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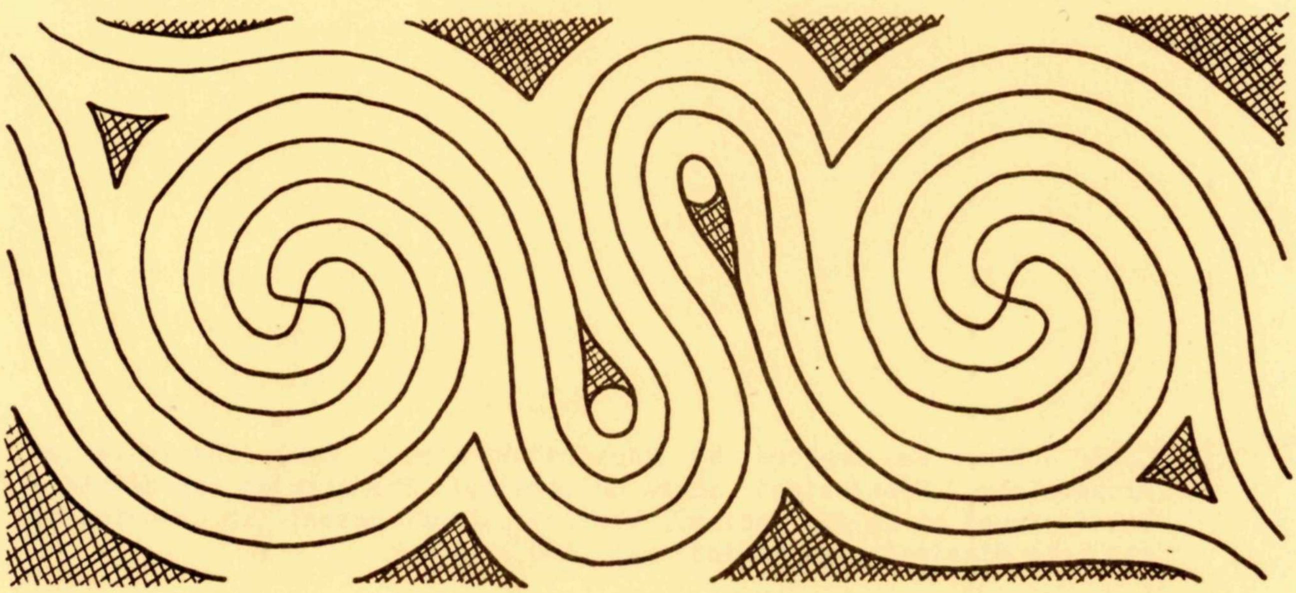
**National Forests
in Mississippi**

A Cultural Resources Survey in the Tombigbee National Forest Mississippi

By John H. Blitz



Cover artwork was suplied by Richard Marshall, Cobb Institute of Archaeology, Mississippi State University. The drawing represents a motiff found on Leland Incised, variety Leland, vessel, which dates to the Late Mississippian Period, ca. 1400 - 1500.

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in the

TOMBIGBEE NATIONAL FOREST

MISSISSIPPI

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INTRODUCTION

This report describes an archaeological survey in the Ackerman Unit of the Tombigbee National Forest, which is situated in Choctaw and Winston counties in east central Mississippi. The fieldwork was conducted from February to May, 1984, while the author was employed as a seasonal archaeologist for the USDA Forest Service, the National Forests in Mississippi.

There were two main goals of the survey work:

1) To examine locations scheduled for mechanical site preparation in order to avoid destruction to any cultural resources;

2) Conduct a sample survey to locate cultural resources on the Ackerman Unit of the Tombigbee National Forest in order to more closely determine their distribution, emphasizing prehistoric sites.

The accomplishment of these goals also resulted in other benefits. These were: the discovery of a strong correlation between specific topographic features and archaeological sites which permits the identification of areas where archaeological sites are most likely to be found. And, a new insight was gained into the nature of prehistoric occupation in upland environments on the Upper Gulf Coastal Plain; a region of Mississippi where very little previous archaeological investigation has occured.

ENVIRONMENTAL SETTING

The Ackerman Unit of the Tombigbee National Forest consists of 39,808 acres of heavily wooded terrain in east central Mississippi (Figure 1). This area lies in both of the North Central Hills and the Flatwoods, two major physiographic regions of the Gulf Coastal Plain.

The North Central Hills is a rolling to rugged landscape of moderately wide to narrow ridgetops and interstream divides, steep side slopes, and narrow floodplains. The area is underlain by ancient marine sediments known as the Wilcox Formation, which was deposited during the Eocene Epoch of the Cenozoic Era (Paulson 1974). The soils are variable locally, and range from sandy to predominantly heavy clays. The most rugged relief is found in the southwestern portion of the Unit. Known locally as the Noxubee Crest, this dissected cuesta has narrow ridgetops and very steep side slopes.

On the eastern periphery of the Ackerman Unit lie the Flatwoods. Soils here are clays derived from the Porters Creek Formation. The landscape is characterized by broad shallow valleys and low flat ridges (Kelly 1973). Only a small percentage of the Ackerman Unit is in this region (Dagnon 1984).

The survey area forms the headwaters for the Noxubee River, a major tributary of the Tombigbee River basin. The Noxubee River and its perennial feeder streams are small, third-order streams as they occur on the National Forest. The dendritic drainage pattern reflects a high stream frequency, and most of the narrow side slope valleys have intermittent streams. Elevations in the Ackerman Unit range from nearly 700' asl along Noxubee Crest to 300' asl along the Noxubee River.

The variable topography permits a diviersity of floral communities. The dominant vegetation type is the Oak-Hickory-Pine Forest (Thomas

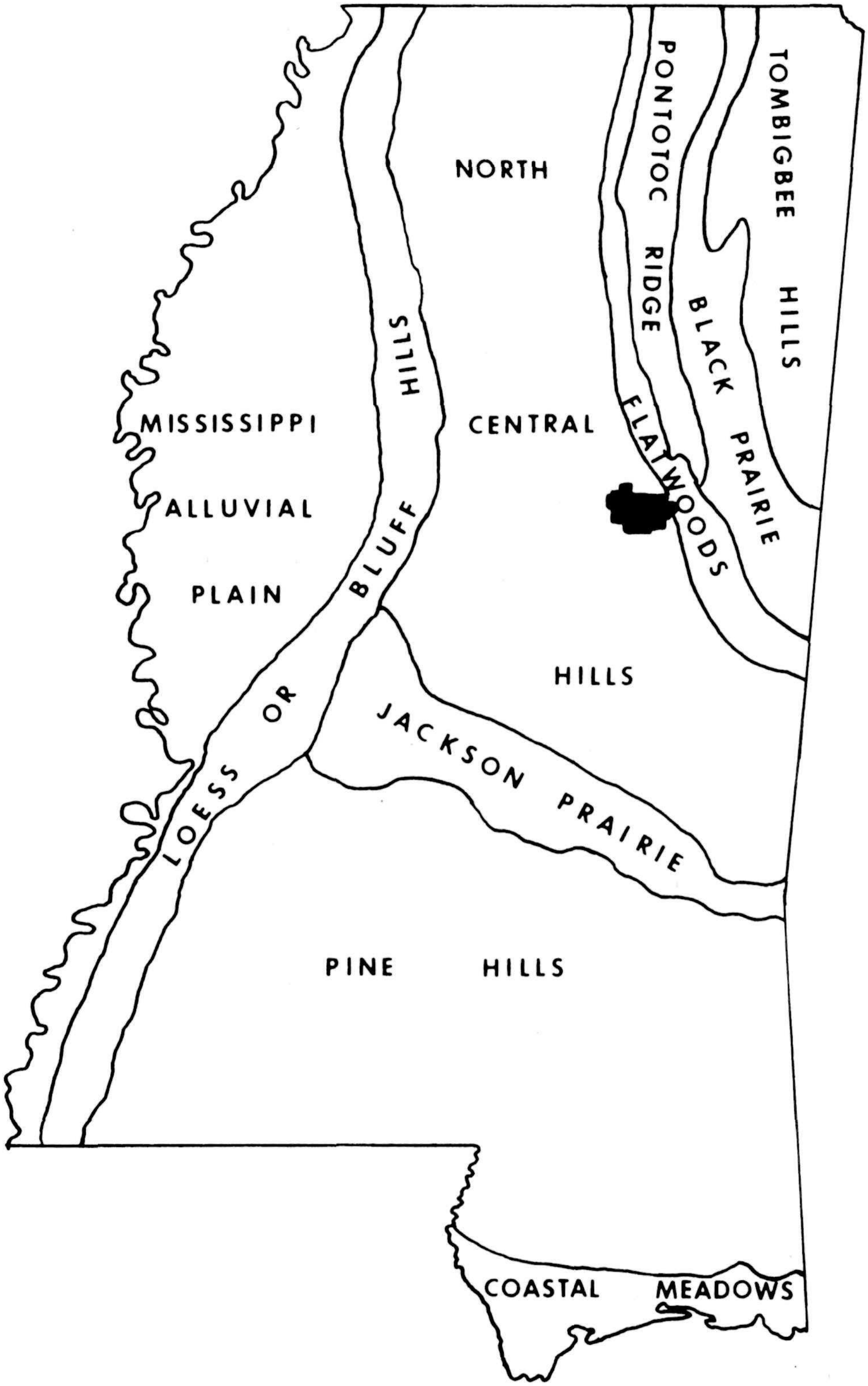

Figure 1: Tombigbee National Forest in Mississippi

1974:20). Generally, the ridgetops tend to be predominantly pine while the narrow slopes and bottomlands are composed of hardwoods; pine-hardwood mixtures are common. Pines tend to dominate areas that have frequent disturbances caused by fire or erosion.

Witness trees encountered by the 1832 United States Government Land Office survey on Noxubee Crest include post oak, red oak, white oak, chestnut, hickory, poplar, beech, and pine. This information indicates that the original forest cover was predominantly hardwoods along with some pine. Hardwood species presently dominate those sections of the Noxubee Crest that have been left undisturbed for more than sixty years. It seems likely that pines have greatly proliferated as a result of historic land-use disturbance of the pristine forest community. Since 1959, management practices have increased acreage of the economically important pine species.

Most of the major faunal and floral species of the Gulf Coastal Plain are found in the Tombigbee National Forest. Nut and fruit-bearing trees and plants, as well as deer, wild turkey, and small game animals known to have been crucial to prehistoric subsistence are present in the area today. Because of the small size of local streams, aquatic food resources in the area are not as diverse or abundant as in the more mature river systems to the east, south and west.

