variety of micro-environmental zones including swamps, levees, ridges, and hammocks at the eastern edge of the Pascagoula floodplain. They discovered two sites by shovel testing, 22JA666 and 22JA667. The first site, 22JA666, was a prehistoric/historic artifact scatter on an elevated area overlooking Clarke Bayou. A historic cemetery (the location of the former nineteenth century Clarke residence) was located at the center of the site; prehistoric ceramics (grog, mixed sand/grog, and possibly shell tempered) were recovered, indicating Middle to Late Woodland and possibly Mississippian occupation(s). Site 22JA667 was a diffuse scatter of prehistoric and historic artifacts including red-slipped sand tempered ware. Historic ceramics were also found.

Other small projects conducted near the present project area include the work of Mann (1984) who recovered prehistoric/protohistoric Indian pottery, including Mississippi Plain and fine clay tempered plain (historic Indian), from a dredge disposal area off the West Pascagoula River at Gautier. Some of these ceramics were considered similar to historic Choctaw ceramics.

Farther to the east and south, Lehmann (1984), in a survey of Shepard State Park, located numerous charcoal "kilns," roughly circular mounds from one-third to one meter high which were full of charcoal fragments. Oyster shell middens were also found, and four sites contained sparse grog tempered Baytown Plain pottery.

Finally, it is noted that Stowe (1984), Fuller and Fuller (1985), and Fuller and Stowe (1985) carried out a series of cultural resource surveys of the RCB Property, Jackson County. Fuller and Fuller (1985) report the discovery of three small temporary "camps" along Graveline Bayou in the vicinity of Pascagoula Bay. They note that a chert projectile point similar to Keithville var. A was recovered from one area, while another locality produced Late Woodland ceramics including French Fork Incised, Mulberry Creek Cord Marked, and Ponchartrain Check Stamped. A third location produced primarily clay and sand tempered ceramics. Fuller and Stowe (1985) report the discovery of two sites which produced predomi-

nantly clay tempered ceramics with fewer numbers of sand tempered sherds. Two sand tempered check stamped sherds dating to the Late Woodland/Early Mississippian periods were also reported.

CHAPTER 4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The prehistory of the lower Pascagoula River-Delta area in Jackson County, Mississippi has been only vaguely outlined to date. The following review of the prehistoric record is taken primarily from Blitz (1982, 1983), Lewis (1988), Mistovich *et al.* (1983), and Morgan (n.d.). Other sources include Greenwell (1984), Lewis (1992), and Marshall (1982). The history and ethnohistory of the project area is summarized after Cain (1953), Higginbotham (1967), Lankford (1983), Mistovich *et al.* (1983), and Schueler (1980).

Paleoindian Period (12,500 B.P.-10,500 B.P.)

Very little is known concerning the Paleoindian period in the lower Pascagoula River Valley and Delta. Mistovich and Knight (1983) note that only a single fluted point is known from Jackson County, although others are known from nearby areas. McGahey (1987) has identified only ten points from the Mississippi Sound area as being Paleoindian out of a total of 600 points for the entire state (Lewis 1988). Lewis (1988) notes that the Paleoindian locales found to date are situated inland from the present gulf shoreline by at least 30 kilometers (km). He also notes that Paleoindian sites are documented to occur on terraces of small creeks, and in one instance a site is reported for the Pascagoula River floodplain 60 km north of the coast. It is presumed that Paleoindian sites may be located off-shore, since that area was exposed due to sea level being much lower 12,000 years ago than today along the Mississippi Gulf Coast (Lamb 1983; Wilson, this volume). These data indicate that Paleoindian sites could potentially be located along the lower Pascagoula River in certain settings.

Early-Middle Archaic Periods (10,500 B.P.-6,000 B.P.)

These two periods are usually lumped for purposes of discussion in the Mississippi Sound/lower Pascagoula River area due to a general lack of data (Lewis 1988; Marshall 1982; Mistovich *et al.* 1983). Mistovich *et al.* (1983) indicate that very little is known regarding these time periods. Lewis (1988) states that Middle-Late Archaic sites are most commonly found at inland locations on slight rises or ridges along small streams. He states, however, that they were probably also present in major drainages, but are either deeply buried or eroded away in those geomorphic settings.

At the Goode Lake sites, slightly southeast of the project area, Marshall (1982) indicates that initial occupations there could date to the late Middle Archaic period around 6,000 B.P. Later site occupations, however, make assigning any of the pit fea-

tures containing baked clay objects to this time period conjectural. Similar baked clay objects have been found at Middle Archaic sites such as Denton (Connaway 1977) and at the Teoc Creek site (Connaway et al. 1977). Marshall (1982) has suggested a possible relationship between Archaic materials recovered at the Goode Lake sites with Gagliano's (1963) Amite River phase to the west. Lewis (1988) and Greenwell (1984) suggest that Early-Middle Archaic groups along the Mississippi Gulf Coast were small, highly mobile, and were focused upon terrestrial resources. However, as pointed out by Lewis (1988), evidence of estuarine or littoral exploitation of resources by these groups, if present, lie buried offshore.

Late Archaic Period (5,000 B.P.-3,000 B.P.)

By 3,000 B.P., sea level had stabilized along the Mississippi Gulf Coast. Prior to this date, there is very little evidence of Late Archaic occupation near the study area. According to Lewis (1988), this is about the time that the first intensively occupied shell middens are documented along the coast at sites such as Cedarland Plantation (22HA506) at the mouth of the Pearl River. These sites are thought to represent base camps, and a wide range of tool forms related to hunting, food processing, tool maintenance, and refurbishing are present (Gagliano and Webb 1970; Lewis 1988). Food remains recovered by Gagliano and Webb from the lower levels at Cedarland Plantation include oyster, small animals, deer, bear, fish, and waterfowl (Gagliano and Webb 1970; Lewis 1988). The remains from Cedarland Plantation and other Late Archaic sites have been used by Gagliano and Webb (1970) to define the Pearl River phase. Mistovich et al. (1983) indicate that Late Archaic manifestations in the lower Pascagoula River area may be related to that phase. Other Late Archaic sites known for the Mississippi Gulf Coast include the Swetman site (1JA611), a possible Late Archaic period deposit on Pascagoula Bay (Lewis 1988). Finally, as noted above, Marshall (1982) has recovered preceramic-age deposits below Wheeler, Tchefuncte, and Bayou La Batre at the Goode Lake sites on the Escatawpa River.

Perhaps the most famous Late Archaic archaeological culture represented in the area is related to the Poverty Point site in Louisiana. The Poverty Point culture developed out of a Late Archaic base sometime around 3,800 B.P. The Claiborne site (22HA501) is considered by Webb to be a Poverty Point period site at the mouth of the Pearl River to the west of the project area. According to Lewis (1988), Poverty Point sites are found in both coastal and inland settings, but Blitz (1982) has stated that inland sites are rare in southeast Mississippi and were most likely used as short-term extractive camps (Lewis 1988).

At least three ephemeral Poverty Point period components have been documented in the Pascagoula River area (Mistovich et al. 1983). These include the Apple Street site (22JA530), the Green-

wood Island site (22JA516), and the Bone Yard site (22JA537). Mistovich et al. (1983) have noted that excavations at Greenwood Island by local avocationalists encountered a Poverty Point component stratigraphically beneath a Gulf Formational component. Poverty Point material culture is characterized by Poverty Point objects, steatite vessels, microliths, greenstone hoes or celts, jasper beads, hematite and magnetic plummets, and semicircular *Rangia* middens. Since so few Poverty Point-related components have been excavated in the Pascagoula River area, it is difficult to speculate concerning the range of site types and site function. The Claiborne site to the west may have served as a more or less permanent coastal settlement during this period (Morgan n.d.). The use of prepared baked clay objects in cooking has led to speculation over the reason(s) for this apparent shift from preceding Late Archaic usage of amorphous fired clay lumps (Marshall 1982). Marshall (1982) found fiber tempered ceramics at the Goode Lake sites along with amorphous fired clay lumps which he indicates may be at least partially coeval with Poverty Point period sites to the west.

Tchula Period (2,500 B.P.-2,100 B.P.)

The first extensive ceramic-producing culture to inhabit the Mississippi Gulf Coast has been referred to as Tchula (Phillips 1970). Tchefuncte ceramics dominate this time period in coastal settings, with scattered Bayou La Batre sites in the extreme southeastern corner of Jackson County and a few Tchefuncte and Alexander components at inland settings (Blitz 1982). Walthall and Jenkins (1976) include Tchefuncte ceramics along with Bayou La Batre and Alexander within their Late Gulf Formational period which they indicate dates from approximately 2,500 B.P. until 2,100 B.P. or slightly earlier. Minor occurrences of fiber tempered pottery may be associated with late Poverty Point-related cultures in the lower Pascagoula River area.

According to Lewis (1988), Tchefuncte middens are predominantly *Rangia* or marsh clam over the majority of the Mississippi Gulf Coast, giving way to oyster in the Pascagoula Bay area and farther east. Large permanent settlements such as those represented at Cedarland Plantation and Claiborne appear to be replaced by smaller but more numerous shellfish collecting stations and also evidence of increased usage of ceramic containers (Lewis 1988). Tchefuncte sites occur in both coastal and inland locations. Exploitation of the coastal resources, including the *Rangia* clam, may have occurred during the late spring when their nutritive value would have been at a yearly peak (Claassen 1986). There is also evidence from Louisiana Tchefuncte middens that certain crops, such as squash and bottle gourd, were domesticated, (Byrd 1974). According to Lewis (1988), this may have caused Tchefuncte peoples to have selected major riverine locations for base camps where soils would have been better suited for crop growth.

Greenwood Island (22JA516) and Bone Yard (22JA537) have produced Late Gulf Formational Bayou La Batre/Tchefuncte period components in the Pascagoula Bay area (Marshall 1982; Mistovich et al. 1983). Marshall (1982), Mistovich et al. (1983), and Solis and Walling (1982) report Bayou La Batre and Tchefuncte ceramics from sites in the Pascagoula region. Mistovich et al. (1983:7) note that a few biconical baked clay objects reminiscent of Poverty Point objects continue into this period, while site types include large estuarine *Rangia* middens with evidence of hunting and gathering.

Marksville Period (2,100 B.P.-1,600 B.P.)

Around 2,100 B.P. the Mississippi Gulf Coast area sees the first evidence of massive arcing earthwork construction at sites such as Jackson Landing/Mulatto Bayou (22HA515) (Williams 1987) and possibly the Graveline site. Williams (1987) suggests that the earthworks at the Jackson Landing/Mulatto Bayou site were constructed in three stages; the earliest is possibly associated with a Tchula period component, while the major construction is attributed to Marksville. Williams (1987) also indicates that a major Marksville period midden is located on the western edge of the enclosed area. According to Blitz (1983), nothing similar to Jackson Landing/Mulatto Bayou is presently known for the Mississippi coast, although Greenwell (1984) has suggested that Marksville period mounds were present at the Graveline site as noted above.

Coastal estuarine *Rangia* middens continue to be present during this period (Lewis 1988), and inland sites along freshwater streams in "ridge-ravine" topographic settings are also noted (Marshall 1982; Mistovich et al. 1983). Morgan (n.d.) has noted a possible increase in population density during this period which he infers from the presence of earthworks at the sites mentioned above. Non-estuarine Late Marksville "village" sites have been reported by Greenwell (1984) at inland settings which reportedly contain burials and structures, but there is very little data to substantiate the claims. As noted by Mistovich et al. (1983), these sites sound similar to Porter sites to the east in the Mobile Bay region. The Greenwood Island site has produced Marksville-related ceramics (Solis and Walling 1982), as have the Goode Bayou sites southeast of the project area (Marshall 1982).

Baytown/Coles Creek Periods (1,600 B.P.-1,000 B.P.)

Very little is known regarding these periods along the Mississippi Gulf coast (Lewis 1988). According to Morgan (n.d.), there may have been a reduction in population size during this period in the Coastal Pine Meadows zone of southeastern Mississippi. Mistovich et al. (1983) identified an extensive "Weeden Island-Coles Creek" period component at Greenwood Island as well as a modest

component at 22JA537. Lewis (1988) notes that no large sites or sites with mounds have been located on the Mississippi Sound; only small coastal shell middens and small inland sites are known. Marshall (1982), however, has reported Baytown and Coles Creek ceramics at the Goode Lake sites southeast of the present project area. A strong Coles Creek-Weeden Island stylistic connection has been posited by various archaeologists working along the Mississippi coast (Knight 1984; Lewis 1988). In fact, Mistovich et al. (1983) state that a full range of Middle to Late Weeden Island ceramics and Early to Late Coles Creek ceramics are present along with Mulberry Creek Cord Marked, Mobile Cord Marked, McLeod Check Stamped, Wakulla Check Stamped, and Late Swift Creek Complicated Stamped.

Knight (1984) has extended the Tate's Hammock phase westward from the Mobile Bay region across the Mississippi coast, while at the same time admitting the possibility that Coles Creek-related ceramics may be more abundant than farther east. The mounds reported by Greenwell (1984) at the Graveline site may date, in part, to this time period (Mistovich et al. 1983).

Mississippian/Protohistoric Periods (1,000 B.P.-300 B.P.)

No Early Mississippian cultural manifestation has been identified in the Lower Pascagoula River area, although, as noted by Mistovich et al. (1983), there are hints of such a complex in terms of shell tempered incised ceramics similar to the type Moundville Incised. However, a fully developed Mississippian cultural complex related to the Pensacola variant of the Mississippian culture has been identified (Knight 1984). Lewis (1988, 1992) has noted that Pensacola complex ceramics have been found across the Mississippi coast into eastern St. Bernard Parish, Louisiana. The sites represented have been associated with Bayou Petre and Bottle Creek phase components by Phillips (1970) and Fuller and Stowe (1982).

The majority of Mississippian sites found to date are coastal shell middens (Lewis 1992) which show little of the plaza/mound arrangement often exhibited at inland sites. According to Lewis (1992), population density appears to have changed very little from preceding time periods. Lewis (1992) feels that the majority of the Mississippi coastal inhabitants were hunters and gatherers who took seasonal advantage of littoral resources and were not permanent residents. He further argues that the Mississippi Gulf Coast was peripheral to the major Mississippian "core" areas of the Southeast, since resources along the coast were more or less equitably distributed; this was not conducive to management by a religious hierarchy. He does state that the Deer Island site (22HR500), a large shell midden deposit near Biloxi which covers 4 hectares, may be an exception. Lauro (1986) reports that this site contains a Bottle Creek phase component, while Kraus (1985), reports that two mounds were once present but have been destroyed by hurricanes (Lewis 1988). Marshall (1982) located minor Mississipp-

pian components at the Goode Lake sites, while Mistovich et al. (1983) discuss the possibility that at least two Mississippian platform mounds may have been present in the Pascagoula region. These consist of the Rovisey site and the Michelle Mound at the Front Street Midden (22JA578). Both sites 22JA516 and 22JA618 on Greenwood Island contained Middle Mississippian components.

