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AN ARCHAEOLOGICAL SURVEY OF DOGTOOTH BEND ON THE MISSISSIPPI RIVER IN ALEXANDER COUNTY, ILLINOIS

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An archaeological survey of Dogtooth Bend, Alexander County, Illinois, was conducted in June and July 1993. Doogtooth Bend is a large meander loop in the Mississippi River in extreme southwestern Illinois. The survey investigated 848 ha using tightly controlled survey methods. Excellent field conditions resulted in the definition of 93 archaeological sites. Five of the sites were revisits to previously recorded locations. A total of 143 prehistoric components from Middle Archaic to Mississippian was defined at 65 of the sites. Historic occupations were defined at 28 sites. The Mississippian component is dominated by the Dogtooth Bend Mound Center, with several hamlet-sized settlements and farmsteads dispersed from it. The archaeological survey was completed immediately before the great flood of 1993. Field observations made in the aftermath of the flood help to define the dynamic nature of the Dogtooth Bend environment and allows better management of its cultural resources.

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Abstract

An archaeological survey of Dogtooth Bend, in Alexander County, Illinois was conducted in June and July 1993. The project was part of a joint archaeological field school program by Southern Illinois University at Carbondale, Murray State University, Southeast Missouri State University, and Eastern Kentucky University. Dogtooth Bend is a large meander loop in the Mississippi River in extreme southwestern Illinois. The higher, more habitable northern one-third of the bend (1600 ha) was defined as the research area. The survey investigated 848 ha (21.4%) of that area. Tightly controlled survey methods and excellent field conditions resulted in the definition of 93 archaeological sites. Five of the sites were revisits to previously recorded locations. The sites tend to cluster along a prominent ridge (terrace remnant) at the north end of the survey area, and along the area's west and south edges. Sites commonly occur on the low ridges that transect the area. A total of 143 prehistoric components, from Middle Archaic through Mississippian, were defined at 65 of the archaeological sites. Historic periods occupations dating from the midnineteenth to midtwentieth centuries are defined at 28 sites. Prehistoric settlement patterns in Dogtooth Bend indicate only sparse late Middle Archaic occupation of the area, but steady occupation (12-15 sites each) during the Late Archaic and Woodland periods. The Middle Woodland component includes a large site on the area's western periphery. During the Emergent Mississippian period the number of sites increased to 23 and included three large settlements. The Mississippian period witnessed continued settlement expansion to 32 sites, distributed across the landscape of the upper bend. The Mississippian component is dominated by the Dogtooth Bend Mound Center, with several hamlet-sized settlements and farmsteads dispersed from it. The Dogtooth Bend component was a major participant in occupation of the Ohio-Mississippi River confluence region during the Mississippian period. Artifacts from the surveyed prehistoric sites indicate the use of local chert resources, with the addition of some more distant materials, particularly during the Middle Woodland, Emergent Mississippian, and Mississippian periods. The Dogtooth Bend prehistoric ceramic assemblage indicates stylistic affinities to other Confluence-region locales in southeast Missouri and western Kentucky. The archaeological survey occurred immediately before the Great Flood of 1993, which left Dogtooth Bend inundated for a long period of time. Observations made on the effects of the flood and its aftermath on the archaeological sites helps to better understand the dynamic nature of the Dogtooth Bend environment and to better manage its cultural resources.

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Acknowledgments

The 1993 Dogtooth Bend Survey report results from the much appreciated efforts of numerous persons. The field project was undertaken as a cooperative venture among four universities to teach archaeological field methods to students. Thanks go to the Southern Illinois University at Carbondale Department of Anthropology and Center for Archaeological Investigations, Murray State University, Southeast Missouri State University, and Eastern Kentucky University for sponsoring the program. The efforts of the field school staff from each of the universities--Kit Wesler from Murray State, Kelly Carmean from Eastern Kentucky, and Carol Morrow from SEMO--are gratefully acknowledged. Particular thanks go to Kit and his staff at the Wickliffe Mounds Research Center in Wickliffe, Kentucky, where the field school was based and student conducted excavations. Field supervisors, David Hobbs and Gregory Wolff from SIUC, are also thanked for their great assistance. The large, ever enthusiastic group of field school students from the four universities are thanked for their long, hot labors to learn about Dogtooth Bend's past. The students from SIUC were Todd Bieri, Debra Cook, John Harris, Robert Morgan, Derek Pierce, Robert Sadler, Yae Takigawa, and Joseph Ward. Murray State University students were Sam Brocket, Nancy Quinn, Jim Phillips, and Chris Rose. Students from SEMO were Kelly Chakov, Barbara Coble, Brennan Farrar, Andrew Ketcherside, Kim Klatt, Jon Sheperd, and Joe Stein. Students from Eastern Kentucky University were John Dean, William Hill, Valerie Hines, Stewart Jones, Lynn Ledford, and Jeff Rogers.