PREHISTORIC AND HISTORIC OVERVIEW

The prehistory of the North Central Hills, the physiographic province that contains the Noxubee Riber watershed, is not well known. Detailed archaeological excavations have been restricted to mound excavations in the Yocona and Yallobusha river drainages (Koehler 1966; Thorne 1968), and the excavation of multicomponent habitation sites in Lafayette County (Ford 1980) as well as in Lauderdale County (Conn 1978).

Archaeological survey in the region has been very limited in extent and scope. Early investigations include comments on scattered sites in the northern portion (Brown 1926) and attempts to locate historic Choctaw villages in the southern area (Collins 1927). Several Middle Woodland mounds were excavated in Clarke County (Collins 1926). More recent investigations in the North Central Hills consist of small surveys in scattered locations (Penman 1980; DeLeon 1983). A large sample survey focusing on early historic Choctaw sites has been conducted in Kemper County (Voss and Blitz 1983; Blitz 1984).

Any summary of our limited knowledge of the region is dependent upon a broad comparison to established sequences in the Yazoo River basin, to the west, and the Tombigbee River drainage, to the east. Inferences are made about the chronological or cultural association of artifacts from the North Central Hills based on morphologically similar artifacts from adjacent areas.

Fluted projectile points produced by Paleoindians of the late Pleistocene Epoch (ca. 12,000 to 10,000 BP) have been discovered at a few scattered locations in the North Central Hills (McGahey 1981; Marshall 1984). One Paleoindian site (22-Ck-513) has been reported for the Noxubee River headwater area. This site was the find spot for a Cumberland fluted projectile point exposed by a road cut through an ancient terrace formation. Marshall (1984) provides a detailed description of this artifact along with an interesting discussion of the late Pleistocene environment in central Mississippi.

The onset of modern climatic conditions was conducive to different subsistence adaptations that were reflected in new stylistic and functional changes in stone tools. In the succeeding Archaic Stage, these changes have been one of the primary means of defining three periods: Early Archaic (8000 to 6000 BC), Middle Archaic (6000 to 3000 BC), and Late Archaic (3000 to 1000 BC). Although there is no detailed published information on Archaic manifestations in the North Central Hills, excavations at the Hester Site in Monroe County, Mississippi (Brookes 1979); along the Tombigbee River in west Alabama (Ensor 1982); and collections from the Leaf River area (Geiger 1980; Wright 1984), document Coastal Plain Archaic components. No Early or Middle Archaic period components were discovered in the Ackerman Unit, but several projectile points correspond to Late Archaic forms.

The Gulf Formational Stage (ca. 1000 to 100 BC) is an intermediate developmental unit between the Archaic and Woodland stages (Walthall and Jenkins 1976). It is defined by the initial appearance of pottery in the region. Earliest of these developments is the fiber tempered Wheeler ceramic series (ca. 1000 to 500 BC), followed by the Alexander ceramic series (ca. 500 to 100 BC). Other aspects of culture, such as hunting and gathering subsistence and lithic technologies apparently remained little changed from the previous Late Archaic Period.

The distribution and content of Gulf Formational Stage sites in central and southern Mississippi is not yet understood very well. Only a few small sherds of the Alexander series were found in the survey area, but state site files and amateur collections indicate such sites are in the vicinity. There is a general impression that sites with Gulf Formational Stage components are clustered along the larger streams and rivers that drain the region, as well as along the coastal area.

In the North Central Hills, Woodland Stage cultural development may be divided into the Middle Woodland Period (100 BC to AD 600) and the Late Woodland period (AD 600 to 1100). These periods represent a developmental continuum of the Miller cultural tradition (Jennings 1941; Cotter and Corbett 1951; Jenkins 1981, 1982). In the early part of the sequence, people of the Miller culture built ceremonial centers with mounds and participated in a regional variant of Hopewellian ceremonialism. Late Woodland Miller sites show evidence of a large population increase, a more sedentary lifesytyle, and the growing importance of cultivation (Jenkins 1982:67-115). Miller sites are the dominant prehistoric occupation of this report's survey area.

Around 1000 AD evidence of the distinctive Mississippian Stage (AD 1000 to 1540) appears in the central Tombigbee drainage. Mississippian societies were organized into horticultural chiefdoms that built fortified villages composed of large earthen mounds arranged around plazas. The subsistence economy was based on horticulture and the specialized use of riverine floodplain resources (Smith 1978).

Upland environmental conditions in the North Central Hills were apparently marginal to Mississippian subsistence needs. The high population densities and large ceremonial centers of the surrounding major river systems are not evident in the North Central Hills; however, there are such manifestations in the adjacent Pontotoc Ridge. Although the region has been inadequately surveyed, the available evidence indicates that local Mississippian populations were small, and the uplands were utilized primarily for hunting and gathering resources rather that permanent habitation. Post 1000 Indian components located during the survey are limited to less than a dozen plain shell tempered sherds. Shell tempered Mississippi plain pottery continued to be used by historic societies such as the Choctaws as late as the 19th century.

The area now encompassing the Ackerman Unit was not opened officially to non-Indian settlement until after the Treaty of Dancing Rabbit Creek in 1830, in which ten and one half million acres of Choctaw tribal lands were ceded to the United States. Prior to 1830, the region was a wilderness claimed by the Choctaws as part of their traditional territory. While a number of early historic Choctaw settlements are shown on Bernard Romans' map of 1772, no settlements are indicated in the headwaters of the Noxubee River. The Noxubee River valley probably served as a resource area for hunting and gathering rather than as a focus of permanent Choctaw settlement (Halbert 1901).

During a cultural resource survey of the Roland Woodward Land Exchange, research revealed a record of a historic Indian village (Wynn 1979). Records in the Winston County Plat Book indicated that in the northwestern quarter of Section 9, T15N, R12E, a United States Indian Reservation patent had been granted to No-tuk-la-hubba sometime between November 1833 and December 1835. No further information could be found and subsequent reconnaissance by Wynn failed to locate any archaeological sites in that vicinity.

A portion of the Robinson Road, an early frontier post route, is located on the Ackerman Unit (DeLeon 1983:90-91). During the 1820s and 30s, the Robinson Road was one of the most important overland routes in Mississippi. The following synopsis of the road's history is abstracted from an article by Phelps (1950).

The road connected Columbus to Turner Blackshear's Old Stand on the Natchez Trace and provided a more direct route between newly-formed Monroe County and the state capitol at Jackson. The United States Congress appropriated five thousand dollars to finance the route and construction began in 1821. The surveyor contracted was Raymond Robinson, and the road was thus referred to as "Robinson's Road".

Unlike the Natchez Trace, the Robinson Road crossed several rivers with extensive swamps, conditions which made the road difficult to maintain

Congress was forced to appropriate additional funds for repairs and construction during the 1820s. The Mississippi Legislature decided the problem of mainteinance was best solved by the erection of toll gates, and six toll gates were established in 1830. That same year the Choctaws signed the Treaty of Dancing Rabbit Creek and relinquished the rest of their lands.

The Robinson Road became the major access route to the newly-opened lands. An 1837 newspaper account in the Columbus Democrat describes the road as "The great highway ... thronged with immigrants and travelers ... ". Several rustic inns known as stands were established along the road, but no stands are known to be located on National Forest lands. As the region became settled, more communities were established away from the main road. Consequently, segments of the Robinson Road became incorporated into diverging routes and were either abandoned or received only local use.

The Robinson Road is clearly marked on the United States Government Land Office survey of 1832 in the area now encompassed by the Ackerman Unit [Figure 2]. The road may be traced northeast to southwest from the Noxubee National Wildlife Refuge along Forest Road 954 through Betheden to the southwest quarter of the northwest quarter of the northwest quarter of Section 26, T16N, R13E. At this point near a benchmark (558'), the Robinson Road departs from Forest Service Road 954 southwest through private land in Section 27, and intersects Forest Service Road 986 in Section 28 at the point where Forest Service Road 986 and 986A diverge. The Robinson Road is contiguous with Forest Service Road 986 south to its terminus at Mill Creek in the northwest quarter of the northeast quarter of the southeast quarter of Section 33, T16N, R13E.

For most of the 19th century, the portion of Choctaw and Winston counties now encompassed by the Ackerman Unit was sparsely settled by families engaged in subsistence farming. Remains of old home sites