Mistovich et al. (1983:10) suggest that the Mississippian mound sites present in the Pascagoula Bay area may be related to the establishment of "petty" chiefdoms which centered "on the residences of chiefs." They further state that this pattern appears similar to that of late Fort Walton period culture of northwest Florida. Knight (1984) reiterates this position in suggesting these chiefly residences may have existed in coastal areas where land suitable for agriculture was not as available, which resulted in increased mobility of Mississippian groups. He indicates that the "chiefly residences" may have served as locations for seasonal ritual ceremonies in coastal areas where Lewis (1992) feels that large resident Mississippian populations probably were the exception rather than the rule. The seasonal cycle has been documented ethnohistorically for the Choctaw (Curren 1976; Lewis 1988; Voss and Blitz 1988). Lewis (1988:117) has summarized this pattern after Campbell (1959):

the Choctaw dispersed in small, presumably family-based, groups in the spring after the crops were planted. They subsisted on fruit and aquatic foods until the early summer when they returned to the home community for the annual Green Corn Ceremony. Following this, they dispersed again until harvest time. After the crops were harvested in the fall, the men were away on the fall hunt and the remaining villages gathered nuts and other resources for winter and early spring consumption.

Marshall (1982) identified protohistoric Natchez-related ceramics such as Fatherland Incised varieties *Fatherland* and *Natchez*, as well as Mississippi Plain pottery. Mistovich et al. (1983) note that a late Natchezan/late Pensacola fusion of ceramic ideas is best represented in the midden overlying earlier Marksville and Tchula period components at the Jackson Bayou/Mulatto Bayou site about one mile east of the Pearl River in Hancock County, Mississippi. Williams (1987) attributes a shell tempered ceramic assemblage along with Leland Incised, and possibly Aucilla Incised (an Apalachee Indian type from northwest Florida), to a number of protohistoric/historic Indian groups who may have occupied the site, including the Biloxi and Apalachee. A limited assemblage of European trade goods was found at this site along with the Indian pottery. Very little is known of early historic contact period Indian groups in the Pascagoula Bay/Delta area.

Lewis (1988) discusses the relevance of the only sixteenth century account of the Pascagoula area by the Spanish Narvaez party

in the fall of 1528. Based on personal descriptions of some of the native American chiefs who met the Spaniards, it has been inferred by some that they were Choctaw, at least in appearance. The small male-dominated economic units encountered suggested to Lewis (1988) that they may have been hunting or raiding parties. If this were the case, then the above-mentioned Choctaw seasonal round may have broad application in understanding the nature of protohistoric period subsistence and settlement patterning in the Pascagoula region, according to Lewis (1988:118).

Ethnohistory and History

The historic period of the Pascagoula River and Mississippi Gulf coastal area has been summarized by Lewis (1988), Mistovich et al. (1983), and Mistovich et al. (1990), in addition to Cain (1953) and Higginbotham (1967). The first European likely to have visited the Mississippi coast was Pineda in 1519 (Mistovich et al. 1983). Navaraz, as discussed above, was the last documented sixteenth century European explorer to visit the Mississippi coast in 1528. Not until the latter portion of the seventeenth century are first-hand accounts available which describe aboriginal groups in the Pascagoula River area. The French continued their exploration of the Pascagoula River area prior to the establishment of a French settlement at Mobile in 1702. According to Mistovich et al. (1983), three royal concessions were granted to early French colonists in the Pascagoula River area. They were located on the eastern and western sides of the delta and also on the upper Pascagoula River.

Early historic accounts of the Pascagoula River Valley are included in Iberville's records (McWilliams 1981) in which he mentions various Indian groups but gives few details. According to Lankford, the Biloxi or Istanani were living on the Pascagoula River in 1686. They had one or more villages 8 leagues (Bienville) to 16 leagues (Sauvole) up river, but in 1700 Iberville found a ruined Biloxi village 4-1/2 leagues up river that was destroyed ca. 1698 (Lankford 1983:7-8). Figuring a French league as equivalent to 3 statute miles (maritime league) or 2.4 statute miles (land league) (Chardon 1980:151), the Biloxi villages found by Iberville lay from 13.5 miles to 10.8 miles (21.8 to 17.4 km) up river. This is within the lower part of the assessment area, either in river miles or straight line distance on the West Pascagoula River.

Other Indians in the vicinity included the Pascagoula, whose culture was very similar to the Biloxi, and the Mochtobi and Capi-nans (Mistovich et al. 1983:15). The historic Pascagoula and others left no traces, and their villages remain to be identified. In 1763, the remaining Pascagoula resettled in Louisiana when most of the French departed (McLemore 1973:68-75). French colonists prior to 1763 were few, and only five families are identified: La Pointe, Graveline, Krebs, Rillieux, and Chaumont. Few others set-

tled during the Spanish period; by 1812, Jackson County counted 110 family heads and 214 slaves (Mistovich et al. 1983:15-16). Relatively low soil fertility on the uplands made subsistence farming and open range livestock the most practical land uses in the pine forests.

Scattered landholdings and isolation characterized the region until the lumbering period, ca. 1875 to 1910 and even afterwards. Indeed, in 1938 the town of Vancleave was described as "...a backwoods settlement interesting because of the extreme age of some of the clearings along Bluff Creek; nearby was a school for children of the mixed Indian, French, Spanish, and Negro people living in the forests around Vancleave" (Federal Writers Project 1938: 290). Good descriptions of the piney woods belt lifestyle and logging are given by Cain (1953), Polk (1986), and Walker (1991). Cain describes the use of the Pascagoula River for rafting logs. Loose logs were collected in oxbow lakes before being sent to sawmills at Moss Point and Pascagoula. Dead Lake, about 5 miles below the point where Black Creek and Red Creek joined, was one collecting point. Eighty to one hundred twenty logs were enclosed by circular floating pens made of a dozen logs joined at the ends. The pens were floated down river when the water was not too high, so as to avoid high velocity which would shatter the pens. This took a week if water and tides permitted (Cain 1953:146-147).

The physical evidence for logging in the lower Pascagoula River floodplain can be seen on aerial photography. Radiating linear patterns caused by winching logs through the swamp to collecting points are located on Peafield Bayou at UTM 348,800 mE, 3,378,000 mN (southwest of the power plant 1.5 km) and at another point 0.9 km to the southwest, at the end of Bear Bayou. A winch mounted on a barge called a "pullboat" was a fairly common means of swamp logging along the Gulf Coast from west Louisiana to Apalachicola Florida. It was possible in the lower Pascagoula River where the surface relief is very low.

Other evidence of past floodplain use, most likely for logging, is found on the west side of the Pascagoula River and east of Black Creek (see Easen Hill 7.5 min quad). There an "old railroad grade" extends from UTM 343,200 mE, 3,393,500 mN to 338,800 mE, 3,402,800 mN.

Standing buildings over fifty years old are probably few and would be located on high ground adjacent to the Pascagoula River floodplain. No structures of historical value were observed in the assessment area.

Evidence for colonial land use in the Pascagoula River floodplain, however, does appear in the irregular township sections; the earliest is dated 1778. It is the only British claim in the second report on land claims, 1817; others (22) listed were of Spanish origin. Twenty claims were in arpents (192 feet linear and 9/10

acre square), a French measure, although no claims date from the French period. One claim was in acres, and one was one square league (Cain 1953:177-178). Most of the 233 claims in three reports dated from the American period and were located partly or wholly in the floodplain. This raises the question as to what uses the land was put. Cain mentions that food crops were grown in the swamps; this is entirely possible, as growing season occurred at low water where the higher elevations would have been dry (Cain 1953:149). In the *American State Papers, Land, 1834, Vol. III*, it is noted that many grants of British period, 1763-1781, had never been improved or even seen by the grantees (Cain 1953:167). Claims from the colonial and early American periods, however, still exist as nonconforming sizes and shapes within the Public Land Survey in Jackson and George Counties, Mississippi.

The Pascagoula River area was sparsely populated throughout much of the Colonial Period. According to Mistovich et al. (1990), the Pascagoula colony was under British domain from 1763 until the Revolutionary War in 1781. The Spanish maintained strict control over the colony until 1810. It was annexed as part of the Louisiana Purchase but did not fall under American control until 1812 (Cain 1953; Mistovich et al. 1983). The Pascagoula River area was never a great cotton-producing area for a variety of reasons, including the lack of navigable waterway (Cain 1953). Tourism became an important economic factor by the 1850s, along with the lumber industry. The great pine forests were exploited by numerous sawmills and, after the Civil War, the lumber industry continued as a driving economic force behind the Pascagoula area economy (Mistovich et al. 1990). A lumber industry boom occurred between 1870 and 1910 with the establishment of major railroads in the area. A severe hurricane destroyed over twenty percent of the pine forest in 1906, dealing a death blow to the timber industry. The seafood industry and a variety of fisheries were established in the Pascagoula area during the late nineteenth and early twentieth centuries (Mistovich et al. 1990).

Following the establishment of the local fishing and oystering economy, aided by navigation improvements, shipbuilding became an important industry for the first time (Higginbotham 1967). The earliest commercial shipyard was established in 1843 on the upper Pascagoula River by Ebenezer Clark (Mistovich et al. 1990). Small schooners were repaired and occasionally a schooner or steamer was built. According to Higginbotham (1967), shipbuilding steadfastly increased throughout the late nineteenth century and really took off after the decline of the timber industry. As larger ships began to have access to Pascagoula Harbor in the 1890s, shipyards were able to build larger ships and employ additional personnel. World War I produced a local shipbuilding boom with three major shipyards established in 1917 (Mistovich et al. 1990). Ingall's Shipbuilding Company remains today as a major economic force in the Pascagoula economy, and is one of the few shipyards to have survived from the boom years of the early twentieth century.

CHAPTER 5 RESULTS OF FIELD INVESTIGATION

Field Reconnaissance

The field reconnaissance for the Pascagoula Delta portion of the project was initiated on July 12, 1992 and was completed on July 17, 1992. Field examination of the project area was accomplished primarily by boat and motor vehicle; however, pedestrian survey was also carried out as appropriate. Limited shovel testing was conducted as appropriate.

An attempt was made to relocate site 1JA511, a small shell midden reported in the 1930s. However, a pedestrian survey of the area found no evidence of the site. Two previously recorded sites, one at Poticaw Landing and the other at the present Pascagoula Wildlife Management area headquarters, were revisited.

Long segments of the Pascagoula River, Ward's Bayou, Parish Bayou, and Big Bear Bayou were visually examined by boat in an attempt to locate shell middens and other sites, but none were found in the study area (Figure 3). A single *Rangia* midden was discovered eroding into Clarke Bayou just south of the study area; no artifacts were found. An attempt was made to locate shell midden sites reported along Sandy Bayou in lands potentially to be acquired as part of the project. However, no sites were found in the areas designated by informants as shell middens.

Local informants indicated that prehistoric sites containing pottery had been found in the extreme western portion of the project area on bluffs overlooking Ward's Bayou during a reforestation project. However, attempts to locate local residents reportedly in possession of artifacts from these sites were unsuccessful. A pedestrian survey of portions of the bluff line within the project area was conducted along roads and a borrow pit area where surface visibility was excellent. However, no artifacts relating to prehistoric or early historic use of the area were observed.

During the boat reconnaissance of the Pascagoula River, a series of well-developed buried A horizons were identified in cut bank exposures (Figure 4). Soil samples from a representative sample of these horizons were taken and photographed. Despite close examination to locate cultural material, none was found. The soils/sediments recorded at these localities were later observed to be extensive within the study area.



Figure 3. Environmental Setting Along Ward's Bayou.



Figure 4. Buried Soil Horizons in the Pascagoula River Floodplain.

CHAPTER 6 RESEARCH DESIGN AND MODEL OF HUMAN SETTLEMENT

Theoretical and Methodological Concepts

The spatial organization and level of social complexity differs among sites and site complexes in the annual territorial rounds of hunters and gatherers (Binford 1983a, 1983b; Yellen 1977). Like the Mobile-Tensaw Delta region, the lower Pascagoula River/Delta region is located very close to the coastal littoral zone (Lewis 1988). Therefore, the model of hunter-gatherer adaptation recently proposed for that region, which was concerned with both coastal and inland adaptations, is deemed equally relevant to the Pascagoula River/Delta area and is repeated here (after Ensor 1992).

Studies which have provided insight into patterns of coastal resource utilization and concomitant settlement systems include the work of Osborne (1977) and Yesner (1980). Osborne (1977:353) has expressed a view of aboriginal exploitation of marine resources in which he "...would expect to observe exploitation of marine resources during seasonal lows in terrestrial production, e.g., the spring season or during the collapse of terrestrial ecosystems." Furthermore, Osborne states that marine food resources are "less than optimal" compared with terrestrial resources due to a variety of factors (Osborne 1977:301).

Carlson (1983) suggests that the most intensive use of *Rangia* middens on the Upper Texas coast occurred in the spring with a peak in April and May. Seasonal variability in the use of coastal and bay shell middens in the southeastern United States suggests that intensive utilization took place during the period of the species' most rapid growth (Claassen 1986:31). These data could hold important clues to aboriginal movement between deltaic and coastal or littoral resources.

In order to recognize and study different cultural adaptations through time, two basic sets of information are needed. The first is chronological or temporal. The position of a particular site component in time must be firmly established prior to subsequent studies of the nature of settlement and subsistence practices (Jenkins 1983). The second type of data are the material remains of the society under study, including features, artifacts, and ecofacts and their distribution over the landscape.

Whitlam (1981) has presented a study which focuses upon isolating variables critical to understanding coastal adaptations and in developing settlement types which may serve to organize patterns of site distribution in regional settings. His model seems particularly important to the Pascagoula River/Delta region, since it provides the means for objectively assessing the nature of hunter-

gatherer subsistence and settlement behavior in both coastal/littoral and inland environments.

Data from previous research in the region suggest that throughout prehistory aboriginal groups in the area were organized into relatively small groups which moved in an annual round, since no evidence of permanent occupation has been found, with the possible exception of Mississippian villages. Both nucleated and dispersed settlement systems are recognized by Whitlam. These are used here to specify different models and expectations or archaeological correlates pertaining to each model.

According to Whitlam (1981), nucleated settlement systems are characterized by sites which represent the remains of an entire community. In contrast, dispersed systems have numerous settlements located in a variety of settings. Whitlam further indicates that evidence of a nucleated system should include: 1) a relative assessment of sites as large; 2) less frequent sites; 3) evidence of multiple domestic units; 4) limited areas set aside for mortuary practices or ceremonies; and 5) primary use of local raw materials. In contrast, dispersed systems may be expected to exhibit the following attributes in the archaeological record: 1) small site size; 2) frequent sites; 3) mortuary and ceremonial areas separate from domestic units; 4) single domestic units at sites; and 5) the presence of exotic raw materials. Whitlam stresses that these are not to be interpreted rigidly, and that combinations of these general patterns may occur, depending upon local ecological conditions.

In terms of subsistence, Whitlam draws a distinction between intensive and extensive systems. Intensive systems usually produce a restricted set of different faunal remains, and the distribution of those remains will be similar from site to site, as will the tools and features required for acquiring and processing them (Whitlam 1981). Extensive systems, on the other hand, exhibit a variety of resources: a wide range of floral and faunal remains; different tools and facilities for procurement and processing of different resources; exploitation of varied resources in different environments; and variation in faunal and floral resources by environment. It should be clear that each of these basic settlement and subsistence types requires different amounts, kinds, or degrees of resource scheduling. Social units are therefore adapted to the specific requirements of each.

Other models of hunter-gatherer behavior such as that proposed by Binford (1983a) may also be applicable to the study area, particularly with regard to integrating a particular settlement model at the regional level. Particularly important here is a means of articulating sites or locations within a settlement pattern and understanding "the functional relationships among the sites contained within a settlement pattern" (Winters 1969:110), which is referred to here as the settlement system. One critical aspect of

developing site typologies and gathering the relevant data needed to test settlement models is interpretation. Clearly, sites should be interpreted within a broad framework of the regional setting rather than in isolation. This requires, as has been noted by Aten (1983), Binford (1983a), and Ensor (1987:31), partitioning of the archaeological record into a series of meaningful units which may be used to "build" regional settlement and subsistence models.

The challenge for the archaeologist is to develop research designs which will allow collection of the kinds of data needed to test models such as those described above. Statistically representative samples of sites and their contents are imperative, as are the means of quantifying the relationships which may or may not exist between individual sites and entire settlement systems. It is clear that in order to obtain the types of data needed to test different models of settlement and subsistence within the Pascagoula River/Delta area, a systematic, well-conceived research plan designed to obtain the necessary data will be crucial.

Model of Human Settlement, Pascagoula River/Delta Area

Since virtually no systematic survey has been conducted in the study area, any models of prehistoric or historic settlement, including predictions of site densities and cultural affiliations, must be approached with caution. Only a single site was previously recorded for the project area, despite the large land area encompassed by the project, and it could not be relocated. The majority of the prehistoric sites were located peripheral to the Pascagoula River/Delta floodplain on elevated areas such as bluffs, terraces, ridges, and hammocks. However, in the southernmost portion of the study area in the vicinity of Middle River, Clarke Bayou, and the West Pascagoula River, estuarine shell middens of both *Rangia* clam and oyster are documented. One such apparent *Rangia* midden was located on the eastern shore of Clarke Bayou outside the project area, but no artifacts were found in association. The presence of these well-documented estuarine sites at the upper end of Pascagoula Bay apparently extend an unknown distance northward into the northern delta, but become increasingly rare as one moves into the Pascagoula River floodplain proper and into fresh water.

The majority of sites recorded date to the Woodland or Mississippian periods, with only a few Archaic sites documented for the Pascagoula River/Delta area. Wilson (this volume) has remarked upon the effects rising sea level would have had on Paleoindian, Archaic, and Early Woodland sites in low-lying areas prior to 3,000 B.P. in the study area. Any such sites are likely to be either deeply buried or destroyed. Sites dating to after 3,000 years ago would seem to be the best candidates for discovery in the project area.

The location of buried A horizons in the Pascagoula River floodplain west of Three Rivers was somewhat unexpected. Many of these were buried up to 2.5 m below the present ground surface. This indicates that even though this area is subject to severe flooding on a seasonal basis (see Wilson, this volume), periods of land surface stability occurred with some frequency throughout portions of the Holocene. Although no artifacts were observed eroding from any of the buried soils, the possibility of their occurrence there should not be dismissed. Any such sites found at these depths in the future will probably not date any older than Late Holocene.

In terms of prehistoric site distribution and density for the study area, several lines of evidence indicate that settlement was probably of two different types: short term and longer term. It may be expected that short, seasonal extractive camps may have been located prehistorically in the Pascagoula River/Delta floodplain. Longer term "habitation" sites or villages/mound sites, as pointed out below, are most likely located on higher ground. The smaller sites should be more numerous, while larger sites should be more infrequent. Very little can be stated at this juncture regarding possible site potential frequencies in the project area beyond noting the general trend of increasing population through the Marksville period, a possible decline in the Late Woodland period, followed by another increase during the Mississippian period.

The topography of the study area as well as its susceptibility to seasonal flooding, as noted for similar Gulf Coast deltaic environments (Larson 1980), would seem to be overriding determinants of site dispersal and abundance in the project area. Prehistoric and historic occupation would be heavily conditioned by several factors. Prehistoric and historic occupation sites, unless floating or raised well above flood levels, would necessarily be used summer and autumn at low water. Sites are possible along natural levees and higher floodplain elevations and along the terraces that form the sides of the valley. The low terrace on the eastern side of the valley continues from the George County-Jackson County line where the surface is 50 to 60 feet in elevation to sea level at Mississippi Sound east of Pascagoula. In contrast, the elevations along the western side of the floodplain can reach over 150 feet.

As noted in the literature review and in the comments of previous researchers, it seems that natural levees, hammocks, ridges, and terraces would have afforded the best locations for aboriginal or historic Anglo-American settlement in the study area. Bluffs on the western edge of the delta and high terraces on the eastern edge are thought to contain previously recorded sites. Site subsidence and inundation would appear to increase in the southern portion of the study area, even though no well-documented sites were located in these areas to support this contention.

Wilson (this volume) reports that in the northern portion of the study area, elevation increases such that a distinctive upland mixed forest is present. It may be significant that the Goff Slough Mound Site (22JA682) is located north of the delta proper at a higher elevation. Likewise, the only other mound site reported to us by a local informant is thought to be located well out of the Pascagoula floodplain to the west of Poticaw Landing. It is also noted that southward-extending natural levees are rare in the Pascagoula Delta; this may have resulted in less suitable land area for settlement. Given the apparent differences in topography and elevation, as well as natural resources existing between Pascagoula Bay and the coastal littoral zone proper and the lower Pascagoula River/Delta floodplain, differential/seasonal usage of inland and coastal areas would seem natural (Lewis 1988). The model of subsistence and settlement presented above seems ideally suited for organizing the prehistoric remains found in the study area.

In terms of historic settlement or use of the area, it is noted that logging and recreation are the main economic uses of the project area today. Historic structures are few in number. None of significance was observed in the project area and where present, they are observed at the margin of the floodplain on higher ground.

CHAPTER 7 SUMMARY AND RECOMMENDATIONS

Summary

Background/archival/records search concerning the Pascagoula tract turned up only a single prehistoric site, 1JA511, which had been previously recorded. An attempt to relocate it by pedestrian survey was unsuccessful. Boat reconnaissance and visual inspection of cut banks in the project area resulted in the discovery of no new sites. However, buried soil horizons observed in cut banks of the Pascagoula River indicate that former stable surfaces lie buried in the floodplain.

A review of the environmental/geomorphic setting, archaeology, and history of the area has documented the basic prehistoric and historical sequences and provided a basis for the research design and model of human land use presented.

Reports of shell midden localities in the project area could not be confirmed, despite concerted efforts to locate such sites. Other prehistoric sites were located at the edge of the Pascagoula floodplain, including a possible mound west of Poticaw Landing. Numerous sites had been previously recorded on high ground overlooking the project area and to the south in the Pascagoula Bay region.

Recommendations

The results of the field reconnaissance and background research indicates that prehistoric and historic sites which may be present in the study area are likely to be buried and represent short-term special extraction sites. Identification of these sites will be very difficult. No *Rangia* middens were identified in the project area.

Major settlements of longer duration appear to be concentrated on higher ground at the edge of the floodplain. As one moves up the Pascagoula Delta into the northern part of the project area, the potential for Indian mound sites must be considered, as the identification of the Goff Slough mound attests. Flat, swampy floodplain area similar to that on which the Goff Slough Mounds are located is present in the northern study area. This area is higher than the southern portion of the study area, though still subject to severe flooding. Although local informants familiar with the terrain indicate that no other mounds exist, there is a possibility that other mound or non-mound sites may exist in this area.

High probability areas for prehistoric and historic sites have been identified previously. In particular, the bluffs overlooking

Ward's Bayou where locals reported finding prehistoric materials should be intensively surveyed to determine the presence, status, and/or condition of any sites which may be present. Since no sites were found within the project area, no recommendations are made regarding individual sites.

In terms of future site inventory/survey work, it is recommended that sample units be selected to include all micro-environmental zones in the acquired lands. The sample size should be sufficient to allow generalizing/predictive statements regarding the nature of human occupation in the study area. Consultation with an individual trained in the evolution of human landscapes is highly recommended, given the apparent ubiquity of buried soils/surfaces in the study area. It is probable that a sizable number of small, short-term sites and a smaller number of larger sites post-dating 3,500 B.P. exist in the project area. Survey efforts should be of an intensity to adequately locate and assess the nature of these resources.

PART II-THE TWIN OAKS AND MAHANNAH FARM TRACTS,
SHARKEY, ISSAQUENA, AND WARREN COUNTIES, MISSISSIPPI

CHAPTER 8 ENVIRONMENTAL BACKGROUND

The Twin Oaks and Mahannah Farm tracts are situated within the Yazoo Basin of the Lower Mississippi Alluvial Valley (Figures 5 and 6). This area has a very complex geomorphic history (Lafferty and Sierzchula 1989; Saucier 1974; Weinstein *et al.* 1979), with portions of five distinct meander belt systems of the Mississippi River present. Within the meander belts backswamps, channel cut-offs, point bars, and natural levees help provide a variety of micro-environmental zones which were may have been exploited by prehistoric and historic inhabitants.

Soils and Climate

Soils of the study area consist almost entirely of Sharkey-Alligator-Dowling clays (Scott and Carter 1962; Wynn 1961) with a small area of sandier soils bordering the Little Sunflower River in the Twin Oaks tract. The clays are deposited in very low energy environments and are poorly drained. Sandier levee soils are present along major water courses and abandoned channels in the periphery of the project area, but were noticeably lacking in the area. The soils formed in a humid, warm, temperate climate. Summers are hot and humid, while winters are relatively mild. Precipitation is scattered throughout the year, with an annual total between 31 and 76 inches (Scott and Carter 1962). Snowfall is uncommon, and when it occurs, lasts for only a day or so.

Vegetation

The vegetation of the study areas is primarily associated with the delta forest which corresponds in large part with the series of meander belts and backswamps mentioned above. The delta forest is comprised of a large variety of hardwood species (Lowe 1921). The original forest has been divided into two general areas by Stover (1942). As noted by Weinstein *et al.* (1979), the overcup oak-water hickory forest is present on poorly drained, clayey soils in backwater areas, while the sweetgum-oak mixed hardwood forest is located on higher and better-drained soils. The vegetative composition of the delta bottomlands has been characterized as low in diversity (Watson and Brown 1967) with only 67 different tree species noted and a concomitant low number of herbaceous closed-canopy species (Weinstein *et al.* 1979). The nut crops produced by the oaks and hickories were undoubtedly a major attraction for the native American inhabitants. A wide variety of other edible plants were probably also present in cleared or disturbed areas in the delta (Weinstein *et al.* 1979:Table 2-2).

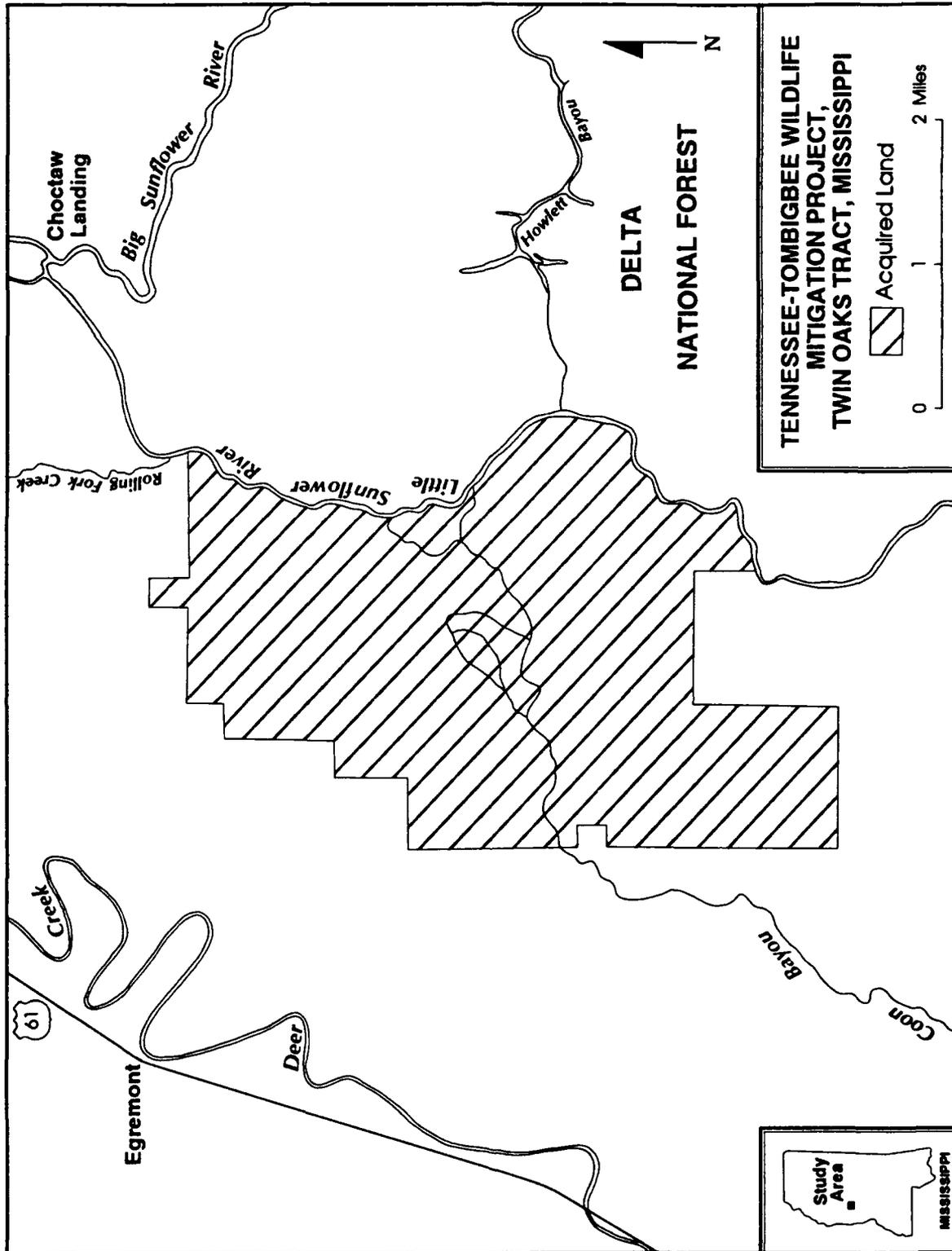


Figure 5. Tennessee-Tombigbee Wildlife Mitigation Project Area, Twin Oaks Tract.