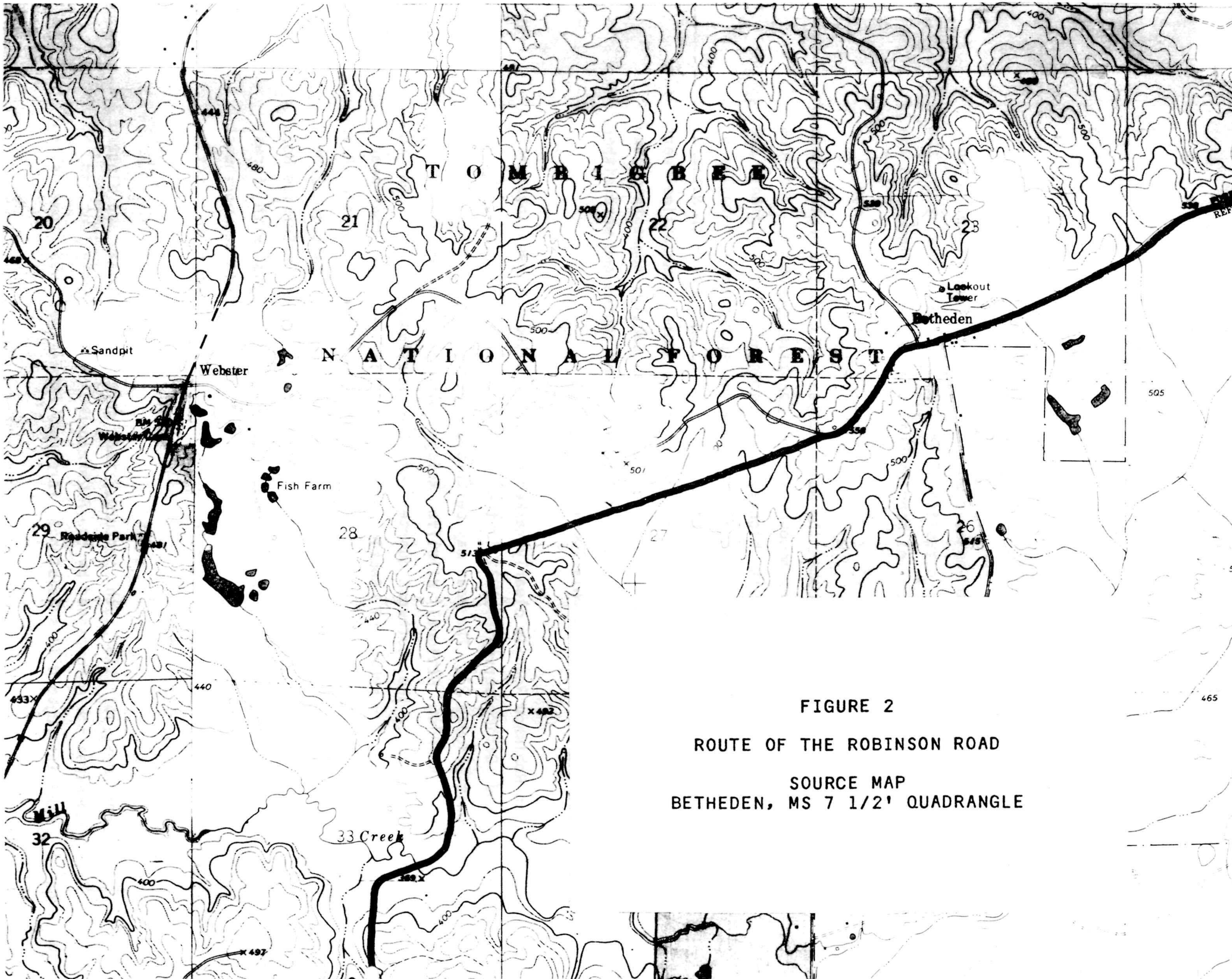

FIGURE 2

ROUTE OF THE ROBINSON ROAD

SOURCE MAP
BETHEDEN, MS 7 1/2' QUADRANGLE

dating to this time period are scattered throughout the Ackerman Unit. Several grist mills were established on the Noxubee River, but none are known to be located on Forest Service lands.

In April, 1863, a large force of Union cavalry under the command of General Benjamin H. Grierson traveled without resistance from Whitefield (now Sturgis), south across Little Noxubee River to Louisville (Coleman 1973:68). This force moved rapidly through what is now the Ackerman Unit, and it is doubtful if any physical remains of this event could be detected.

With the arrival of the Canton, Aberdeen and Nashville railroad in Ackerman in 1884, the extensive forests began to be harvested for timber on a large scale (Coleman 1973:114). Cotton was planted as the most important cash crop. By 1930 the area had been over-harvested of timber and the row cropping of cotton on the ridgetops severely depleted the top soil. These factors resulted in a decline in the rural population throughout the region.

Through the provisions of the Resettlement Act, the United States Government began to purchase worn-out lands in Mississippi during the 1930s. These lands were designated as Land Utilization (LU) Projects administered by the USDA Soil Conservation Service. Tree planting and erosion control projects were initiated. Former LU projects 8 and 9 were transfered to the Forest Service and became the Ackerman and Trace units, and subsequently these units were established as the Tombigbee National Forest on November 27, 1959.

Although numerous 19th and early 20th century home sites were recognized and recorded through archaeological survey, an initial documentation of historic settlement distribution can be best accomplished with land acquisition records and early survey maps. A synthesis of the documents combined with archaeological investigation could provide some significant new insights into 19th and early 20th century land use practices. However, because a major goal of the survey was to locate previously undetected archaeological sites, a decision was made to concentrate on the poorly-known prehistoriccultural resources.

Of the two units in the Tombigbee National Forest, the Trace Unit is in an area of Mississippi with a more extensively documented prehistory as a result of research conducted along the Natchez Trace Parkway (cf. Cotter and Corbett 1951; Jennings 1941). Comparatively little is known about the prehistoric occupation of the Ackerman Unit, or of the North Central Hills physiographic region in general. For this reason, the Ackerman Unit was selected for a sample survey.

THE SAMPLE SURVEY

The design of a sample survey involved the evaluation of several possible dimensions of environmental influence on prehistoric settlement within the survey area. It has been demonstrated repeatedly that prehistoric settlement locations were directly influenced by environmental resources. Because many of these resources are nonrandomly distributed across the landscape, human occupational sites may also be expected to show a nonrandom pattern. With the expectation that certain environmental factors will correlate with archaeological sites, regional archaeological survey must systematically evaluate the effects of topography, availability of water, vegetation, soils and other factors or attributes of site location.

Some information on site distribution was available from previous surveys. One of the few systematic surveys in the North Central Hills physiographic area was conducted by the University of Southern Mississippi in Kemper County, 35 miles south of the Tombigbee National Forest (Voss and Blitz 1983; Blitz 1984). The majority of archaeological sites for all time periods were located on low, flat to rolling ridges and terraces with an average slope of less then 15 degrees, and in close proximity to permanent water sources. There was a strong negative correlation between site location and active floodplains and slopes greater than 15 degrees.

There had been no large systematic surveys in the Ackerman Unit. Prior to October 1982, certain locations, such as harvested timber stands, land exchange properties, and other impact areas totaling 1855 acres had been examined for cultural resources (DeLeon 1983:Table 2). In February 1984, an additional 411 acres were surveyed by the author. These areas encompassed the full range of landforms within the Ackerman Unit. Despite the amount of acreage covered (4.7% of the total 39,808 acres), only nine sites were located from the survey of these direct impact areas.

During the last one hundred years, large areas that are now the Tombigbee National Forest were deforested as a result of over-harvesting timber as well as clearing the land for crops. Without suitable vegetation cover, the steep topography was subjected to extensive erosion. The intermittent streams that drain the steep slopes have a high gradient that transports sediments down from the ridgetops rapidly. The larger perennial streams have a lower gradient which results in slower flow velocity. This condition reduces the particle size of material the stream is able to transport and contributes to a rapid sedimentation of the narrow floodplain. Natural terraces produced by recent alluvial deposition on the floodplain are low, narrow, and poorly developed. In this rugged terrain, the upland slopes extend down onto the floodplain to form well-drained, level areas known as benches (American Geological Institute 1976:41).

These conditions affect both the location and preservation of archaeological sites. The narrow, frequently inundated floodplains are unsuitable for any long-term habitation sites. If any sites are present, they have been buried by the accumulation of sediments. If these floodplains were the focus of temporary hunting and plant collecting activities, then detection of the limited evidence of these activities by shovel test techniques is made extremely difficult by the modern conditions. Only on well-drained, level terraces, or upland benches, elevated above the active floodplain, are conditions stable enough to provide suitable habitation sites and to preserve evidence of occupation.

One known site, 22-Wi-508, had been discovered when a fireplow line had cut into a small upland formation. Small scatters or isolated finds of flakes and projectile points had also been discovered on cleared ridgetops. It was evident that the degree of slope was another factor limiting areas of human activity. Areas with a slope greater than 15 degrees could not be efficiently utilized for habitation sites.

There remains the possibility that hunting, plant gathering and lithic resource extraction may have taken place on steep slopes. The rather ephemeral remains of hunting and gathering activities are not likely to be preserved on steep slopes subjected to extensive erosion. Further, lithic resources in the survey area are very limited. Sandstone and limonite outcrop on ridgetops; chert suitable for stone tools occurs apparently very rarely, or not at all in the Noxubee River headwaters (Mellen 1939).

To summarize, prior to the systematic survey:

> 1) small artifact scatters and isolated finds had been located on level ridgetops as surface finds without any preserved depositional context;
>
> 2) one site (22-Wi-508) with sub-surface deposition had been located on an upland bench -- a terrace-like formation;
>
> 3) erosion and steep slope were expected to limit the location and preservation of archaeological sites.

To initiate a systematic archaeological survey, it was decided to select a random sample of quarter section quadrats of 160 acres each, and stratify the sample according to environmental variables. Soils and vegetation were rejected as variables for the initial sample stratification. There were too many individual soil types to be considered efficiently and modern soil maps were incomplete. The extensive lumbering and agricultural modification of the landscape over the last one hundred years have altered original plant communities. The reconstruction of pristine plant communities from early land surveys is possible, but this information will be most useful at a more advanced stage of investigation.

It was decided initially to stratify the sample on the basis of topography. Each quarter section within the survey area was classified according to its predominant landform characteristic, using a simple three-part system:

1) Dividing Ridge - high, steep ridges that form narrow divides between drainages;

2) Side Slope Ridge - lower, narrow ridges that descend perpendicular from dividing ridges;

3) Benches - well-drained, level upland formations, elevated above adjacent floodplains.

On the basis of previous knowledge of prehistoric site distribution and preservation in the North Central Hills, slopes greater than 15 degrees and active floodplains were excluded from investigation. Thus, areas to be examined were restricted to the level portions of the three defined topographic categories (See Figure 3).

Initiating the Sample

After selecting the method for stratification, the next step involved plotting each quarter section quadrat onto the appropriate USGS 7.5' quadrangle map. The 39,808 acre Ackerman Unit was divided into a total of 148 quarter section quadrats using a 160 acre locator template. This procedure demarcated 23,680 acres as the sampling universe.