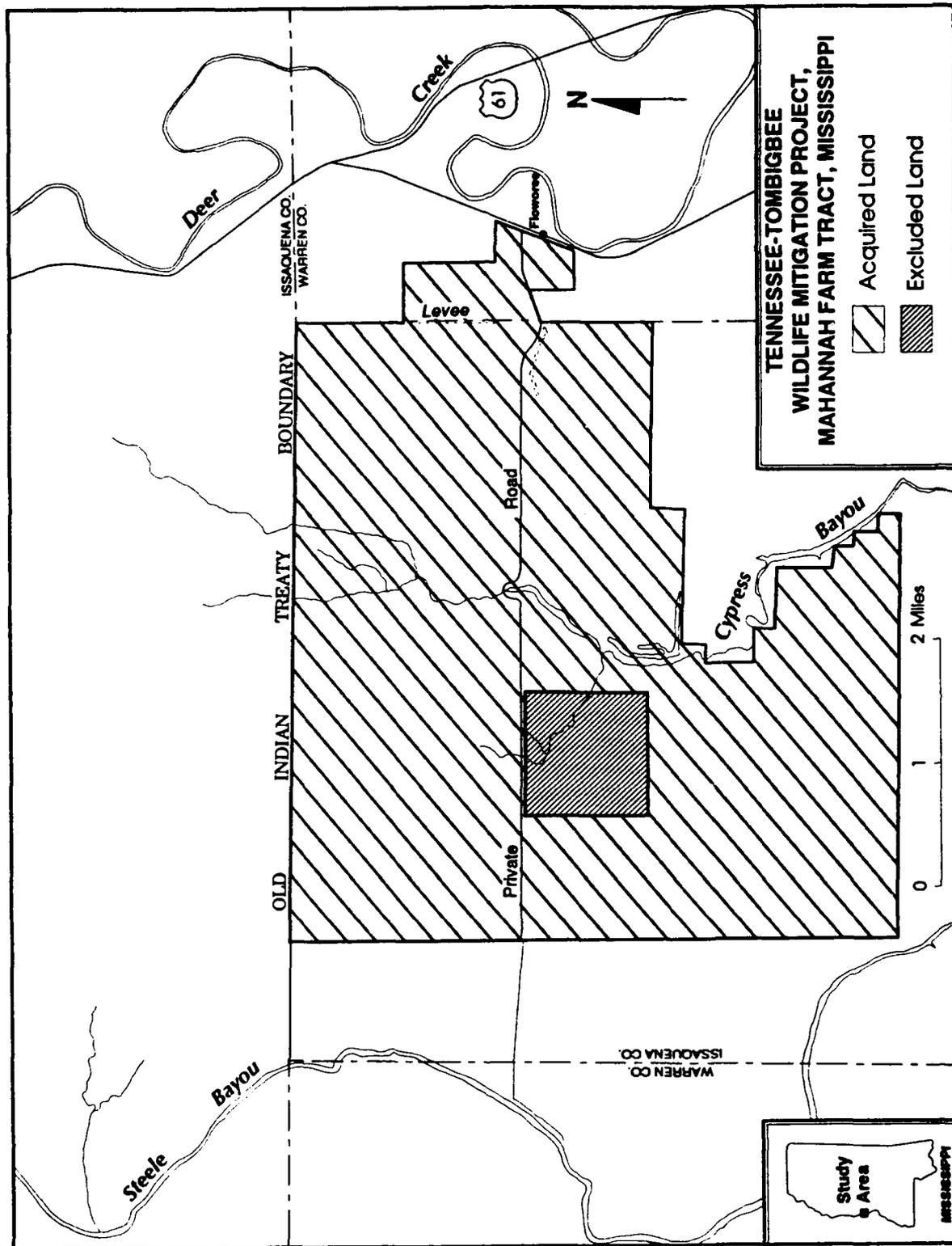


Figure 6. Tennessee-Tombigbee Wildlife Mitigation Project Area, Mahannah Farm Tract.

Geomorphology

The geomorphic setting of the Delta National Forest in the vicinity of the Twin Oaks and Mahannah tracts has been recently described by Lafferty and Sierzchula (1989). The terminal Pleistocene glacial meltdown produced large areas of braided outwash which served as the source material for the deep loess deposits at the fringe of the Mississippi floodplain. These ancient braided stream patterns have been largely covered by more recent alluvium (Lafferty and Sierzchula 1989). The following section is extracted from that discussion, which draws on Saucier's (1974) reconstruction of Yazoo Basin geomorphology:

On the west-central and northeast edges of the basin remnants of the relic braided surfaces remain, but, for the most part, they have been eroded and covered over by more recent deposits. Remnants of all five meander belt systems identified in the Lower Mississippi Valley are present in the Yazoo Basin. These meander belts are composed of a mosaic of cutoffs, backwater swamps, and higher levee soils. The western boundary of the basin is formed by the modern meander belt of the Mississippi River (#5). The Delta National Forest is situated in a large backwater swamp formed between Meander Belt 5 and Meander Belts 3 and 4.

The Twin Oaks tract is situated in this same backswamp area west of the Little Sunflower River (Figure 7). The Mahannah Farm tract is situated between Steele Bayou and Deer Creek in a backswamp area of Meander Belt 4 (Figure 8). Based primarily on the work of Saucier (1974) and others, the fluvial/depositional history of the Yazoo Basin, and the study areas is fairly well known. These results allow the prediction of high and low site probability areas.

Based on their work in the Upper Steele Bayou Basin, Weinstein et al. (1979) discuss three major topographic areas within the Yazoo Basin which they indicate, after Phillips (1970), would have proved attractive to prehistoric peoples. The first are the natural levees along major watercourses which often become the highest terrain as a result of continuous overbank flooding. They would be free from flooding for longer periods than surrounding areas.

The second topographic situation consists of what are termed crevasse channel levees which are created as a result of high velocity flooding. Sometimes during a major flood, the natural levee on the outer bend of a major watercourse is cut by the force of the water, creating a new channel. If the flooding is sustained and frequent, formidable levees develop along the crevasse channels which provide elevated, well-drained terrain suitable for habitation.

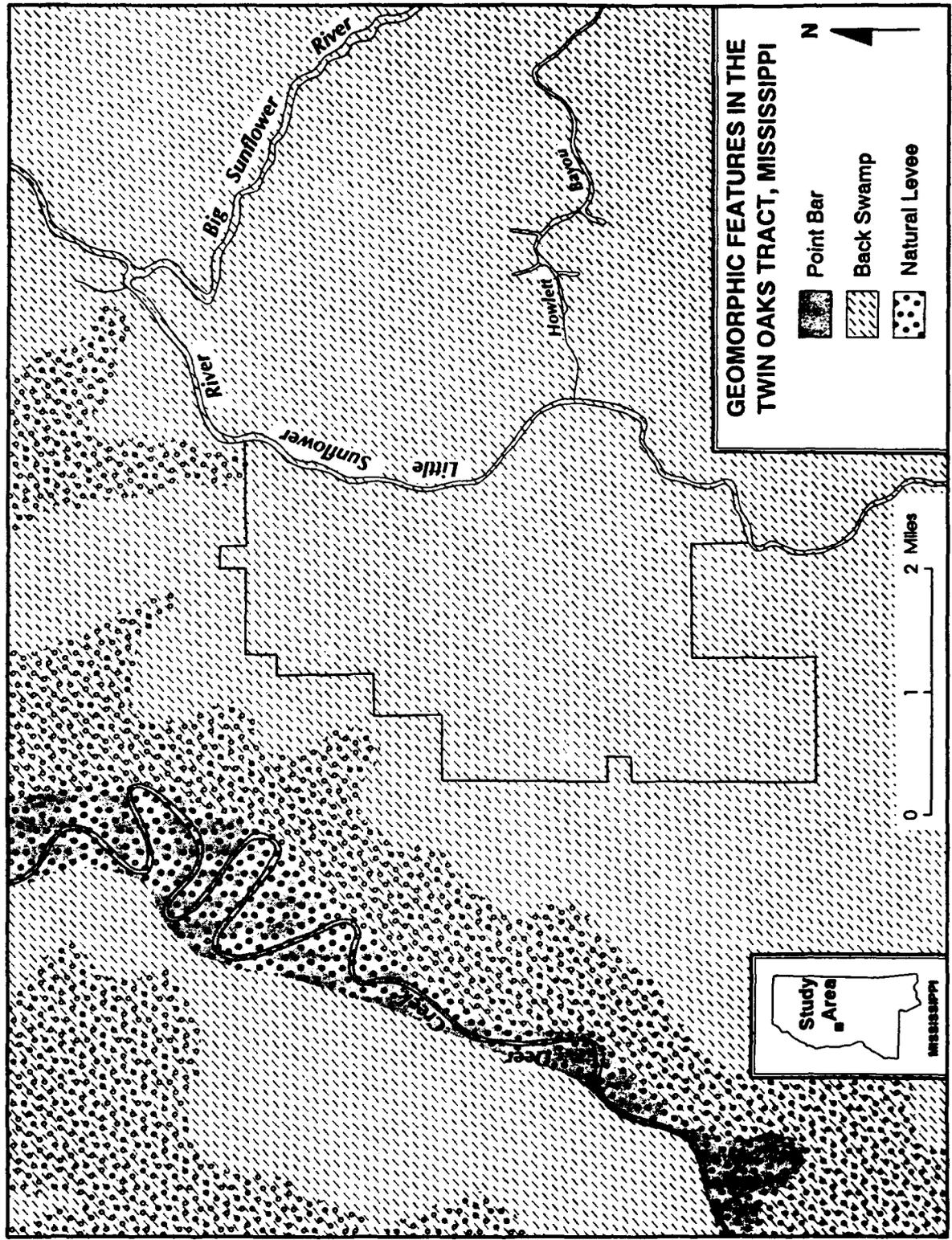


Figure 7. Geomorphic Features in the Twin Oaks Tract, Mississippi.

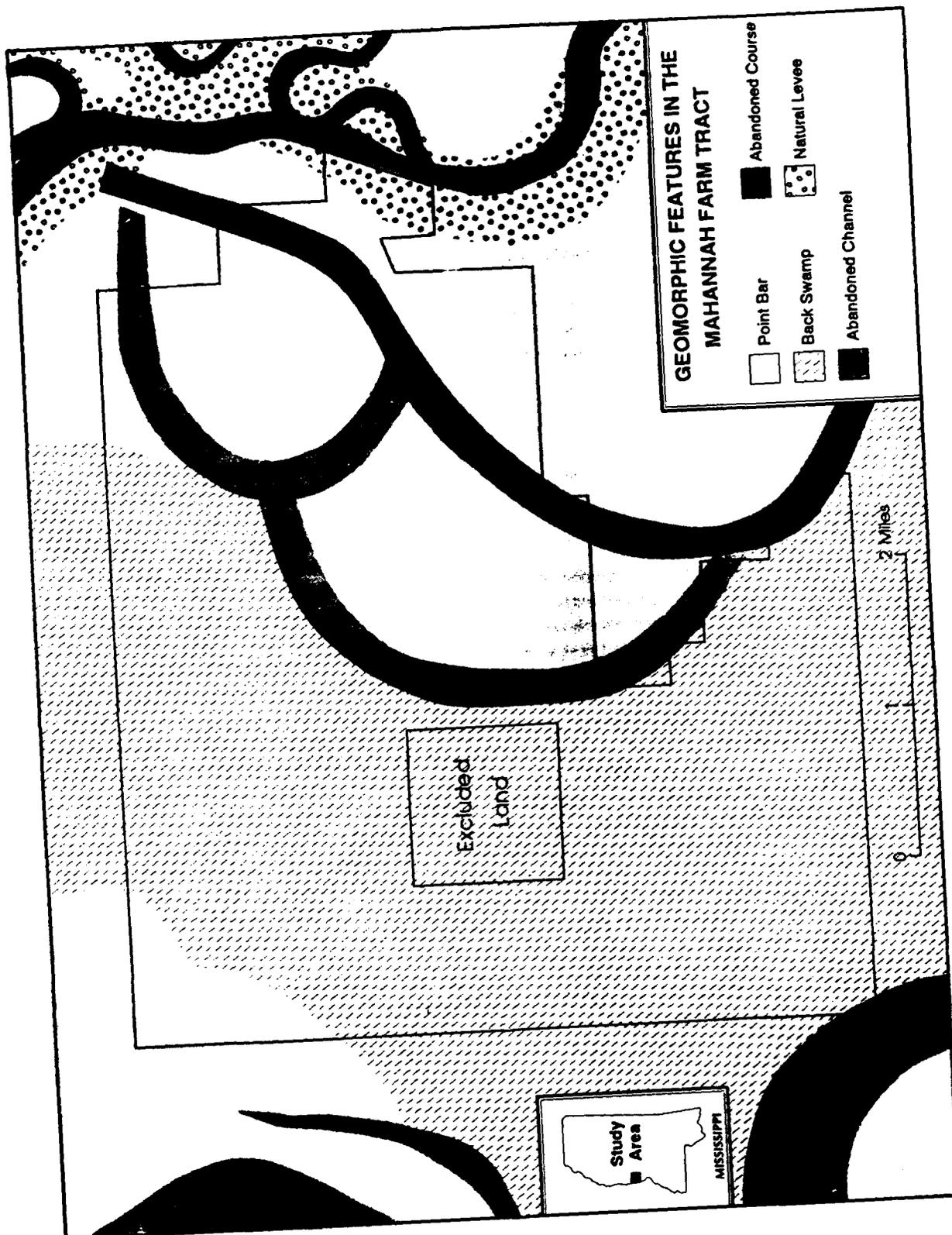


Figure 8. Geomorphic Features in the Mahannah Farm Tract, Mississippi.

The third topographic situation amenable to prehistoric habitation is the natural levee associated with small, minor tributaries of the major distributaries. While the relief created by these streams is not nearly as great as that produced by the larger streams (with a consequent increased risk of flooding), they would have provided areas for shorter term camps, perhaps of a seasonal nature (Weinstein *et al.* 1979).

CHAPTER 9
DOCUMENTATION/LITERATURE REVIEW AND
ARCHAEOLOGICAL AND HISTORICAL BACKGROUND,
TWIN OAKS AND MAHANNAH FARM TRACTS

Archival/Records Search

Background research for the Twin Oaks and Mahannah Farm portion of the Tennessee-Tombigbee Wildlife Mitigation Project, Mississippi, was undertaken during early July and early August 1992. The Mississippi State site files in Jackson were examined along with other materials, including reports and maps, to gain familiarity with cultural resources in the study areas. Additionally, reports pertaining to the study areas were examined at the U.S. Army Corps of Engineers district offices in Mobile and Vicksburg. A set of black and white aerial photographs covering the Twin Oaks and Mahannah Farm tracts were obtained from the Vicksburg Corps office. Detailed geomorphic maps were also obtained from the Vicksburg Corps office for the Mahannah and Twin Oaks tract, as were 1930s 15-minute topographic maps. Archaeologists and historians familiar with cultural resources in the study areas were contacted, including resident historians at Vicksburg National Military Park. Local informants were interviewed to obtain information regarding site locations and details about sites recorded in the project area.

Examination of state site files and maps in Jackson indicated that no sites had been previously recorded in either the Twin Oaks or the Mahannah Farm tracts, Sharkey, Issaquena, and Warren counties. However, a number of sites had been recorded in the general vicinity of these project areas. A previously recorded mound site, 22IS532, was located just north of the Mahannah Farm project area at Hardee. These site locations were plotted on topographic maps. Copies of state site forms as well as Lower Mississippi Valley Survey data forms pertaining to these sites were made for reference.

Consultations with personnel at the Mississippi Department of Archives and History and with the former speaker of the Mississippi House of Representatives, C.B. (Buddy) Newman, were made regarding the presence of three railroad section houses located at Floweree, Mississippi, just inside the eastern boundary of the Mahannah Farm project area. Arrangements were made to interview local informants, including Mr. Newman's brother and sister who had visited these houses as children. Horace Newman, Louise Bunch, Joseph Sylvester, Henry Barnum, and Mrs. Clark were all interviewed with regard to the railroad section houses.

Literature Review

Archaeological research has been conducted in the Lower Mississippi Valley for over 100 years, beginning with the work of the Smithsonian Institution (Thomas 1894) and continuing to the present. Earlier work by antiquarians such as Squire and Gage produced only brief descriptions of selected mound sites (Weinstein et al. 1979). Early major efforts at understanding the prehistory of the Yazoo Basin include the work of Brown (1926), Collins (1927), Ford (1936), Jennings (1941, 1952), and Moore (1908). However, the most extensive, long-lived archaeological research program undertaken in the basin to date was that of Harvard University and their Lower Mississippi Valley Survey which began in 1940 and continues today. Major publications resulting from this work include Phillips (1970), Phillips et al. (1951), and Williams and Brain (1983). Other work resulting from this program includes that of Brain (1969), Ford et al. (1955), and Greengo (1964). As noted by Lafferty and Sierzchula (1989), one of the most detailed ceramic sequences yet developed for eastern North America has resulted from this work.

All the county report files pertaining to the study areas were examined to locate sources of information potentially relevant to the study area. In the vicinity of the Twin Oaks tract, professional work has been completed by DeLeon (1978, 1984), Lafferty and Sierzchula (1989), and Wynn (1978, 1979). DeLeon (1984) reported on site 22SH549, the Riley site, which he describes as a "midden mound" dating to the Marksville-Mississippian periods. The site is located in the Delta National Forest east of the study area along an abandoned stream channel which has been filled (Lafferty and Sierzchula 1989). Prior to his investigations at the Riley site, DeLeon (1978) had surveyed an area known as Fifteen Mile Island within Delta National Forest, but recorded no sites in the area.

Wynn (1978, 1979) surveyed two proposed green tree reservoirs within Delta National Forest, the total area of which was about 5 square miles. Only selected areas within the total project area were surveyed; no archaeological sites were discovered. Lafferty and Sierzchula (1989) conducted a survey of 34.37 miles of transects within a 9,000-acre area of Delta National Forest. This resulted in a 15.5% stratified sample of the area. No archaeological sites were found. This led the authors to state that either sites are not present in the backwater swamp surveyed or that they are too deeply buried to be discovered using conventional survey methods. Finally, Fant (1992) conducted a survey of 229 acres within selected compartments within Delta National Forest, Sharkey County, but with negative results.

Very little work has been conducted recently in the vicinity of the Mahannah Farm tract in Issaquena and Warren counties, other than minor small surveys which reported little of significance.

Roemer and Walling (1992) have recently completed a survey of approximately 32 km of the Big and Little Sunflower River bottomlands in the Yazoo Basin. Thirty new prehistoric and historic sites were recorded, and thirteen sites previously recorded by the Lower Mississippi Valley Survey, Harvard University, were re-examined.

Archaeological and Historical Background

Very little is known regarding the pre-Late Archaic cultural manifestations in the Yazoo Basin, prior to 4,000 B.P. (Brain 1971; Weinstein et al. 1979). The present summary is concise in its presentation, since detailed recapitulations of the area culture history after 4,000 B.P. have been produced by Brain (1969), Phillips (1970), and Weinstein et al. (1979). Brain (1971) devised a scheme which divided the pre-Poverty Point time scale into the Paleoindian (17,000 B.P.-8,500 B.P.) and the Meso-Indian (8,500 B.P.-4,000 B.P.). Within these he defined a number of Paleoindian and Archaic phases, even though very little data beyond surface collections was available. Scattered finds of fluted points and later Dalton and San Patrice points have been reported from the lower Mississippi Valley (Brain 1971; Ensor 1986).

Poverty Point Period

Brain's Neo-Indian Period I begins at 4,000 B.P. and is associated with the Poverty Point Culture (Phillips 1970). As noted by Lafferty and Sierzchula (1989), Poverty Point period sites in the lower Yazoo Basin such as Waller, Lake George, Mabin, Savory, and Fairview are all located on Saucier's Meander Belt 4, which indicates that it formed prior to Poverty Point development. Poverty Point period development in the Lower Mississippi Valley is marked by the construction of massive earthworks, inter-regional trade, and perhaps specialized craft production (Brain 1971; Ford et al. 1955). A distinctive microlith perforator industry, Poverty Point objects, and jasper beads are commonly associated with this culture. Weinstein et al. (1979) place the end date for Poverty Point at around 2,500 B.P.

Tchula Period

The Tchula period dates from approximately 2,300 B.P. until 1,900 B.P. (Phillips 1970; Weinstein et al. 1979) and is marked by the first extensive use of pottery. Phillips (1970) defined the Tuscola phase of the Tchefuncte culture based on the presence of Tchefuncte ceramics at the Jaketown site and several others. Tchula period culture is believed to be basically an extension of Poverty Point culture; however, burial mounds are present by this time. Bundle and flexed burials occur along with large stemmed

projectile points (Weinstein et al. 1979). Lafferty and Sierzchula (1989) indicate that Tuscola phase sites are located on the same landform as Poverty Point sites.

Marksville Period

The Marksville period is thought to date from approximately 2,100 B.P. until 1,600 B.P. (Phillips 1970; Weinstein et al. 1979). A distinctive ceramic tradition evolved during this period which has become a hallmark of Marksville culture. Ceramic decorations were made using broad line incising, zoned rocker stamping, and bird motifs. Two phases, Anderson Landing and Issaquena, have been defined. Marksville period sites often produce artifacts which were traded from distant areas, the result of participation in the Hopewellian sphere of interaction. Burial mounds are common, with the deceased placed in a flexed position on platforms within the mounds (Weinstein et al. 1979). A wide range of artifact types has also been recovered from Marksville period sites, including effigies, pipes, bone fish hooks, shell beads, pendants, ear spools, and bracelets. Basketry impressions have been found at the Crooks site (Ford and Willey 1940; Weinstein et al. 1979). Lafferty and Sierzchula (1989) note that at least fifteen Marksville period components are known for the lower Yazoo Basin, some of which contain earthworks, including Leist, Spanish Fort, and Little Spanish Fort. These occupations appear to be the initial ones for Meander Belt 5, which serves as a base for later occupations (Lafferty and Sierzchula 1989).

Baytown Period

The Baytown period dates from approximately 1,600 B.P. to 1,300 B.P. (Phillips 1970; Weinstein et al. 1979). Two phases, Deasonville and Bayland, have been defined for this period. The period is marked by a decline in ceramic decoration, and Phillips (1970) had difficulty in defining any diagnostic ceramic types (Lafferty and Sierzchula 1989). Some archaeologists view this as a time of transition between Marksville and later Mississippian development (Weinstein et al. 1979), and there is continued evidence of interaction with neighboring groups along the Gulf Coast and the upper Mississippi Valley. Phillips (1970) located at least ten Baytown period sites, including Manny, in the vicinity of the project area (Lafferty and Sierzchula 1989).

Coles Creek Period

The Coles Creek period, as defined by Phillips (1970) and Weinstein et al. (1979), is dated from 1,300 B.P. until 800 B.P. in the Yazoo Basin. This period is represented by a substantial increase in sites across the valley, a resurgence of decorated pot-

tery, and construction of platform mounds (Weinstein et al. 1979). This period contains two phases, Aden and Kings Crossing. Pottery decorations are primarily confined to incising below the lip. It is believed that the bow and arrow and possibly corn agriculture was present by the end of the Coles Creek period (Brain 1976). Relatively little is known of this time period, although a steady increase in population density is inferred from the increased number of sites. Lafferty and Sierzchula (1989) note that Phillips (1970) described eleven sites of this time period along the lower Yazoo River, including the Manny site.

Mississippi Period

This period extends from approximately 800 B.P. until 270 B.P. and is marked by the diffusion of Mississippi Plain pottery into the basin. The earliest Mississippi period phase, Crippen Point, is marked by the manufacture of clay or grog tempered Plaquemine pottery. This is replaced about 600 B.P. by shell tempered ware of the Lake George phase and eventually by Natchezan pottery (Weinstein et al. 1979; Williams and Brain 1983). Mississippi period sites are characterized by large towns with plazas surrounded by rectangular mounds. Cemeteries are present, and crops such as maize, beans, and squash were grown. Mississippi material culture was quite diversified, with digging sticks, shell and chert hoes, polished celts, shell gorgets and beads, hairpins, and needles common (Weinstein et al. 1979). Contact with neighboring chiefdoms was maintained, and ritual artifacts were traded over long distances as part of the Southeastern Ceremonial "cult." According to Lafferty and Sierzchula (1989), Meander Belt stage 5 sites increase in number during this time period in the lower Yazoo Basin.

Ethnohistory and History

At the time of DeSoto's march through what is now Mississippi in 1540, the Choctaw and Natchez Indians were the major Indian tribes living close to the Yazoo Basin. However, as pointed out by Weinstein et al. (1979), several smaller groups including the Nitayuma, Tunica, Issaquena, Ofo, and Koroa lived along the Yazoo River and vicinity.

In 1699 the French intruded into the Yazoo Basin, and Brain (1977) indicates that they found the Tunica living on the Yazoo River near its confluence with the Mississippi (Lafferty and Sierzchula 1989). The Tunica moved over the Mississippi from the Yazoo in 1706 (Guice 1974) where they defeated the Houma. Wynn (1978) states that the Chickasaw had either dominated or eliminated several of the Yazoo Delta tribes during the eighteenth century, but that the Choctaw were considered the owners of the lower Yazoo Basin area by the English and Americans in the Second Choctaw Cession at the Treaty of Doak's Stand in 1820. The Natchez were

virtually eliminated by the French in the 1731 massacre (Weinstein et al. 1979) and practically all the Yazoo Basin tribes other than the Chickasaw and Choctaw had been eliminated by 1763. Missionaries were the only major settlers in the area until the end of the eighteenth century.

Anglo-American culture began to gain hold in the Yazoo Basin by 1820. Early settlements at Rolling Fork and north of Rolling Fork at Helena Plantation took place in the late 1820s. The Mississippi Territory was established in 1798. As large southern aristocratic plantation homes were being built along the Mississippi River, cotton farmers in the Yazoo Basin were content to live in one- or two-room log cabins which eventually gave way to the dog trot house (Weinstein et al. 1979).

Lafferty and Sierzchula (1989) report that five Yankee iron-clads patrolled the Yazoo and Little Sunflower Rivers up to Rolling Fork in 1863. They routed a Confederate force defending the town with the aid of infantry and retreated to Vicksburg to help in the siege. After the Civil War, the economy became depressed with the disruption of the slave system.

By 1877, railroads had arrived in the Yazoo Basin, and previously untapped forests were lumbered for profit. The Yazoo and Mississippi Valley Railroad was formed in 1884, and trade by steamboat began in the Steele Bayou area in 1879 (Weinstein et al. 1979). Railroad tram lines were built across low, swampy areas to tap the bottomland hardwoods so abundant there. Low backswamp areas were drained and put into cultivation, and levees were constructed to protect the crops from flooding. Cotton and soybean production continues to be a viable economic pursuit in the Yazoo Basin today, along with timbering. Recreational areas such as hunting and fishing clubs abound in the many river and stream bottoms in the delta as well as in backswamp areas.

CHAPTER 10
RESULTS OF FIELD RECONNAISSANCE, TWIN OAKS
AND MAHANNAH FARM TRACTS

Field Reconnaissance, Twin Oaks Tract

Field reconnaissance of the Twin Oaks tract was undertaken from August 9, 1992 until August 11, 1992. Reconnaissance was accomplished by boat and motor vehicle and pedestrian survey. An unsuccessful attempt was made to examine the eastern edge of the project area by boat. The Little Sunflower River was clogged with vegetation north of the project area, and the closest boat launch found was located 10 miles to the south of the project area. Access to the project area by motor vehicle was possible from both the north and south along the road shown in Figure 9.

A pedestrian survey was conducted along the entire eastern boundary of the Twin Oaks tract paralleling the Little Sunflower River. Cut-bank exposures were examined, as well as tree-throws and all other areas of exposed ground surface along the access road (Figure 10). Limited shovel testing was undertaken in a variety of topographic situations, especially along terraces paralleling the Little Sunflower River (Figure 11) and in backswamp areas slightly away from the river. In all instances, the soils encountered were very clayey and poorly drained. No cultural materials were found in any of the shovel tests. The soil survey of Sharkey County indicated that a restricted area of slightly better drained soil exists along the Little Sunflower River at the extreme northeastern portion of the study area. However, shovel testing in this area revealed the same clayey, silty soils present in the remainder of the area examined.

The backswamp, a floodplain forest area west of the river which constituted the project area, was accessed by motor vehicle. Limited shovel testing/pedestrian survey was conducted in this area, but no artifacts or other materials were found. The terrain in this area was very flat, broken only by small depressions and a few abandoned and filled secondary stream channels which in some cases had narrow, low levees bordering them. A dense growth of bottomland hardwoods was present (Figure 12). No prehistoric sites or artifacts were found.

An area of twentieth century historic artifacts was found along the access road at the eastern edge of the project area; these appeared to be related to modern farming activities. Examination of 1930s road maps for the area revealed several structures which appeared to be located in the project area at one time. However, field checks at these locations revealed no evidence of historic materials. The remains of a mid-late twentieth century hunting camp was found in a wooded area at the extreme southeastern edge of the project area. It consisted of several collapsed structures and associated trash.



Figure 9. Field Access Road, Twin Oaks Tract.



Figure 10. Cut Bank Exposure Along the Western Edge of the Little Sunflower River.



Figure 11. View of the Little Sunflower River Looking North from the Twin Oaks Tract.



Figure 12. Bottomland Hardwood Forest, Twin Oaks Tract.

Field Reconnaissance, Mahannah Farm Tract

A reconnaissance of the Mahannah Farm tract was undertaken from August 6, 1992 until August 9, 1992. Access was by Anderson-Tully Road, a private farm road (Figure 13). An examination of this land tract was made by motor vehicle and by pedestrian survey. As mentioned above, local informants were queried as to the location of sites in the area. A single "Indian mound" was reported by the farm manager at Mahannah Farms to exist slightly to the west of the project area. The project area at the time of the field reconnaissance was planted in cotton (Figure 13) and other crops in the eastern, central, and northern portions. The extreme western portion and the southwestern portion contained standing bottomland hardwood forest habitat (Figure 14). Surface visibility was practically nonexistent in most of the survey area.