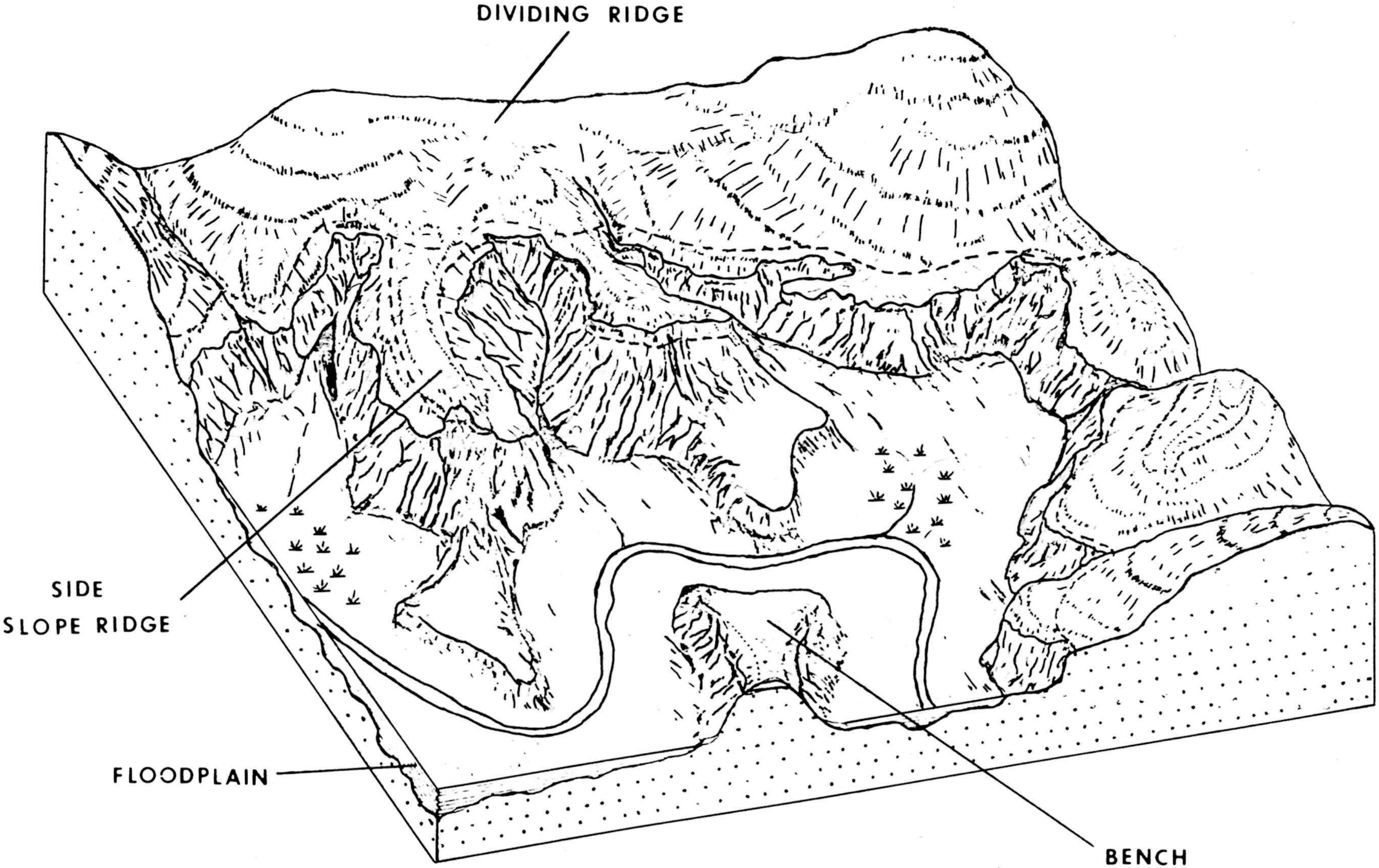

Figure 3: Topographic Features in the Noxubee River Headwaters, Tombigbee National Forest.

Therefore, this initial action excluded about 40% of the total federal acreage from the sample survey. This was done to consolidate the area to be sampled in order to decrease travel time, to isolate an area that could be examined properly in the amount of time allotted for survey, and for similar logistical reasons.

The sites recorded prior to the sample survey numbered four on dividing ridges, three on side slope ridges, and three on benches. These sites provided no clear indication if any one topographic category could be associated with more sites than either of the other two categories. Given the absence of previous systematic survey results, which could be used to estimate the sample size required for reliable information about prehistoric settlement, it was decided to plan for approximately a 10% sample of the survey universe. The percentages of dividing ridge, side slope ridge and bench quadrats were calculated as follows: DR = 64.9%, SR = 22.9%, and B = 12.2%.

The sampling procedure was divided into two stages. The first stage, Sample 1, consisted of a 5% stratified random sample, with different topographic strata represented in proportion to their occurrence within the survey area. It was reasoned that Sample 1 would provide some information about environmental and topographical influences on site location. A second 5% stratified random sample, Sample 2, was drawn based on the results of Sample 1.

Field Survey Methods

Each quadrat was examined on foot. Where the surface visibility was poor, small shovel tests were dug at 20 to 50 meter intervals in parallel transects. When sites were located, an effort was made to collect all visible artifacts and to estimate site size. For the purposes of this report, an archaeological site is defined as any artifact location.

The spacing of shovel tests, the size of various kinds of sites, and other factors will have a direct effect on the efficiency of this method. Widely-spaced shovel tests in wooded terrain, although necessary and practical for covering extensive areas, are biased toward the discovery of larger sites. Despite these problems, shovel testing remains the most practical and cost-effective technique for locating sites in areas of poor surface visibility.

Any attempt to locate low density artifact scatters in eroded, wooded upland situations by shovel testing is inefficient. Detection of these types of sites would be virtually impossible were it not for logging roads, clearcuts, recently burned-over areas, gameplots, fireplow lines and other disturbances providing convenient transects with visible ground surfaces. The survey pattern took advantage of such areas at every opportunity.

Survey Results

Sample 1 consisted of four dividing ridges (DR), two side slope ridge (SR), and one bench (B) quadrats. The results of this first survey sample were disappointing in terms of the numbers of sites found. Only one site was discovered on a DR quadrat. The two SR quadrats yielded only one site, a 19th/20th century home place, and the bench quadrat yielded two singnificant prehistoric sites along the Noxubee River.

At this point in the investigation, the sampling strategy was reconsidered. The various small surveys prior to the initiation of the sample survey had covered 1855 acres but only one site was discovered (22-Wi-508). The timber stand preparation areas surveyed in February 1984 produced eight sites in approximately 411 acres. These nine sites had all been discovered under conditions of high surface visibility: clearcuts, fireplow lines, and logging roads. Sample 1 uncovered three prehistoric sites in 1120 acres consisting largely of heavily wooded terrain. All of these considerations indicated that the area seemed to have a low density of archaeological sites, or that the degree of ground visibility was significantly affecting the representativeness of the sample.

A second 5% stratified random sample, Sample 2, was selected which consisted of one DR, three SR, and four B quadrats. The number of bench quadrats was increased because the available evidence suggested that these areas were conducive to prehistoric settlement. Despite the low numbers of sites found in Sample 1, additional DR and SR quadrats were selected in an attempt to find more sites in those topographic situations. In addition to the quadrats selected for Sample 2, a supplementary survey strategy was initiated to examine areas of good ground visibility. Fireplow lines, logging roads and clear cut areas were selected with the use of aerial photographs and timber compartment prescriptions. These open areas provided transects across all three types of topographic features. Many of these areas were surveyed en route to selected quadrats.

The complete sample survey examined 15 quadrats totaling 2,400 acres. Supplementary intuitive survey in areas of good ground visibility covered an additional 225 acres. Thus, the survey constitutes an 11% stratified random sample of the sampling universe within the Ackerman Unit. The survey area and the sampling units are illustrated in Figure 4. A total of 42 archaeological sites were discovered, 15 of which are historic, consisting of 19th/20th century home sites and one 19th century cemetery. Since the focus of the sample survey was on prehistoric cultural resources, these historic sites will not be discussed further except for two general observations.

The old historic home sites were identified by brick, nails, glass, ceramics and other small artifacts lying on the surface; there were no standing structures, yet these sites are highly visible due to the

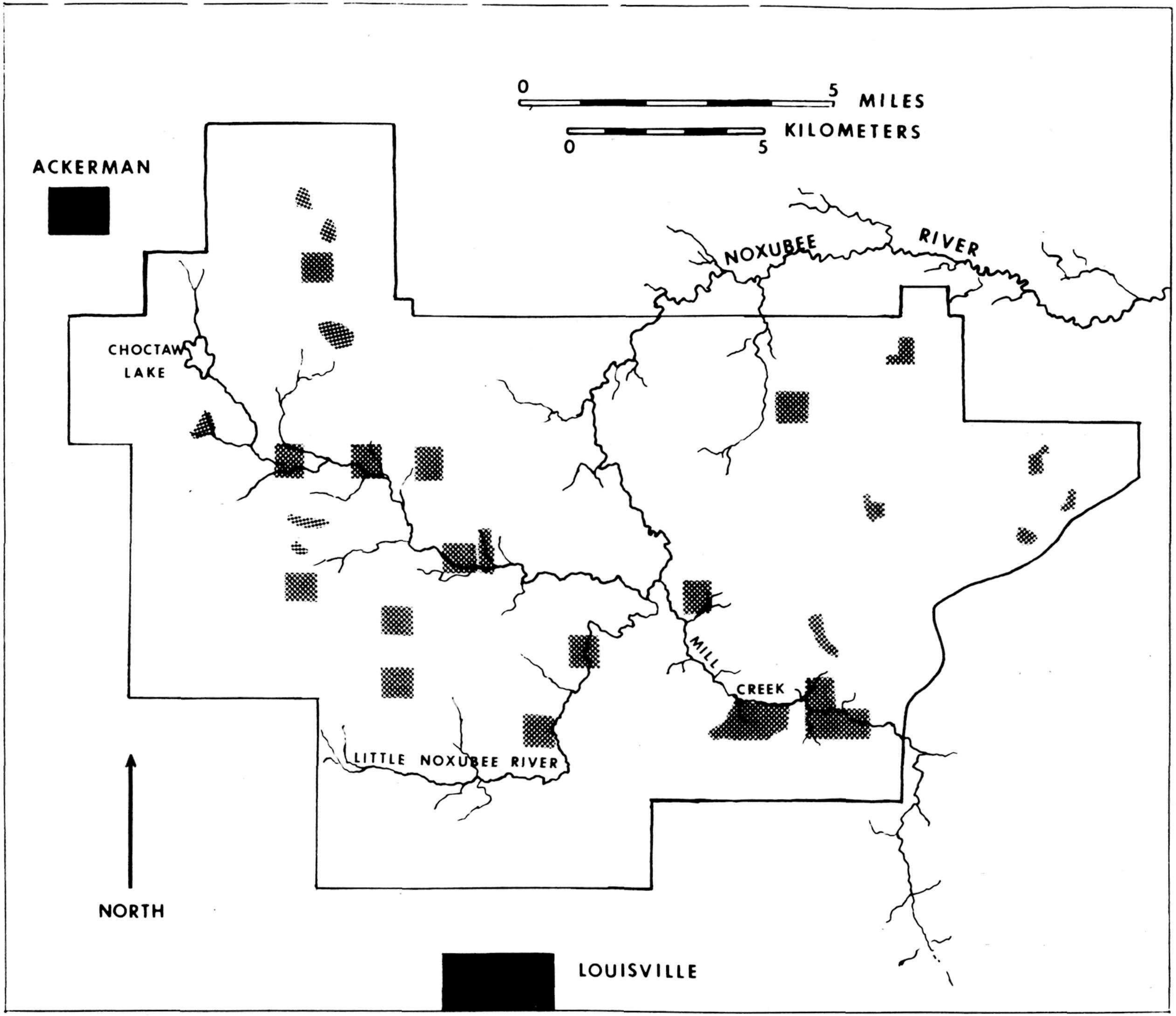

Figure 4: Areas Surveyed for Cultural Resources, Ackerman Unit, Tombigbee National Forest.

consistant association of distinctive types of vegetation.

Massive oak trees were found on virtually every historic site. These trees were either planted as shade trees or, possibly, spared from early efforts to clear the forest due to their proximity to the home. Large oaks are not confined to old home sites, of course, but the immense size of these specimens suggests that they may be remnants of the original forest. Common ornamental plants, such as crocus and iris, are almost always present and most evident when they bloom in the spring.

A second observation about historic home sites is their consistant location on ridgetops, either dividing ridge or side slope ridge. This ridgetop settlement pattern contrasts with the prehistoric inhabitants preference for habitation sites situated on benches, discussed below. This settlement pattern difference may best be explained by noting that the early local roads followed ridgetops and avoided stream bottoms whenever possible. Home sites were placed along the ridgetop roads, while the more fertile floodplains and benches were planted in crops.

Twenty-nine prehistoric sites were discovered and a previously recorded site, 22-Wi-508, was reexamined. Within the areas surveyed, approximately 55% of the terrain was dividing ridge, 30% was side slope ridge, and 15% was benches.

Table 1 gives the locations for 30 prehistoric sites within the survey units and gives the expected locations if site location was independent of terrain. A strong correlation between archaeological sites and bench topography is emphasized by the fact that 46% of the sites were on bench formations, whereas only 15% of the total terrain surveyed were on benches. The actual number of sites for both dividing ridge and side slope was lower than expected. This could mean that topography was not a particularly crucial selective factor for these site locations.

TABLE 1

Archaeological Site Locations and Topography

Topographic Category	% Topographic Category in Survey Units	Predicted Site Numbers*	Actual Site Numbers
Dividing Ridge	55	16.5	10
Side Slope Ridge	30	9.0	6
Bench	15	4.5	14

* Number of sites predicted if location is independent of topography

Artifact Assemblages and Site Utilization

During the survey it became apparent that two different functional types of prehistoric archaeological sites were present in the Noxubee River headwaters area. This perceived difference was based on site location, variability of artifact assemblages, site size, and artifact density. One type of site consisted of flakes, potsherds or occasional projectile points discovered as isolated finds, or in small, low density scatters on dividing ridges and side slope ridges. The second type of site was an artifact concentration of potsherds, various stone tools, projectile points, pitted stone mortars, and debitage located on benches or terraces adjacent to perennial streams.

Two interrelated factors complicating site interpretation involve sample size and ground visibility. The number of artifacts collected from the sites were low: mean values for DR = 5.0; SR = 5.2; and, B = 52.8. Many of the ridgetop sites were single artifact finds. In several heavily wooded locations, sites were discovered by shallow shovel tests which uncovered relatively few artifacts. Only 4 of 29 sites were actually discovered by shovel tests. Larger numbers of artifacts were surface collected from sites in similar topographic situations when good ground visibility was available. Many of the ridgetop sites were so denuded from logging operations that surface visibility was excellent, and one could be confident that relatively few artifacts escaped detection. Because clear surface visibility varied considerably from site to site, it was evident that this visibility factor possibly influenced the sample in a manner independent of the character of the site assemblage.

A careful examination of artifact assemblages lends support for the definition of two functional types of sites in the area. However, the possibility that terrain and survey conditions affected the artifact sample, and the small size of many samples contribute to the inappropriateness of intersite comparison based on differential frequencies of artifact types. A less refined, but perhaps more reliable, indication of site differences emerges from a comparison of artifact diversity and topographic setting for each site.

Artifact diversity refers to the number of different artifact categories within a site assemblage. Eighteen artifact categories of ceramics, lithic tools and debitage were used to measure diversity (Table 2). An assumption is made that sites which exhibit a high

TABLE 2

Artifact Category	Number of Artifacts in Topographic Categories		
	DR	SR	B
ceramics	8	20	378
core	0	0	3
decortication flake	17	1	83
undifferentiated flake	21	1	179
bifacial thinning flake	0	0	4
shatter	0	1	15
projectile point	0	3	16
distal end	0	0	8
midsection	0	0	6
large biface - preform	0	0	5
large biface fragment	1	0	15
small biface - perforator	0	0	2
drill	0	0	2
scraper	0	0	2
retouched flake	2	0	4
utilized flake	0	0	9
hammerstone	0	0	3
pitted stone mortar	1	0	5
Subtotal	50	26	739
TOTAL n = 815			

artifact diversity reflect a broad range of human activities. Conversely, sites which have a low artifact diversity of only a few artifact categories are assumed to represent a limited range of activities.

Figure 5 compares artifact diversity and topographic situation for 25 prehistoric sites. Archaeological sites on dividing ridges and side slope ridges have a low artifact diversity of four or fewer categories. Archaeological sites on benches display a higher artifact diversity than the ridgetop sites with a range of 4 to 13 categories. Thus recurrent correlations between site assemblage and site location support the contention that two different functional types of sites are represented in the survey area.

Four of the total 29 prehistoric sites were excluded from Figure 5. Vegetation cover was so extensive at these sites that it hindered attempts to collect artifact samples and investigations were confined mostly to recording the site location.

Dividing ridge and side slope ridge sites are interpreted as temporary activity locations; sites that resulted from the hunting and plant gathering activities of one to several individuals. The majority of these sites consist of a single artifact find. Other sites appeared as low density artifact scatters in an area no larger than several square meters. The amount of artifacts collected from these ridgetop sites is too small to adequately assess the relative frequency of a particular artifact category. In order of decreasing abundance, the artifact categories encountered most frequently on the sites are: undifferentiated flakes, decortication flakes, potsherds, and projectile points. Artifact categories that were found only once, in the context of isolated finds, were a large biface, and a pitted sandstone mortar.

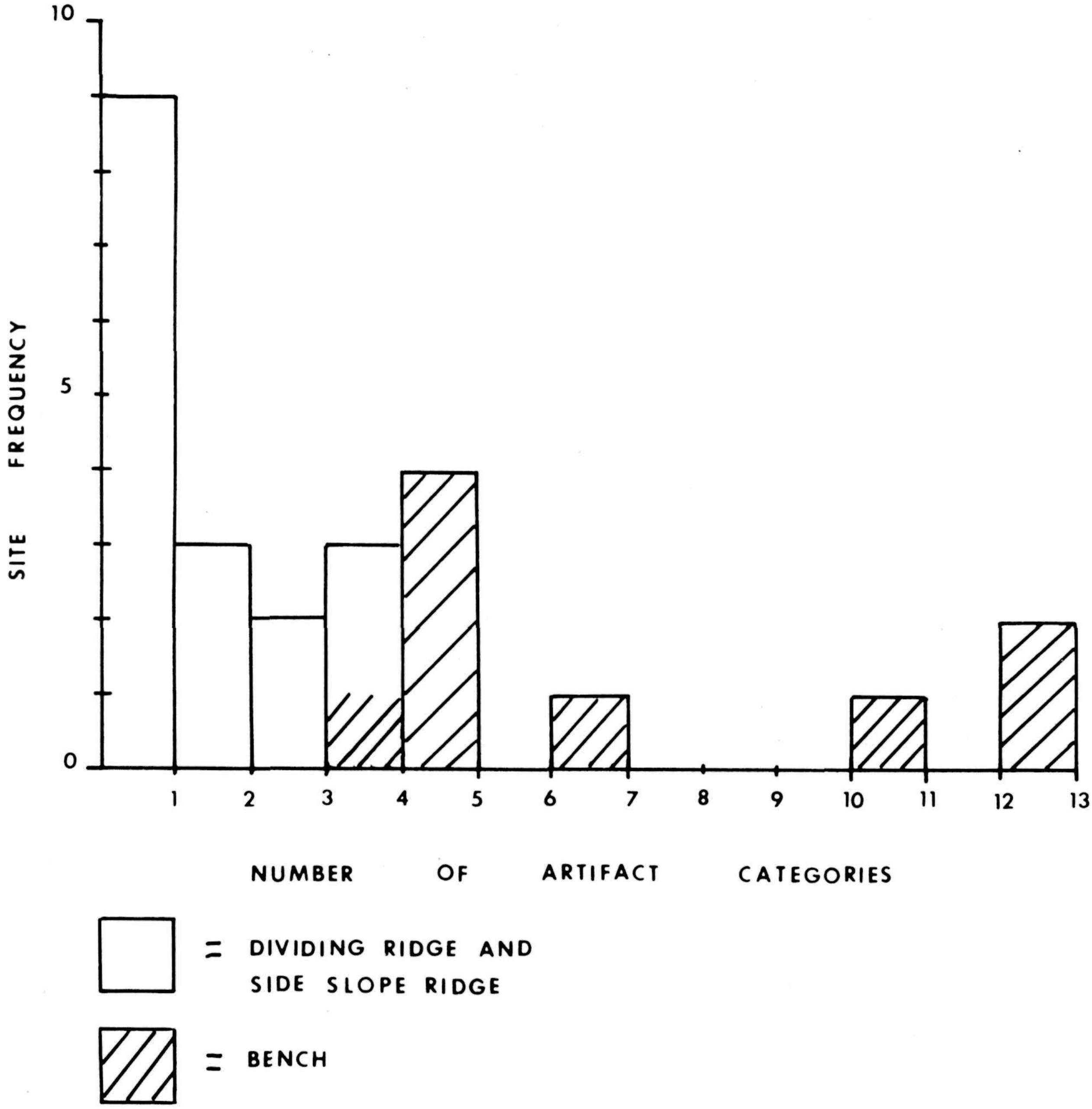

Figure 5: Artifact Diversity and Topographic Setting for 25 Prehistoric Sites.

Few artifacts found at temporary activitiy locations are diagnostic of a specific cultural period. The projectile points are short-stemmed, straight-based forms that could date anywhere from the Late Archaic through Middle Woodland periods (Brookes 1981). The few sherds recovered were also in use over a long time interval from the Middle Woodland through Late Woodland periods. These consist of Baldwin Plain, Baytown Plain, and Mulberry Creek Cord Marked. A single sherd of Mississippi Plain was also found.

Because there is no indication of any difference in artifact assemblages between dividing ridge and side slope ridge locations, sites in these different topographic situations apparently reflect similar activities. The fact that potsherds were found on some of the temporary activity locations (5 of 16 sites) indicates vessels for cooking or water containers were present. This would suggest that the occupation was of a sufficient duration for these kinds of activities to take place. These ridgetop sites are typically 500 meters or more from a permanent water source. The lack of available water and the small area of level ground make ridgetops unsuitable for any occupation longer than a very short-term camp of a few people.