Local informants stated that several early twentieth century structures had been present within the project area; these are primarily tenant farmer "shotgun" houses in addition to the railroad section houses which are still standing next to the old railroad grade at the eastern edge of the project area. Most of these were removed during the mid-twentieth century.

Using the geomorphic surface maps provided by the Vicksburg District Corps of Engineers, and in consultation with Ms. Sheila Lewis, Corps archaeologist at the Vicksburg District, areas which seemed to have a slightly higher probability of containing aboriginal sites than others were selected for pedestrian reconnaissance.

Areas selected were along Cypress Bayou and Steele Bayou at the southeastern/eastern and extreme southwestern portions of the study area, respectively (see Figure 8). Potential terrace deposits were shown to exist in these areas. Careful pedestrian examination revealed no artifacts or other cultural materials. Isolated occurrences of historic artifacts, some of which appeared to date to the late nineteenth century, were found eroding from field roads near the old railroad grade in the eastern portion of the project area.

Railroad Section Houses

Three wooden-frame railroad section houses were documented in the project area at Floweree, Mississippi. These were the residences of the railroad foreman and laborers who maintained this "section" of track for the railroad company. Interviews with local informants indicated that all three structures were built between 1900 and 1905. Two of the structures are presently inhabited by families; the third is empty. All the houses appear to be structurally sound. State of Mississippi *Historic Resources Inventory* forms were completed for each structure. Plan views drawn to scale



Figure 13. Anderson-Tully Road, Mahannah Farm Tract.



Figure 14. Bottomland Hardwood Forest, Mahannah Farm Tract.

and extensive photographic documentation was made for each structure (Figures 15-20).

Consultation with project consultant Dr. Eugene Wilson and Richard Cawthon at the Mississippi State Department of Archives and History indicates that very little is known of section houses, either from an architectural or a historical perspective. One of the houses appears to be a "classic" example of a single family foreman's house, while the other two housed two families each (C.B. Newman, communication 1992). However, the Mississippi State Historic Preservation Office has determined these structures to be ineligible for the National Register.

Other Historic Resources in the Mahannah Farm Tract

The old railroad grade of the New Orleans, Louisville and Louisiana Railroad and, later, the Yazoo and Mississippi Valley Railroad, is still present along the eastern boundary of the project area. Several "dummy" lines or tram roads apparently branched from the main railroad line at the turn of the century or before into the project area. A main railroad-tram line existed at the present-day location of Anderson-Tully Road, which roughly bisects the Mahannah Farm tract. Tram lines were built and used by logging companies in their timbering activities. The intact portions of tram lines in the project area would not appear to represent potentially significant resources, since similar lines are ubiquitous in Mississippi, Louisiana, and east Texas, and their general function is well understood.

The 1930s road map of the area and local informants indicated that a structure(s) including a store and barn were located north and south of Anderson-Tully Road at the eastern boundary of the project area. Limited shovel testing and close visual examination of exposed surfaces yielded only a few pieces of historic material including modern ceramics, glass, and metal.

It was reported by a local informant that up to six African-American tenant farmer "shotgun" houses were located north of Anderson-Tully Road in the eastern part of the study area during the 1920s and 1930s. However, as noted above, local informants stated that the structures had been removed from the Mahannah Farm tract sometime during the mid-twentieth century. Several twentieth century hunting camps, one of which was originally used as an oil well drill site, were located, but they all appear to date to the mid- to late twentieth century.

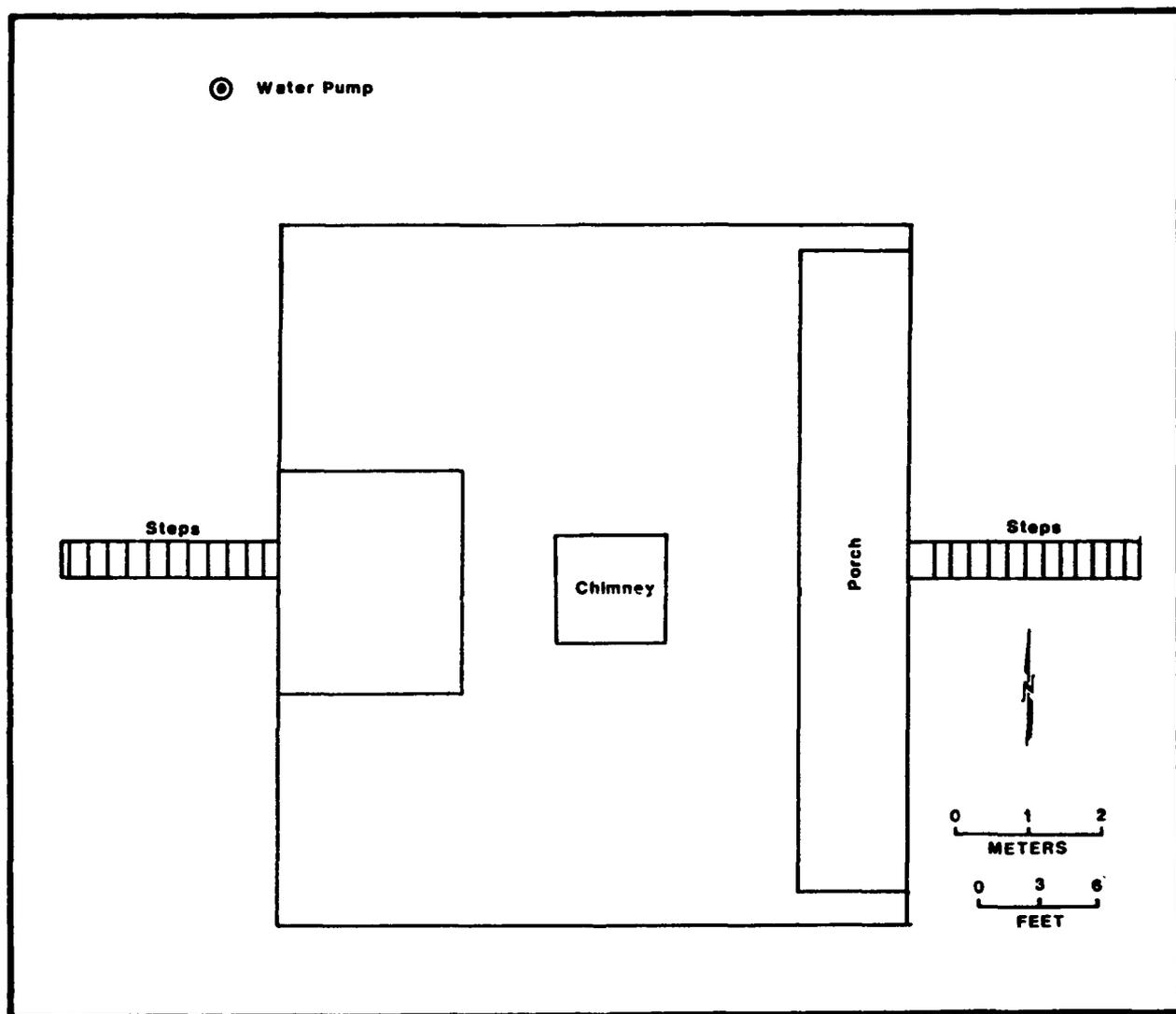


Figure 15. Schematic Drawing of Former Railroad Section Foreman's House, Mahannah Farm Tract.
(MDAH Inventory Code 149-Vks-5106)



Figure 16. Photograph of Former Railroad Section Foreman's House,
Mahannah Farm Tract.
(MDAH Inventory Code 149-Vks-5106)

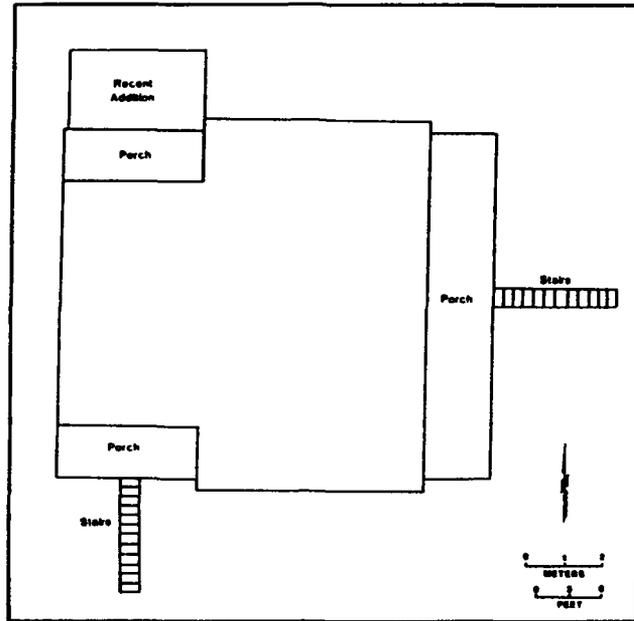


Figure 17. Schematic of Former Railroad Section Laborer's House, Mahannah Tract. (MDAH Inventory Code 149-Vks-5107)

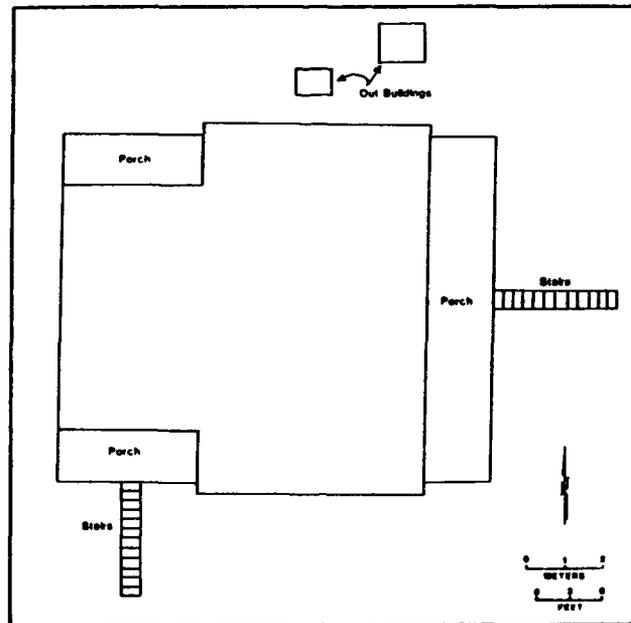


Figure 18. Schematic of Former Railroad Section Laborer's House, Mahannah Tract. (MDAH Inventory Code 149-Vks-5108)



Figure 19. Photograph of Former Railroad Section Laborer's House,
Mahannah Tract.
(MDAH Inventory Code 149-Vks-5107)

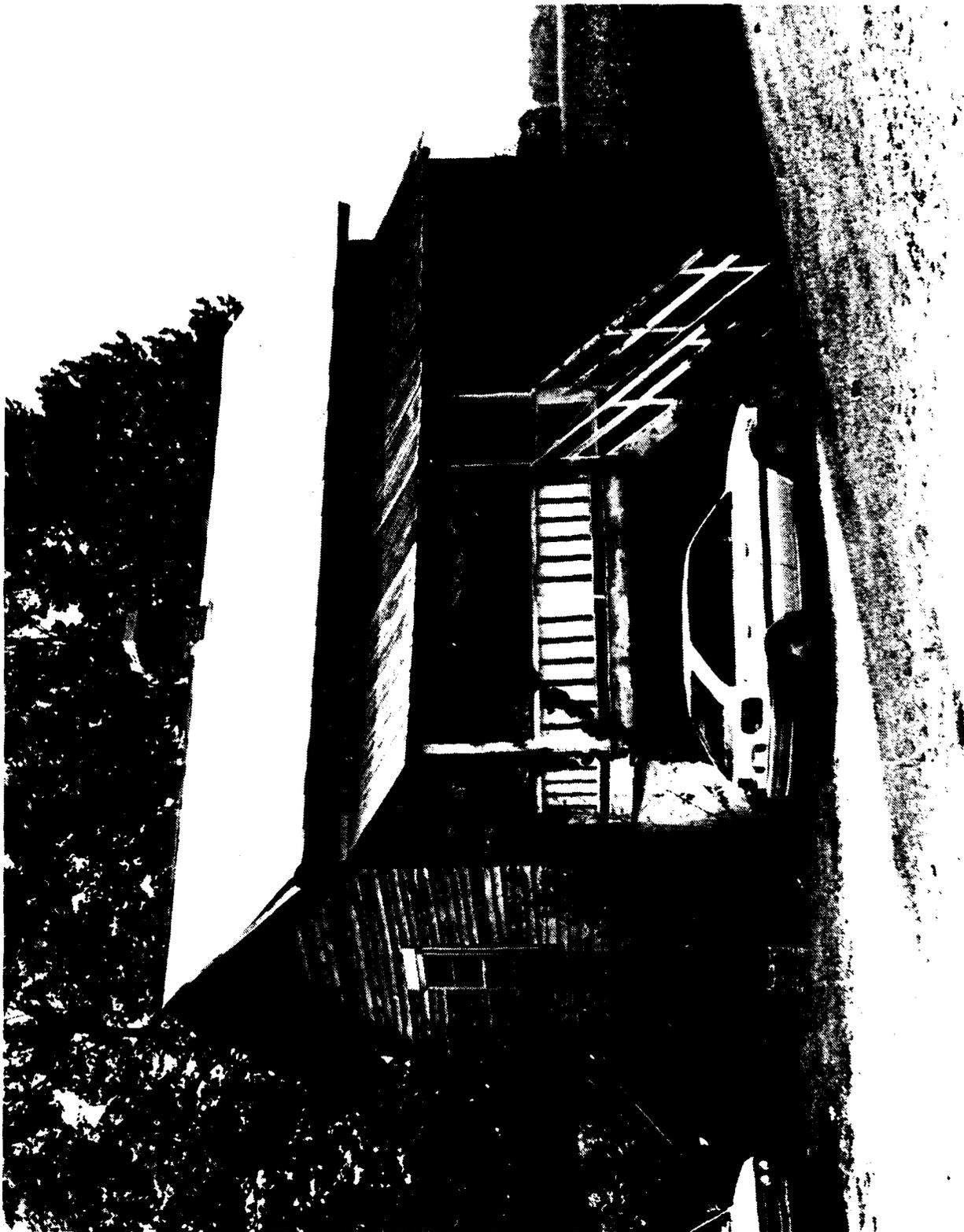


Figure 20. Photograph of Former Railroad Section Laborer's House,
Mahannah Tract.
(MDAH Inventory Code 149-Vks-5108)

CHAPTER 11
RESEARCH DESIGN AND MODEL OF HUMAN SETTLEMENT,
TWIN OAKS AND MAHANNAH FARM TRACT

Research Design

A review of the literature and culture history of the Yazoo Basin has made it clear that for the majority of the prehistoric sequence, people lived at the hunter-gatherer level of subsistence. With the possible exception of Poverty Point, it was not until the late Coles Creek-Mississippi periods that societies in the study area were organized at the chiefdom level. Therefore, a research design appropriate to the study of change in hunter and gatherer society in the Yazoo Basin is presented. A separate model of Mississippi period settlement is developed to incorporate the agriculture-based chiefdom economies. These are followed by a model of human settlement for the study area.

As noted by Anderson and Hanson (1988), hunter-gatherer mobility strategies appear to be correlated with ecosystem dynamics. In this sense, hunter-gatherer behavior is viewed as resulting from a series of conscious choices within the environment and from minimization of effort. The decisions made ultimately determine the nature of the subsistence-settlement round of a particular cultural group. Binford (1980) has made a useful distinction between collecting and foraging strategies. Collecting strategies generally focus logistically upon a restricted set of resources which are unevenly distributed across the landscape. Foraging strategies usually occur when resources are more uniformly distributed. Collectors generally move resources to base or residential camps, while foragers more often move to the resource (Binford 1980).

Davis (1990) has noted, after Binford (1980), three general settlement types which may be expected to occur in collector systems. The first of these is the base camp or residential base, where a wide variety of tasks associated with resource extraction are conducted. These sites may also serve as places for seasonal aggregation for a number of different band groups. The diverse activities may result in a wide range of artifact types, features, or facilities, including shelter and evidence of tool maintenance and manufacture. Artifacts and other materials used or procured at logistical camps (see below) may be expected to be discarded at base camps. These sites should generally be the most visible within the system and their location proximal to the resources being exploited.

The second site type discussed by Davis (1990) is the logistical or field camps. These normally occur only in logistically oriented systems where special task-specific work groups are necessary. These sites will in general be occupied for shorter periods of time than base camps and will not exhibit as diverse an artifact

assemblage or have as many kinds of features as base camps. Recurrent occupation over time may, however, result in dense accumulations of artifactual debris which may resemble that of base camps. However, the activities performed at logistical camps are differentiated by the task-specific nature of the activities. Types of sites which may qualify as logistical camps include hunting camps, fishing camps, and plant procurement camps (Davis 1990). Artifacts and materials used or processed at this site type may be expected to occur in the archaeological record there or at base camps.

The third site type is referred to as an activity locus. Activity loci represent an array of different locations where resource extraction or procurement took place. Examples of activity loci include kill/butchering sites, plant processing sites, and lithic resource extraction sites. Artifact density and diversity is expected to be low at such sites, making field identification difficult in many instances. The loci may also be widely scattered across the environment. Interpretation of site activities is likely to be complicated, because many different activities could be represented at a site, and the artifact densities are low.

Davis (1990) has also discussed a separate settlement model which deals with agriculture-based economies. This system was devised in recognition of the fact that significant differences exist between hunter-gatherer and domesticate or agriculture-based systems. Davis (1990) suggests that these differences include 1) increased duration of site occupancy; 2) a greater tendency toward nucleation of settlements or villages; and 3) the development of ranking, or inequality, among different segments of the population.

A total of six potential settlement or site types are discussed by Davis which may be applicable to late Coles Creek and Mississippi period settlement in the Yazoo Basin; they may also be relevant to Poverty Point settlement. In addition to the "regional center," the settlement types include 1) local centers, 2) hamlets, 3) homesteads, 4) logistical camps, and 5) activity loci.

Local centers are characterized as relatively large, sometimes fortified sites which are located in close proximity to large tracts of arable soil, yet are central to a dispersed set of small homesteads (farmsteads). Archaeologically, these sites may be recognized by the presence of substructure mounds, plazas, evidence of palisades and/or moats, and permanence of occupation (Davis 1990). Ritual ceremonies were normally conducted at these sites.

Hamlets are described by Davis as consisting of domestic settlements which contain a substantial number of houses but which lack civic architecture. These are believed to have functioned primarily as self-contained economic units, but were linked to the regional center through social and economic ties. Hamlets should not be as visible in the archaeological record as local centers.

The homestead (referred to as "farmstead" by many archaeologists) is thought to have consisted of a permanent sedentary settlement which contains several nuclear or extended families (Davis 1990). Homesteads are thought to represent the lowest order of domestic settlement, and many refer to them as the basic economic unit in Mississippian society. Criteria for separating hamlets from homesteads are vague; this is a largely subjective choice based on relative artifact density and numbers of structures present.

Finally, logistical camps and activity loci functioned basically the same as in hunter-gatherer systems, with special extraction camps, which include hunting and fishing camps, agricultural field houses, and plant procurement and processing loci.

The above generalizations regarding the nature of hunter-gatherer and agricultural economies have specified a set of expectations which may be used in interpreting different settlement and subsistence patterns in the study area. However, before any of the theories or models may be tested, rigorously controlled data sets must be collected with the goal of addressing specific research questions or hypotheses based on the expectations of the research designs. Once the research questions are generated, data collection methods may be used to obtain the data required to test them. While the research design presented here is not the only one potentially relevant to the study area, it does incorporate the range of site types and settlement patterns thought to exist. This design should be given consideration in organizing future research efforts in the region.

Model of Human Settlement of the Twin Oaks and Mahannah Farm Tracts

Since no sites were recorded in either of these two study tracts, precise prediction of the range, diversity, and density of cultural components is exceedingly difficult. This section will draw upon the nature of the local environment, including the geomorphic/cultural studies of Phillips (1970), Weinstein et al. (1979), and especially Lafferty and Sierzchula (1989), in proposing a model of aboriginal and historic settlement for the two study tracts.

A review of previous work in the Lower Mississippi Valley, including the Yazoo Basin, indicated that cultural sites may be expected to occur on only those Meander Belts which are older than the specific cultural period represented (Lafferty and Sierzchula 1989; Phillips 1970; Saucier 1974; Weinstein et al. 1979). Furthermore, these authors identified high probability topographic locales which appear to have been favored for settlement. These include high, well-drained areas such as natural levees along major streams or rivers, crevasse channels, and secondary streams. Low,

poorly drained backswamp areas which contain little relief and are prone to flooding appear to contain a disproportionately low number of sites.

The site model discussed by Lafferty and Sierzchula (1989) for the large backswamp area they surveyed in Delta National Forest appears directly applicable to both the Twin Oaks and Mahannah Farm tracts. Although the results of the survey produced no sites, the authors used a predictive model which had been created over a period of time in other areas of the Southeast to estimate the probability of site occurrence. The areas which serve as a basis for the model are very similar to the study areas. Environmental variables used in those studies included distance to channel, low point (elevation), ecotone measurement, and cotton yield potential. The model predicts that sites will most often occur on high terrain such as levees or ridges near meander scars (channels). Further, archaeological sites were highly correlated with cotton productivity (soil type) and the presence of ecotones.

Lafferty and Sierzchula (1989) applied this model to their Delta National Forest survey area in Sharkey County, Mississippi, which is very similar to both the Twin Oaks and Mahannah Farm tracts. They state:

Our analysis of the Delta National Forest indicates that this swamp is a terrible place to live. The soils are all clay and frequently flooded. Over most of the survey area there is virtually no relief. There are no easily tillable soils.

They estimate that the Sharkey clay yields only half as much corn as good soils. Applying the coefficients of their predictive model to the Delta National Forest, they obtained very low probabilities of a site occurring near the Little Sunflower River. In contrast, when the authors applied their model to areas around the forest such as the Meander Belts to the east, they found a completely different probability of site occurrence. These areas are located on broad ecotones with productive soils at high elevations near water. For instance they estimated, based on the model variables discussed above, that there is almost a 100 percent chance of a site being found at the location of the Lake George site.

The results of the present reconnaissance and previous studies in the region such as that of Lafferty and Sierzchula (1989) and Weinstein et al. (1979) indicate that the probability of finding a prehistoric site in either the Twin Oaks or Mahannah Farm tracts is extremely low. This is especially true for the Twin Oaks tract, which is all backswamp land. A slightly higher potential for prehistoric sites may be present in the Mahannah Farm tract, since restricted areas of point bar/levee development are present. While a complete absence of prehistoric sites in the study areas may not be true, it does appear that any such sites which may be present

would be deeply buried short-term extractive camps which are very difficult to detect. Larger sites would not be expected to occur at all unless the environment was significantly different from the present one. A very low site density is projected for both tracts.

In terms of cultural components, as with the remainder of the basin, pre-4,000 B.P. period sites are not expected. Poverty Point, Tchula, Marksville, Baytown-Coles Creek, and Mississippi period sites are possible, but not probable, in these two tracts.

Historic period sites other than short-term extractive camps are not likely in these areas. Permanent settlement is not expected due to the low, wet nature of both areas.

CHAPTER 12 SUMMARY AND RECOMMENDATIONS

Twin Oaks Tract

No sites had been previously recorded for the Twin Oaks tract, and no new sites were recorded in the project area as a result of the reconnaissance. The area consists of a large backswamp area with a predominance of clayey soils which are poorly drained. Limited evidence of historic settlement was found on 1930s soil maps, and evidence of twentieth century farm-related settlement was noted in one instance. Soils in the area do allow agriculture under proper drainage conditions and soil preparation, but productivity is low.

Limited pedestrian survey, including shovel testing and examination of cut-bank exposures and similar features, revealed no artifacts. Based on the reconnaissance-level investigation in the Twin Oaks tract and on the results of prior survey in the immediate vicinity of the tract in Delta National Forest, the likelihood of identifying sites of any type appears to be minimal.

However improbable, the possibility that buried prehistoric sites may exist in the study area cannot be ruled out. The discovery and documentation by Deleon (1984) of a midden mound east of the Twin Oaks tract in a similar backswamp environment indicates that prehistoric sites may occasionally be expected in the proper geomorphic setting. As a rule, however, it appears that such sites will be buried. The potential for long-term habitation sites would appear to be minimal, given how flood-prone the area is today. Until we know more about paleo-environmental conditions, the potential for buried sites to exist on a regular basis cannot be ruled out.

Historic land use of this tract appears to be predominantly associated with logging, limited agriculture, and recreation. Portions of the area have been farmed in recent years, and it has also been used by hunters quite frequently. Very few permanent structures are located here, and the one that was observed was well elevated above any flood threat.

Mahannah Farm Tract

No previously recorded sites were recorded with the state for this area. No new sites other than the three railroad section houses were recorded in the project area as a result of the reconnaissance. The potential for prehistoric sites to exist is deemed highest along portions of Cypress Bayou and Steele Bayou. The remainder of the area is all low-lying backswamp where any sites would most likely be buried. Overall, the potential for prehis-

toric sites is very low. Prehistoric sites in this area would most likely be short-term special extractive sites, since the area floods severely.

Interviews with local informants resulted in the recording and documentation of three railroad section houses near Floweree, Mississippi; these structures were built around the turn of the century. They were recorded and photographed in compliance with Mississippi Department of Archives and History guidelines. However, as noted above, a determination of nonsignificance has been made for these structures by the Mississippi State Historic Preservation Office.

Other early twentieth century historic occupation of the area was documented by examining old maps and by interviewing local informants. It appears that logging was a major activity throughout the majority of the project area from the late nineteenth century until the early/mid-twentieth century. A large portion of the tract was then cleared for farming and resulted in the creation of Mahannah Farm. Tenant farming apparently went on during the 1930s and 1940s, as numerous "shotgun" houses are reported by a local informant to have been present. Hunting camps have been a popular enterprise in the wooded areas of the tract for a good portion of the twentieth century, and limited drilling for oil has taken place.

Recommendations

No site-specific recommendations are possible at this time, given the nature and results of these investigations. However, given the very low probability of site occurrence for the two tracts, any future survey work should be concentrated in the limited areas of the Mahannah Farm tract which show potential (discussed earlier). Ideally, any such survey should take place during the fall/winter when ground surface visibility would be optimal. Standard pedestrian survey methods including shovel testing at regular intervals should be employed. No further survey work is recommended for other areas of the Mahannah Farm tract, nor is further survey work recommended for the Twin Oaks tract. However, if major subsurface earth-moving projects are anticipated for either of these tracts, the government or its representative should monitor the activity in case buried subsurface cultural deposits are present.

REFERENCES CITED

- Anderson, David G. and Glen T. Hanson
1988 Early Archaic Settlement in the Southeastern United States: A Case Study from the Savannah River Valley. *American Antiquity* 53 (2):262-286.
- Aten, Lawrence E.
1983 *Indians of the Upper Texas Coast*. Academic Press, New York.
- Binford, Lewis R.
1980 Willow Smoke and Dogs' Tails: Hunter/Gatherer Settlement Systems and Archaeological Site Formation. *American Antiquity* 45:4-20
- 1983a *In Pursuit of the Past: Decoding the Archaeological Record*. Thames and Hudson, New York.
- 1983b *Working at Archaeology*. Academic Press Inc., New York.
- Blitz, John H.
1982 A Brief Outline and Bibliography of Southeastern Prehistory: Part I. *Mississippi Archaeology* 18:16-26.
- 1983 A Brief Outline and Bibliography of Southeastern Prehistory: Part II. *Mississippi Archaeology* 18:26-37.
- Bloom, Arthur L.
1991 *Geomorphology* 2nd ed. Englewood Cliffs, N.J.; Prentice Hall.
- Brain, Jeffrey P.
1969 Winterville: A Case Study of Prehistoric Culture Contact in the Lower Mississippi Valley. Unpublished Ph.D. dissertation, Yale University, New Haven, Connecticut.
- 1970 Early Archaic in the Lower Mississippi Alluvial Valley. *American Antiquity* 35(1):104-105.
- 1971 *The Lower Mississippi Valley in North American Prehistory*. Submitted to the National Park Service, Southeast Region, and the Arkansas Archeological Survey.
- Brain, Jeffrey P., Alan Toth, and Antonio Rodriguez-Buckingham
1972 Ethnohistoric Archaeology and the DeSoto Entrada into the Lower Mississippi Valley. *The Conference of Historic Site Archaeology Papers* 7:232-289. Columbia, S.C.
- Brown, Calvin S.
1926 *Archeology of Mississippi*. Mississippi Geological Survey. University, Mississippi.