Some of the isolated finds of single projectile points may have been simply lost during travel through the area, rather than the result of site specific activities. Very low artifact densities suggest that the sites were not used repeatedly. However, this remains uncertain because site specific activities may have been of the kind that did not result in artifact disposal upon each visit.

Sites situated on benches are interpreted as transitory camps. A transitory camp represents a temporary habitation site occupied by a small group, possibly one to several extended families, for several days to several weeks as one part in a larger subsistence settlement system. These sites are greater in size than the temporary activity locations and average about a quarter of an acre in extent.

Ceramics are the single most abundant artifact category at transitory camps and consist of a few distinct types. Sand tempered Baldwin Plain and Furrs Cord Marked, and clay or grog tempered Baytown Plain and Mulberry Creek Cord Marked, compose almost the entire sample. These types are indicative of the Miller cultural tradition of the Middle and Late Woodland periods. Extensive excavations in the central Tombigbee River area have documented that Baldwin Plain and Furrs Cord Marked are gradually replaced by Baytown Plain and Mulberry Creek Cord Marked during the long Miller sequence (Jenkins 1981:20-29).

A recent interpretation of ceramics from the Woodland Slaughter and Womak sites in the northern portion of the North Central Hills indicates that sand temper and grop temper may not have appeared in the same chronological sequence as in the central Tombigbee River or Yazoo River areas (Ford 1981). Ford's point is that selective comparison of these adjacent sequences to the Slaughter and Womack assemblages on the basis of temper categories can be used as an argument to support different chronological schemes. Ford concludes that temper was chosen as a result of localized social and physical factors, and that interregional comparison of these ceramic complexes is best accomplished by consideration of surface decoration, not paste or temper. This last point is prudent in light of our limited knowledge of the area. Pan-Southeastern syntheses of ceramic complexes have generally emphasized surface decoration and vessel form over paste or temper ([James] Ford 1952).

Yet there are broad chronological trends in temper use across the region. It is not surprising a transition from sand tempered to grog tempered wares by Woodland groups in the large area between the Lower Mississippi Valley and the Tombigbee River occured at different times. It is possible that the adoption of grog temper took place earlier among those North Central Hills groups in closer proximity to, or in contact with, contemporary societies in the Lower Mississippi Valley where grog temper has a much longer history of use. Further east, on the lower Tombigbee River, and possibly adjacent southeastern Mississippi, the transition to grog tempered wares did not take place, and Late Woodland societies continued to use sand tempered pottery (Jenkins 1982:85). In addition to the broad chronological trends in temper use, there are undoubtedly a number of social and technological factors, influencing the local choice of tempering agent. If local patterning of these choices can be detected, then they may have chronological implications.

Given our limited knowledge of the ceramic complexes and the potential variability of tempering agents in the North Central Hills, surface decoration rather than temper may be more informative. Most investigators agree that the practice of cord and fabric marking pottery originated north of the Gulf Coastal Plain (Phillips, Ford and Griffin 1951:73-75; Ford 1952:362; Caldwell 1958: 19-27). Fabric marking was first introduced into the Tombigbee River drainage by the last century BC, and cord marking appeared soon thereafter (Jenkins 1981:68-71). No fabric marked types were recovered from any of the sites in this survey, which may indicate that most of the sites date no earlier than the Miller II phase, when the use of fabric marking declined relative to cord marking (Jenkins 1981:22).

However, there may be components from earlier in the Miller sequence. At site 22-Wi-513, a logging access road exposed a portion of a Furrs Cord Marked vessel. The bulldozer blade had cleaved away the upper two-thirds, but the shattered base has been reconstructed. This was a large conical vessel with four podal supports closely spaced together. Cord marking covers the entire base, even the podal supports; the interior is well smoothed. Podal supports are apparently rare in the Miller ceramic complexes. Quadrapodal supports are a distinctive ceramic attribute of Marksville, Ohio Hopewell and other Middle Woodland cultural traditions. This suggests that this Furrs Cord Marked vessel dates to the Miller I phase, a time when the Miller culture was most involved with Hopewellian ceremonialism. Unlike cord or fabric marking, the use of podal supports originated not to the north, but instead had antecedents in the various ceramic series of the preceding Gulf Formational Stage (Ford 1969:112-113; Walthall 1980:77-103).

Of the fourteen transitory camp sites, ten had both sand and grog tempered pottery, and four had only grog tempered ceramics. Only a few other pottery types were recovered from the sites. Several plain, incised and punctated sand tempered sherds are too small to classify but their paste and decorative characteristics are suggestive of the Alexander series. A plain bone tempered sherd corresponds to Turkey Paw Plain, a minority type that appeared sporadically during the latter part of the Miller sequence in the central Tombigbee area (Jenkins 1981:161). Eight sherds of Mississippi Plain were collected from four sites. Their presence indicates a very small, post 1000 AD component at these sites.

Stone tool categories from bench sites display a range of functional categories one would expect to encounter at a small seasonal camp: projectile points for hunting, bifaces for cutting and chopping, scrapers for working skins, drills and small biface/perforators for boring and punching into bone, wood, or other hard materials. Flakes were retouched or utilized without further modification for fine cutting and slicing. Various stone tools recovered during the survey are illustrated in Figures 6 - 9. Flat slabs of indigenous sandstone had small pits or depressions pecked and ground into the surface (Figure 6). These heavy tools are widely interpreted as nutting stones -- mortars for crushing nuts and other plant foods.

Figure 6: Pitted Sandstone Mortars.

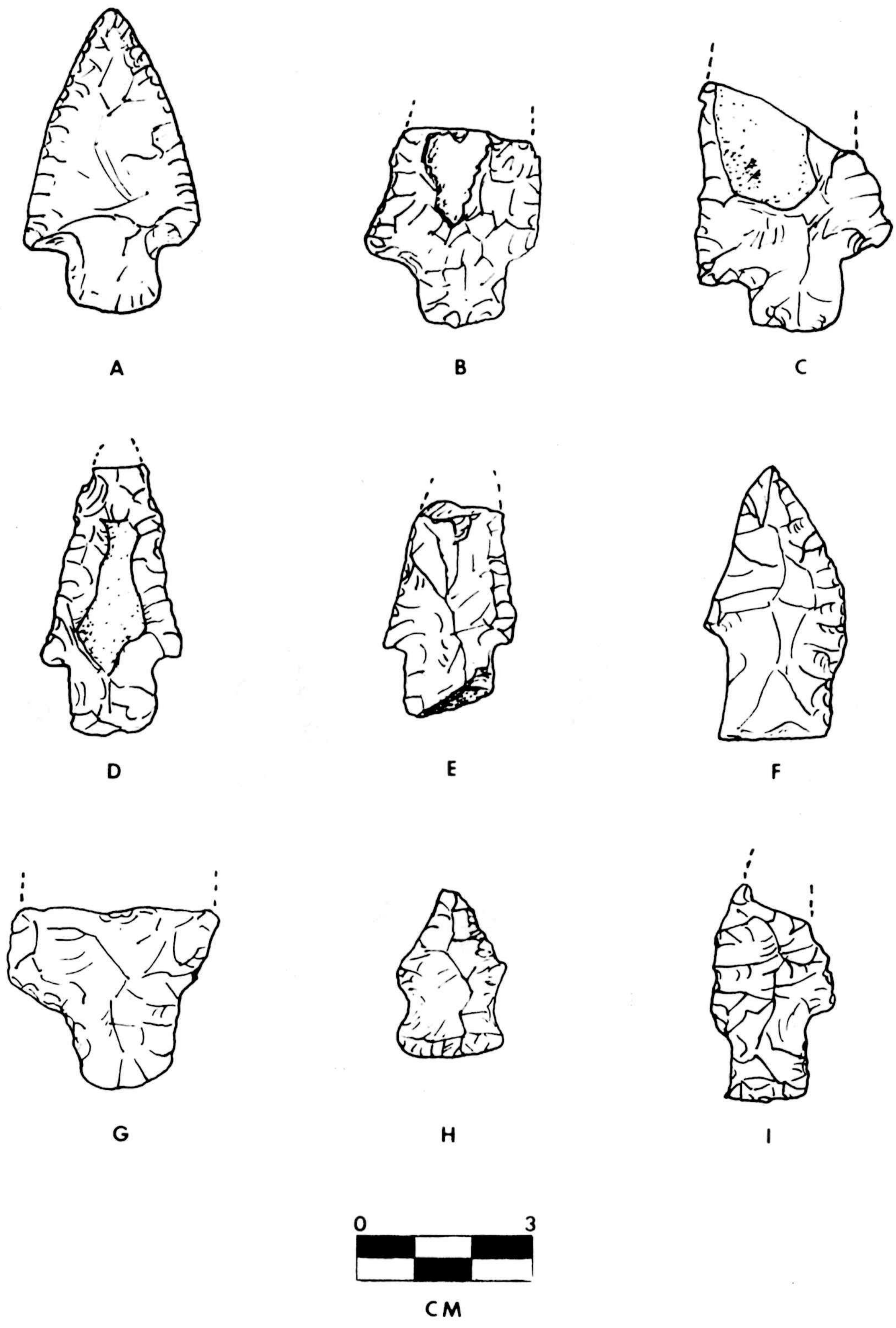

Figure 7: Late Archaic and Woodland Stemmed Points. A–E,I/chert projectile points (stippled area is cortex); F/blade resharpened for use as knife; G/base of Tallahatta quartzite; H/ side-notched, not ground, probably Late Woodland.

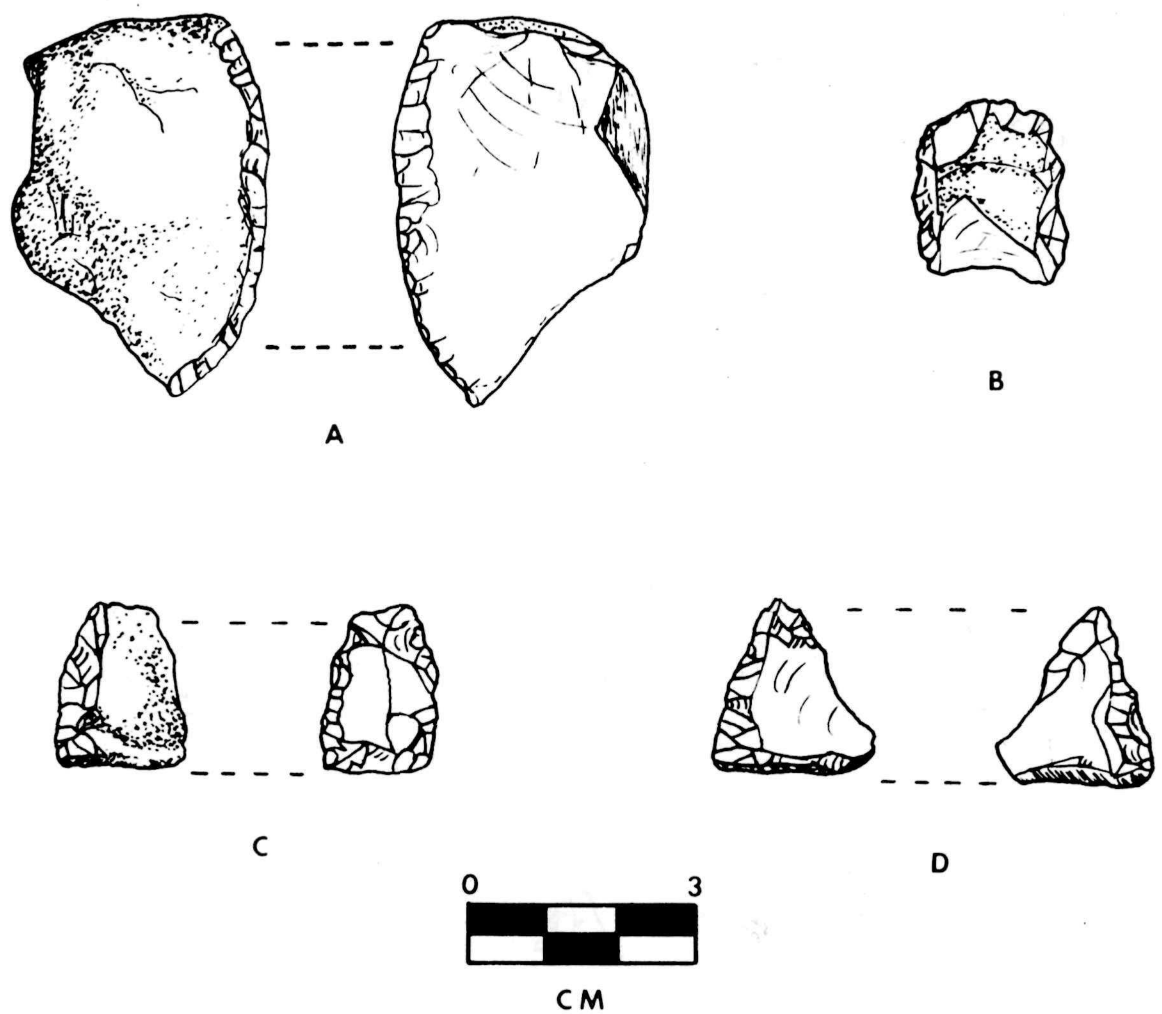

Figure 8: Various Stone Tools. A/Bifacially worked decoration flake; B/side, end scraper; C/biface; D/biface-perforator.

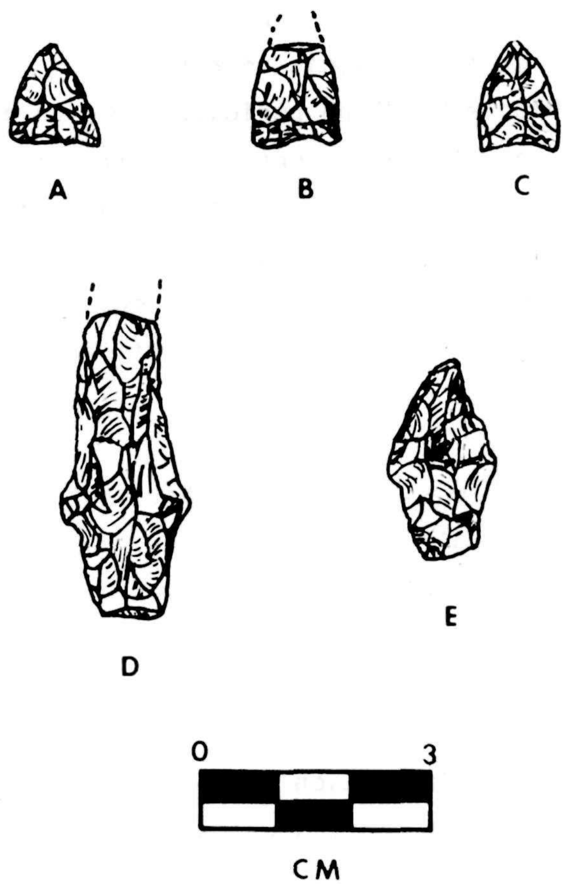

Figure 9: Various Stone Tools. A-C/triangular projectile points; D/drill: E/drill-punch

As is the case with the temporary activity locations, the projectile points from transitory camp sites are not particularly diagnostic of a specific cultural period. The majority are straight-based, straight-stemmed points associated with a long time interval from the Late Archaic to Middle Woodland periods. Several are similar to points found in Miller I and II phase contexts in the central Tombigbee River area (Ensor 1980). A crude, round-based point of Tallahatta quartzite (Figure 7) is a style common in the Late Archaic Period. Three small triangular points (Figure 9) date to post 600 AD when the bow and arrow was first adopted by Late Woodland Miller III phase groups in the region (Jenkins 1982:103-104).

Several different kinds of raw lithic materials were used to manufacture stone tools in the survey area. The predominant raw material is a pebble-sized chert with a water worn-cortex, which constituted 80% of the total sample. There are no recorded sources of chert in the Noxubee River headwaters (Mellen 1939), nor has any chert been found in recent soil surveys. Chert pebbles are exposed in gravel beds of the Tuscaloosa formation along the Tombigbee River 40 miles to the east. Perhaps closer chert sources are available to the south or west. The small size of the chert pebbles is evident from the debitage and the fact that cortex is left frequently on projectile points and similar tools.

This chert is naturally yellow or buff in color but changes into various hues of red when heated (Ensor 1982). Thermal alteration of chert apparently facilitated the flaking properties of the stone. The use of this technique in the region began at least as early as the Late Archaic Period but became more common in the Miller cultural tradition. No distinct distribution pattern of unheated and heated chert between sites could be determined. Both transitory camps and temporary activity locations had both unheated and heated chert tools and debitage.

The second most abundant lithic material in the collections is Tallahatta quartzite, accounting for 11%. This stone has a course, grainy texture and outcrops in the Tallahatta formation of southeastern Mississippi and adjacent southwestern Alabama (Dunning 1964: Lloyd, Bense and Davis 1983). Prehistoric quarries of Tallahatta quartzite discovered closest to the survey area are located 70 miles to the southeast in Lauderdale County, Mississippi (John O'Hear, personal communication 1984). Other lithic raw materials collected from the sites include: grey flakes resembling Fort Payne chert, which outcrops in the Tennessee River area, accounted for 1%; flakes and a projectile point of a grey quartzite similar to material from the Kosciusko formation in central Mississippi, at 2%; battered nodules and debitage of indigenous limonite, amounting to 2%; and, pitted stone mortars of indigenous sandstone, also 2%. Fragments of unworked sandstone and petrified wood were commonly encountered on bench sites but it is unclear whether they occur naturally or were transported to the sites by the inhabitants.

Two large, water-worn cobble hammerstones and flakes of a white quartz were also recovered. The exact origin of this stone is something of a mystery. A geologist, Frederic Mellen, associated these cobbles with the basal layer of the Ackerman Formation. Their discovery was unexpected:

> The presence of these cobbles and bowlders (sic) makes the unit one of the most remarkable geologic features not only of Mississippi, but the entire North American continent. In 1937, Vestal and the writer collected one quartzite bowlder weighing 96 pounds and saw another even larger. Numerous smaller bowlders and cobbles of quartzite and quartz were found widely distributed over the sand area, but nowhere were they abundant. Chert is extremely rare. (Mellen 1939: 41).

The largest quartzite boulder Mellen discovered was in eastern Winston County. This specimen weighed 905 pounds and had a mortar ground into one side; it was taken to the University of Mississippi, Mississippi Geological Survey. Mellen believed that the "vein quartz" and "metamorphic quartzite" cobbles and boulders could not have been formed in east central Mississippi but instead came from sources in the crystalline area of the Southern Appalachian Mountains 200 miles away. The only explanation he could think of to account for their presence in Mississippi was to postulate a great up-lift in the Appalachian region that caused diluvial conditions in the Piedmont. The boulders and cobbles were transported by these ancient floods and deposited intermittently on the Coastal Plain. He admitted readily that this explanation was difficult to accept.

Given that the quartz is present on archaeological sites as artifacts and debitage, could the material have been carried into the area by the prehistoric inhabitants? This is possible for the smaller cobbles, but it is difficult to conceive of the Indians transporting boulders of several hundred pounds into these interfluvial uplands. It would appear that the stone occurs naturally in the region but the physical processes accounting for its presence remain unknown.

Different stone working techniques were used to produce artifacts of chert and quartzite. Flakes were removed from the small chert cobbles by the bipolar technique. The small size of the cobbles facilitated easy transportation. Tallahatta quartzite would be somewhat difficult to transport without some modification. Apparently, preforms or blanks were struck from large chunks. In this more portable form, Tallahatta quartzite was brought into the Noxubee River headwaters area.

One might suspect that tools were manufactured at transitory camps and then carried as finished tools to temporary activity locations. Yet decortication flakes compose 33% of the lithic debris at transitory camps and 43% of the debitage at temporary activity locations. The fact that 90% of the lithic artifacts at temporary activity locations are debitage and that half of this debitage are decortication flakes suggests that tool manufacture took place at these sites. The volume of manufacture must have been very low, however, because these ridgetop sites rarely consist of more than a dozen or more flakes scattered about a small area.

One kind of activity that could account for this site assemblage pattern would be the creation of an expedient tool; that is, a stone tool created at the site to facilitate a specific task. If such was the case, an individual's tool kit must have contained a couple of unmodified chert pebbles, inferred by the presence of decortication flakes, that could be quickly worked into a tool. The scarcity of local lithic resources and the low frequency of tools discarded at temporary activity sites implies that the finished tool was usually retained when the individual left the site.

Of course, tool maintenance may also have contributed to the lithic scatters at temporary activity locations. One indication of this activity would be the presence of bifacial thinning flakes deposited as byproducts of sharpening stone tools. Surprisingly, no bifacial thinning flakes were found, so the most direct evidence of this task at temporary activity locations is lacking. Bifacial thinning flakes were present at four transitory camps. Several projectile points, even the small triangular points, show extensive resharpening. One might expect a high incidence of resharpening in an area of scarce lithic resources, although this cannot be demonstrated with certainty with this sample.