- Brown, Glenn Francis, Velora Meek Foster, Robert Wynn Adams, Edwin William Reed, and Harold Dement Padgett, Jr.
 1944 *Geology and Groundwater Resources of the Coastal Area in Mississippi*. Mississippi State Geological Survey, Bulletin 60. University, Mississippi.
- Byrd, Kathleen Mary
 1974 *Tchefuncte Subsistence Patterns, Morton Shell Mound, Iberia Parish, Louisiana*. Unpublished M.A. thesis, Louisiana State University, Baton Rouge.
- Cain, Cyril Edward
 1953 *Four Centuries on the Pascagoula, Vol. I*. State College, Mississippi.
- Campbell, T.N.
 1959 *Choctaw Subsistence: Ethnographic Notes from the Lincecum Manuscript*. *Florida Anthropologist* 12:9-24.
- Carlson, David L.
 1983 *Rangia cuneata as a Seasonal Indicator for Coastal Archeological Sites in Texas*. Paper presented at the 48th Annual Meeting of the Society for American Archaeology, Pittsburgh.
- Chardon, Roland
 1980 *The Linear League in North America*. *Annals of the Association of American Geographers* 70:129-153.
- Claassen, Cheryl
 1986 *Shellfishing Seasons in the Prehistoric Southeastern United States*. *American Antiquity* 51(1):21-37.
- Coleman, James M.
 1966 *Recent Coastal Sedimentation: Central Louisiana Coast*. LSU Press, Baton Rouge.
- Collins, Henry B.
 1927 *Excavations at a Prehistoric Indian Village Site in Mississippi*. *Smithsonian Institution, United States National Museum Proceedings* 79:1-22.
- Connaway, John M.
 1977 *The Denton Site: A Middle Archaic Occupation in the Northern Yazoo Basin, Mississippi*. Mississippi Department of Archives and History, Archaeological Report No. 4. Jackson.
- Connaway, John M., Samuel O. McGahey, and Clarence H. Webb
 1977 *Teoc Creek: A Poverty Point Site in Carroll County, Mississippi*. Mississippi Department of Archives and History, Archaeological Report No. 3. Jackson.

- Curren, Cailup B., Jr.
 1976 Prehistoric and Early Historic Occupation of the Mobile Bay and Mobile Delta Area of Alabama. *Journal of Alabama Archaeology*, Vol. 22, No. 1.
- Davis, Dave D. (editor)
 1984 Perspectives on Gulf Coast Cultural History: A Roundtable Discussion. In *Perspectives on Gulf Coast Prehistory*, pp. 315-332. University Presses of Florida, Gainesville.
- Davis, R.P. Stephen, Jr.
 1990 *Aboriginal Settlement Patterns in the Little Tennessee River Valley*. University of Tennessee Department of Anthropology Report of Investigations No. 50, Tennessee Valley Authority Publications in Anthropology No. 54.
- Deleon, Mark
 1978 Cultural Resource Survey of Fifteen Mile Island, Delta National Forest, Proposed Houston Brothers Exchange. Ms. on file, U.S. Forest Service, Jackson.
- 1984 *Cultural Resource Evaluation and Assessment, 22-SH-549, the Riley Site, Delta National Forest, Sharkey County, Mississippi*. National Forests in Mississippi. Jackson.
- Doering, John A.
 1956 Review of Quaternary Surface Formations of the Gulf Coast Region. *Bulletin of the American Association of Petroleum Geologists* 40:1816-1862.
- Ensor, H. Blaine
 1987 *The Cinco Ranch Sites, Baker Reservoir, Fort Bend County, Texas*. Archaeological Research Laboratory, Reports of Investigations, No. 3. Texas A & M University, College Station, Texas.
- 1992 *An Archaeological Reconnaissance on the Mobile-Tensaw Delta: The Tennessee-Tombigbee Wildlife Mitigation Project, Mobile and Baldwin Counties, Alabama*. Panamerican Consultants, Inc. Submitted to U.S. Army Corps of Engineers, Mobile District.
- Fairbridge, Rhodes W.
 1960 "The Changing Level of the Sea". *Scientific American* 202:70-79.
- Federal Writers Project
 1938 *Mississippi: A Guide to the Magnolia State*

- Fuller, Diane Silvia and Richard S. Fuller
 1985 A Cultural Resources Reconnaissance of a Portion of the RLB Property, Jackson County, Mississippi. Ms on file, University of South Alabama, Mobile.
- Fuller, Richard S. and Noel R. Stowe
 1982 A Proposed Typology for Late Shell Tempered Ceramics in the Mobile Bay/Mobile-Tensaw Delta Region. In *Archaeology in Southwestern Alabama: A Collection of Papers*, edited by Cailup B. Curren, Jr., pp. 45-93. Alabama-Tombigbee Regional Commission, Camden.
- Gagliano, Sherwood M.
 1963 A Survey of Preceramic Occupations in Portions of South Louisiana and South Mississippi. *Florida Anthropologist* 16(4):105-132.
- Gagliano, Sherwood M. and Clarence H. Webb
 1970 Archaic-Poverty Point Transition at the Pearl River Mouth. In *The Poverty Point Culture*, edited by Bettye Broyles and C.H. Webb, pp.47-72. Southeastern Archaeological Conference Bulletin 12.
- Gagliano, Sherwood M. and Johannes L. van Beek
 1970 Geologic and Geomorphic Aspects of Deltaic Processes, Mississippi Delta System. In *Hydrologic and Geologic Studies of Coastal Louisiana* 1(1). Coastal Studies Institute, Louisiana State University. Baton Rouge.
- Greengo, Robert E.
 1964 *Issaquena: An Archaeological Phase in the Yazoo Basin of the Lower Mississippi Valley*. Society for American Archaeology, Memoir No. 18. Salt Lake City.
- Greenwell, Dale
 1984 The Mississippi Gulf Coast. In *Perspectives on Gulf Coast Prehistory*, edited by Dave D. Davis, pp. 125-155. University Presses of Florida, Gainesville.
- Haag, William G.
 1961 The Archaic of the Lower Mississippi Valley. *American Antiquity* 26(3):317-323.
- Higginbotham Jay
 1967 *Pascagoula, Singing River City*. Gill Press, Mobile.
- Holmes, Nicholas H., Jr. and Bruce Trickey
 1974 Late Holocene Sea-Level Oscillations in Mobile Bay. *American Antiquity*, Vol. 39, No. 1.

- Knight, Vernon J., Jr.
 1984 Late Prehistoric Adaptation in the Mobile Bay Region. In *Perspectives on Gulf Coast Prehistory*, edited by Dave D. Davis, pp.198-215. University Presses of Florida, Gainesville.
- Kraus, Guy C.
 1985 Notes on the Deer Island Site. In *Anthology of Mississippi Archaeology, 1966-1979*, edited by Patricia Galloway, p. 59. The Mississippi Archaeological Association and the Mississippi Department of Archives and History, Jackson.
- Lafferty, Robert H. and Michael C. Sierzchula
 1989 *A Cultural Resources Survey of the Delta National Forest, Mississippi*. Mid-Continental Research Associates. Submitted to the U.S. Forest Service, Jackson.
- Lamb, George M.
 1983 Changes in the Coastline and the General Geomorphology of the Mobile Bay Area Since 15,000 Years Before the Present. In *Cultural Resources Survey of Mobile Harbor, Alabama* by Tim S. Mistovich and Vernon James Knight, Jr., pp. 187-198. OSM Archaeological Consultants, Inc., 1983, pp. 187-198. Moundville, AL.
- Lankford, George E.
 1983 *Ethnohistory. Cultural Resources Reconnaissance Study of the Black Warrior-Tombigbee System Corridor, Alabama*. Vol. II. University of South Alabama, Mobile, Alabama.
- Larson, Lewis H.
 1980 *Aboriginal Subsistence Technology on the Southeastern Coastal Plain during the Late Prehistoric Period*. University Presses of Florida, Gainesville.
- Lauro, James
 1986 The Deer Island Site and Coastal Archaeology. *Mississippi Archaeology* 21:50-61.
- Lazarus, William C.
 1959a A.W. Pinola Site, Pascagoula, Mississippi. Ms. on file, Temple Mound Museum, Fort Walton Beach.
 1959b "Old Place," Gautier, Jackson County, Mississippi. Ms. on file, Temple Mound Museum, Fort Walton Beach.
 1959c Old Spanish Fort Site, Pascagoula, Mississippi. Ms. on file, Temple Mound Museum, Fort Walton Beach.
 1959d Site "Fifteen Mile, up Pascagoula River, Mississippi. Ms. on file, Temple Mound Museum, Fort Walton Beach.

- Lewis, R. Barry
 1982 Archaeological Site Distributions on the Mississippi Gulf Coast. Paper presented at the 47th Annual Meeting of the Society for American Archaeology, Minneapolis.
- 1988 Fires on the Bayou: Cultural Adaptations in the Mississippi Sound Region. *Southeastern Archaeology* 7:109-121.
- 1992 Mississippi Gulf Coast Exchange Patterns at A.D. 1000-1500. Unpublished ms. on file, Mississippi Department of Archives and History.
- McLemore, Richard Aubrey
 1973 A History of Mississippi, Vol. I. University and College Press of Mississippi, Jackson.
- McWilliams, Richebourg Gaillard
 1981 *Iberville's Gulf Journals*. University of Alabama Press. Tuscaloosa.
- Marshall, Richard A.
 1982 A Report on Archaeological Test Excavations at Goode Lake, Jackson County, Mississippi. Archaeological Report 10, Mississippi Department of Archives and History. Jackson.
- Matthews, Robley K.
 1990 Quaternary Sea-Level. In *Sea-Level Change*, Geophysics Study Committee, National Research Council, Washington, D.C., pp. 88-103. National Academy Press.
- May, Edwin B.
 1976 *Holocene Sediments of Mobile Bay, Alabama*. Alabama Marine Resources Bulletin No. 11. Dauphin Island, Alabama: Dept. of Conservation and Natural Resources.
- Mistovich, Tim S., Catherine E. Clinton, and Brina J. Agranat
 1990 *Literature, Archival, and Historic Review of Submerged Cultural Resources, Lower Pascagoula and Escatawpa Rivers, Mississippi*. Panamerican Consultants, Inc. Tuscaloosa.
- Mistovich, Tim S., Vernon J. Knight, and Carlos Solis
 1983 *Cultural Resources Reconnaissance of Pascagoula Harbor, Mississippi*. OSM Archaeological Consultants, Inc. Moundville, Alabama.
- Moore, Clarence B.
 1905 Certain Aboriginal Remains of Mobile Bay and on Mississippi Sound. *Journal of the Academy of Natural Sciences of Philadelphia* 13(2). Philadelphia, Pennsylvania.

- Osborne, A.J.
1977 *Strandloopers, Mermaids, and Other Fairy Tales: Ecological Determinants of Marine Resource Utilization.* In *For Theory Building in Archaeology*, edited by Lewis R. Binford, pp. 157-205. Academic Press, New York.
- Phillips, Philip
1970 *Archaeological Survey in the Yazoo Basin, Mississippi, 1949-1955, Part 1.* Peabody Museum, Cambridge, Massachusetts.
- Phillips, Philip, James A. Ford, and James B. Griffin
1951 *Archaeological Survey in the Lower Mississippi Alluvial Valley, 1940-1947.* Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. 25. Cambridge.
- Polk, Noel (editor)
1986 *Mississippi's Piney Woods.* University Press of Mississippi, Jackson.
- Roemer, Erwin and Richard Walling
1992 *Intensive Survey of the Lower Portion of the Bog and Little Sunflower Rivers, Yazoo Basin, Mississippi.* Paper presented at the 49th Annual Meeting of the Southeastern Archaeological Conference, Little Rock.
- Rowland, Dunbar
1925 *History of Mississippi, the Heart of the South, Vol I.* S.J. Clarke Publishing, Chicago.
- Saucier, Roger T.
1968 *A New Chronology for Braided Stream Surface Formation in the Lower Mississippi valley.* *Southeastern Geology* 9(2):65-76.
- Saucier, Roger T. and C.R. Kolb
1967 *Alluvial Geology of the Yazoo Basin, Lower Mississippi Valley.* In *Geological Investigation of the Yazoo Basin*, by C.R. Kolb. Waterways Experiment Station, Technical Report No. 3-480. Vicksburg.
- Scheuler, Donald G.
1980 *Preserving the Pascagoula.* University Press of Mississippi, Jackson,
- Scott, F.T. and R.C. Carter
1962 *Soil Survey of Sharkey County, Mississippi.* USDA Soil Conservation Service, Washington, D.C.

- Solis, Carlos and Richard Walling
 1982 *Archaeological Survey and Testing at Greenwood Island, Mississippi*. Office of Archaeological Research. Moundville.
- Stapor, Frank W. Jr.
 1975 *Holocene Beach Ridge Plain Development, Northwest Florida*. *Zeitschrift fur Geomorphologie Supplementband* 22:116-144.
- Swanton, John R.
 1911 *Indian Tribes of the Lower Mississippi Valley and Adjacent Coast of Gulf of Mexico*. Smithsonian Institution, Bureau of American Ethnology Bulletin 43. Washington, D.C.
- Toth, Alan
 1974 *Archaeology and Ceramics at the Marksville Site*. Anthropological Papers of the Museum of Anthropology, University of Michigan No. 56. Ann Arbor.
- Voss, Jerome A. and John H. Blitz
 1988 *Archaeological Investigations in the Choctaw Homeland*. *American Antiquity* 53:125-145.
- Walker, Laurence C.
 1991 *The Southeast: A Chronicle*. University of Texas Press, Austin.
- Walker, Winslow M.
 1936 *The Troyville Mounds, Catahoula Parish, Louisiana*. Smithsonian Institution, Bureau of American Ethnology Bulletin 113. Washington, D.C.
- Walthall, John A. and Ned J. Jenkins
 1976 *The Gulf Formational Stage in Southeastern Prehistory*. Southeastern Archaeological Conference. Bulletin 19, Memphis, Tennessee.
- Webb, Clarence H.
 1977 *The Poverty Point Culture*. *Geoscience and Man* 17. Louisiana State University, School of Geoscience, Baton Rouge.
- Weinstein, Richard A., Wayne P. Glandey, Sherwood M. Gagliano, Eileen K. Burden, and Kathleen G. McCloskey
 1979 *Cultural Resources Survey of the Upper Steele Batou Basin, West-Central Mississippi, Vol. I-Test*. Coastal Environments, Inc. Baton Rouge.

- Whitlam, Robert G.
 1981 *Settlement-Subsistence Type Occurrence and Change in Coastal Environments: A Global Archaeological Perspective.* Ph.D. dissertation, University of Washington.
- Williams, J. Mark
 1987 *Archaeological Excavations at the Jackson Landing/Mulatto Bayou Earthwork.* Archaeological Report 19, Mississippi Department of Archives and History. Jackson.
- Winters, Howard D.
 1969 *The Riverton Culture.* Illinois State Museum, Reports of Investigations, No. 13. Springfield.
- Wynn, A.H.
 1961 *Soil Survey, Issaquena County, Mississippi.* USDA Soil Conservation Service, Series 1959, No. 2. Washington, D.C.
- Wynn, Jack T.
 1979 *Cultural Resource Reconnaissance of Green Tree Reservoirs and Slough Structures in the Delta National Forest, Mississippi.* Submitted to the U.S. Army corps of Engineers, Vicksburg District.
- 1978 *Cultural Resources Reconnaissance of Proposed Green Tree Reservoirs 7 and 8, Delta National Forest, Sharkey County, Mississippi.* Submitted to the U.S. Army Corps of Engineers, Vicksburg District.
- Yellen, John E.
 1977 *Archaeological Approaches to the Present.* Academic Press Inc. New York.
- Yesner, D.R.
 1980 *Maritime Hunter-Gatherers: Ecology and Prehistory.* *Current Anthropology* 21(6):727-750.