SOILS AND SITES

During the course of the survey, as it became apparent that benches had been an important focus of prehistoric activity, it was imperative to consider the physical characteristics of these topographic features. What was it about these places that was so attractive to the prehistoric people?

As a location for small habitation sites or transitory camps, benches apparently provided advantages unavailable at other topographic situations. Benches are flat, well-drained areas adjacent to perennial streams and their floodplains; in many respects they resemble alluvial terraces, however, they are composed of upland soil types. Dividing ridges and side slope ridges are relatively narrow with few level places, and typically are several hundred meters from even intermittent water sources. The only other level areas are the narrow floodplains of the perennial streams. These floodplains are disadvantageous locations for habitation sites because they are low, swampy and seasonally inundated. Thus, the overall ruggedness of the terrain at the Noxubee River headwaters imposed certain physical limits on the choice of suitable habitation sites.

Because of the distinctive nature of bench topography, a closer examination of soil type and geomorphological characteristics seemed appropriate. With the aid of Don Dagnon, Tombigbee National Forest soil scientist, soil auger samples were taken at seven archaeological sites situated on benches. The initial objective was to determine the soil series, which would provide a clue as to how the benches were formed, and to examine the possibility that bench archaeological sites correlated with a specific soil series.

The soil testing revealed that no specific soil series was associated consistently with the archaeological sites. However, all are well-drained, moderately permeable loamy soils with fragipans; these are soils of Coastal Plain uplands. Therefore, they represent an extension of the upland ridge systems and exhibit a stronger profile development than do floodplain soils. Recurrent land slides possibly contributed to the creation of these features (Don Dagnon, personal communication 1984). The geomorphological situation is quite different from the mature floodplain environment more familiar to most Southeastern archaeologists.

At the first site tested, the soil pH was measured with a soil reaction field kit and an interesting discovery was made. With small shovel tests it had been determined that the artifacts were confined to a zone from 0 to 15 cm below the surface. The soil pH from this zone was measured and compared to the expected pH value for that soil series obtained from publications of the National Cooperative Soil Survey. Instead of a strongly acid value of 5.0 normally expected for the soil series, the soil pH value was 7.0, a neutral reaction.

The soil pH at six other bench archaeological sites was measured with the Hellige - Truog field kit. For each site the sample was taken from 0 to 20 cm below surface, the zone in which the artifacts were confined. At six out of seven sites, the measured soil pH was significantly higher than normally expected for the soil series. A general impression was that the darker soil color was the result of a higher than normal organic content.

These discoveries were discussed with Dr. David Pettry, agronomist, Mississippi State University. With his assistance, additonal soil pH assays from five of the sites were made at the Mississippi State Soil Genesis Laboratory. The combined field and laboratory measurements indicated that on five of the seven sites, soil pH was higher than normally expected for each soil series (Table 3).

What factors were responsible for this unexpected soil condition? Fire

TABLE 3

A Comparison of the Normal Soil pH
Expected for Five Soil Series and the
Measured Soil pH from Associated Archaeological Sites

Site	Soil Series	Normal pH	Measured Site pH	
			Field	Lab
Wi-510	Ora Sandy Loam	5.0 -- strong acid	7.0	-
Ch-514	Providence Silty Loam	5.0 -- strong acid	7.0	6.20
Ch-515	Ora Sandy Loam	5.0 -- strong acid	7.0	6.45
Ch-516	Savannah Sandy Loam	4.5 -- very strong acid	4.5	4.55
Wi-513	Eustis Sandy Loam	4.5 -- very strong acid	5.5	4.95
Wi-516	Smithdale Clay Loam	5.0 -- strong acid	6.7	4.60
Wi-508	Eustis Sandy Loam	4.5 -- very strong acid	7.0	-

is one natural phenomenon known to decrease the acidity of soils. On highly acidic Coastal Plain forest soils, frequent or annual fires over long periods of time raises the soil pH only a few tenths of a point, and this effect is confined to the upper 5 cm of the profile (Pritchett 1979:429). On the Ackerman Unit, where controlled fires occur every three to five years, the effect on soil pH is thought to be negligible. Two sites showed evidence of recent fires, but most sites are in areas not subjected to prescribed burning. Available evidence indicates fire has not significantly altered the soils in question.

Another possible influence on soil pH is the application of lime fertilizers to agricultural fields; most of these site locations had been cleared and farmed in the past. However, two sites, 22-Wi-508 and 22-Wi-510, which received a small amount of sub-surface examination, had no indication of plowing in the soil profile. The last time any of the sites could have had lime applied would have been prior to federal acquisition during the 1930s. If lime was applied to any of these areas, it was too long ago to have any influence on the current soil pH (David Pettry, personal communication 1984). This is because natural forces, such as leaching from rains or erosion, would soon return the soils to their normal acidic condition (Ibid.). Acidic soils must be limed every few years to maintain high pH levels (McCart, et al 1972).

A hypothesis is advanced here that the higher than normal soil pH at these archaeological sites is the direct result of accumulated organic wasteproducts introducted by past human habitation. Archaeological evidence from the seven sites demonstrates that this occupation was prehistoric. If the increased soil pH is due to prehistoric activities, then the occupation of these sites must have been over a period of time sufficient to have profoundly altered the soil. With a sample of only seven sites, these observations can hardly be conclusive, but a trend has been detected that is worth further examination.

An expanding body of research has documented chemical and physical changes in soils through the process of archaeological site formation (cf. Cornwall 1958; Cook and Heizer 1965). In most archaeological site contexts, changes in soil pH have been correlated with changes observed in stratified deposits. Through controlled experiments and data collected at various site locations on the Coastal Plain, a pattern of predictable results might be recognized which could be quite useful for site interpretation. Certainly, the discovery of a higher than normal soil pH could alert one to the possible presence of an undetected archaeological site.

Yet, it is doubtful that soil pH would be a practical site discovery technique as compared to traditional methods. However, a very real potential value of soil pH measurements might lie in its use to define archaeological site boundaries quickly and cheaply. If a fast method of soil analysis could be developed to accurately and confidently define site limits with a minimum of site disturbance, this technique might prove superior to traditional shovel tests for this purpose.

SUMMARY

An archaeological survey of the Ackerman Unit of the Tombigbee National Forest discovered 29 prehistoric sites. The pattern of site distribution revealed a strong correlation between site location and specific topographic features. Those sites with diagnostic artifacts indicate the predominant occupation was by the Miller cultural tradition of the Middle and Late Woodland periods. Smaller Late Archaic and post-Woodland components were also found. Two functional types of sites, transitory camps and temporary activity locations, were identified on the basis of artifact assemblages, site location, site size and other attributes.

Temporary activity locations are interpreted as the locus of short-term hunting and plant gathering activities. Although all of these sites are on ridgetops, it is important to note: 1) there is no significant difference between side slope ridge and dividing ridge assemblages; and, 2) the actual number of side slope ridge and dividing ridge sites discovered was lower than the number of sites predicted (Table 1). This would indicate that topography *per se* was not the crucial selective factor for these site locations. Perhaps the food resources that the prehistoric peoples were seeking correlate with topographic features superficially and coincidentally.

Differential site preservation may also contribute to the pattern of temporary activity locations. It is entirely possible that active floodplains or steep slopes were the scene of task-specific activities. However, because soil erosion, sedimentation, and vegetation cover adversely affect site preservation and hinder site detection in these areas, they were not examined.

There is a strong correlation between bench topography and archaeological sites. These bench sites are larger and have a more

diverse artifact assemblage than the ridgetop sites. Bench sites are interpreted as transitory camps. The higher than normal soil pH at these sites may have resulted from organic waste products deposited from long-term or repeated occupancy.

From these terrace camps, individuals or small groups ventured into the interstream areas and left evidence of their visits at temporary activity locations. While this appears to be the general pattern of prehistoric adaptation in the survey area, there are reasons to suspect that this occupation was only one part of a larger settlement system.

A centrally based wandering model has been proposed to explain Miller site distributions along the central Tombigbee River (Jenkins 1982). Large base camps are marked by extensive midden deposits, storage pits, a diverse artifact assemblage, and sometimes associated burial mounds. Smaller transitory camps are characterized by no midden accumulation and a less diverse artifact assemblage. This model postulates a summer - fall base camp occupation and a winter - spring dispersal to transitory camps.

While some of the community may have remained at the base camp year-around, a full time site occupation pattern became widespread in the Tombigbee region only after the intensification of maize horticulture around 1000 AD. Because the Miller societies did not store a large, cultivated food surplus, the population probably dispersed into smaller groups when local food resources became scarce.

Two aspects of the Woodland settlement system which remain poorly understood are seasonality of site occupation, and territory size. Unfortunately, there are no direct data available to determine how these factors relate to sites in the Noxubee headwaters. Floral and faunal analysis from excavations of Miller base camps on the central Tombigbee River document a summer - fall occupation. In the North

Central Hills, similar analysis at the Slaughter site indicates a late summer to fall occupation (Ford 1980:44). The exact scheduling of the seasonal round remains obscure because seasonality is difficult to establish archaeologically, and there is a lack of comparative data from transitory camps.

No large base camps were found in the survey area. They may have gone undetected or they may not be present. If the latter is the case, then the seasonal wandering territory extended beyond the Noxubee River headwaters. The associated base camps for the Noxubee headwaters groups may be located in a richer riverine environment. Miller transitory camps have been identified along the Tombigbee River, in the Black Prairie, and the upland environments such as the Fall Line Hills in Alabama (Jenkins 1982:111), as well as the Noxubee River headwaters. While it seems probable that there were seasonal movements between uplands and large river floodplains, the size of a territory utilized by a social group remains unknown. This is important because settlement system studies confined only to major river floodplains present an incomplete picture.

Clearly, there is a need for greater investigation in upland areas, long neglected by archaeologists because of shallow, unspectacular sites. As a result of work along the Tennessee-Tombigbee Waterway, the Tombigbee Hills area is probably the best known Coastal Plain upland area in Mississippi (Johnson 1982). The interfluvial uplands in the Longleaf Pine Hills have been the subject of an important systematic survey in the Desoto National Forest (DeLeon 1981).

At some time in the near future, it will be possible to synthesize the emerging knowledge about prehistoric adaptations to the interfluvial Coastal Plain uplands. These hilly environments away from the major floodplains compose the majority of the land area in Mississippi. Based on what is now known, it is probable that the hunting/gathering pattern predominates through all prehistoric time periods. The hunting/gathering adaptation will be manifested in transitory camps and temporary activity locations. But the manner of site distribution will probably not be uniform throughout the North Central Hills or other upland areas due to localized environmental conditions.

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