The survey report was made possible by funding from the St. Louis District of the U.S. Army Corps of Engineers. The agency's staff is heartily thanked for that support. In particular, I thank James Carucci for conceiving of the report as a Corps project and recognizing the applicability of the Dogtooth Bend data to the Corps' cultural resource management program. Although, the field work was not apart of a CRM project, the Corps has shown the mutual benefits that can come to long-term research and CRM from cooperative efforts of researchers and agencies.

The field investigations were made possible through the cooperation and support of several landowners and their families who cheerfully allowed the field crews to walk their land. In particular, I thank Charles Bonifield, Forrest Ice, Eldora Ogborn, Darlyne Pearman, Jerry Pecord, Bill Volner, Kenneth Willis, and James Wissinger, for allowing us access to their fields. In addition, much thanks and appreciation go to Eugene Willis, lifelong resident and knowledgeable artifact collector from Dogtooth Bend. Our many discussions about local archaeology and history have been very helpful and pleasant. I hope my research will add to Gene's great knowledge and love of the bend's prehistory.

The Dogtooth Bend project and report are also made possible through the continued assistance of the Center for Archaeological Investigations staff, who are hereby thanked for their fine efforts. Thomas Prang did the chert debitage and informal chert tool analyses. Laura Ruggiero and Kim Brunke input data on the site forms. Thomas Gatlin produced some of the maps. Brenda Blythe did the word processing and final report preparation. Carolyn Taylor did the financial management. Brian Butler, as always, gave continued valued support.

Finally, I thank Jon and Karen for their continued support during the field work and report preparation.

1 Introduction

An archaeological survey was conducted in 1993 at Dogtooth Bend, a portion of the Mississippi River floodplain in Alexander County, Illinois. The survey was undertaken as part of a cooperative field school in archaeology offered by four universities. Systematic survey of portions of the floodplain in Dogtooth Bend resulted in the definition of 88 new archaeological sites and the revisit to 5 previously known locations. The following discussions report on the survey results, with particular attention to the relationship of archaeological sites to the landscape and changes in settlement patterns through time. The data and patterns lend themselves particularly well to the U.S. Army Corps of Engineers' Mississippi River floodplain management planning program.

The Dogtooth Bend Survey was conducted as part of a cooperative field school in archaeology offered by Southern Illinois University at Carbondale, Southeast Missouri State University, Murray State University, and Eastern Kentucky University. The field school was held for six weeks between 2 June and 9 July 1993. The survey of Dogtooth Bend, under the direction of Jeanette Stephens, was part of the field training program for the students. Other portions of the program involved training in archaeological excavation at Wickliffe Mounds Research Center at Wickliffe, Kentucky, under the direction of Dr. Kit Wesler.

Dogtooth Bend is a large meander loop of the Mississippi River located 22 km (14 miles) upstream from the confluence of the Ohio and Mississippi Rivers at Cairo, Illinois (Figure 1-1). The bend was selected for the archaeological survey because of its prominent bottomland location in the key confluence region. An important site, the Dogtooth Bend Mound Center (11-Ax-31, 24D3-13), which is listed on the National Register of Historic Places, is located in the bend. The site had several mounds and would have served as the political and ceremonial center for its surrounding settlement system. Although listed on the National Register, little was known about the site or about the other twelve sites that had been previously recorded in the bend. The Dogtooth Bend Survey was designed to obtain a broad sample of site date from across the area in order to investigate settlement patterns in the bend through time. A total of 93 sites were investigated in the survey, including 88 newly recorded ones. Prehistoric cultural components range from the late Middle Archaic (ca. 3700 B.C.) through the Mississippian (A.D. 1500) periods. Historic components are midnineteenth to midtwentieth century occupations.

Shortly after the completion of the archaeological survey, Dogtooth Bend and adjacent areas to the north were completely inundated by water from the Mississippi River flood of 1993. The recorded archaeological sites were covered by water for

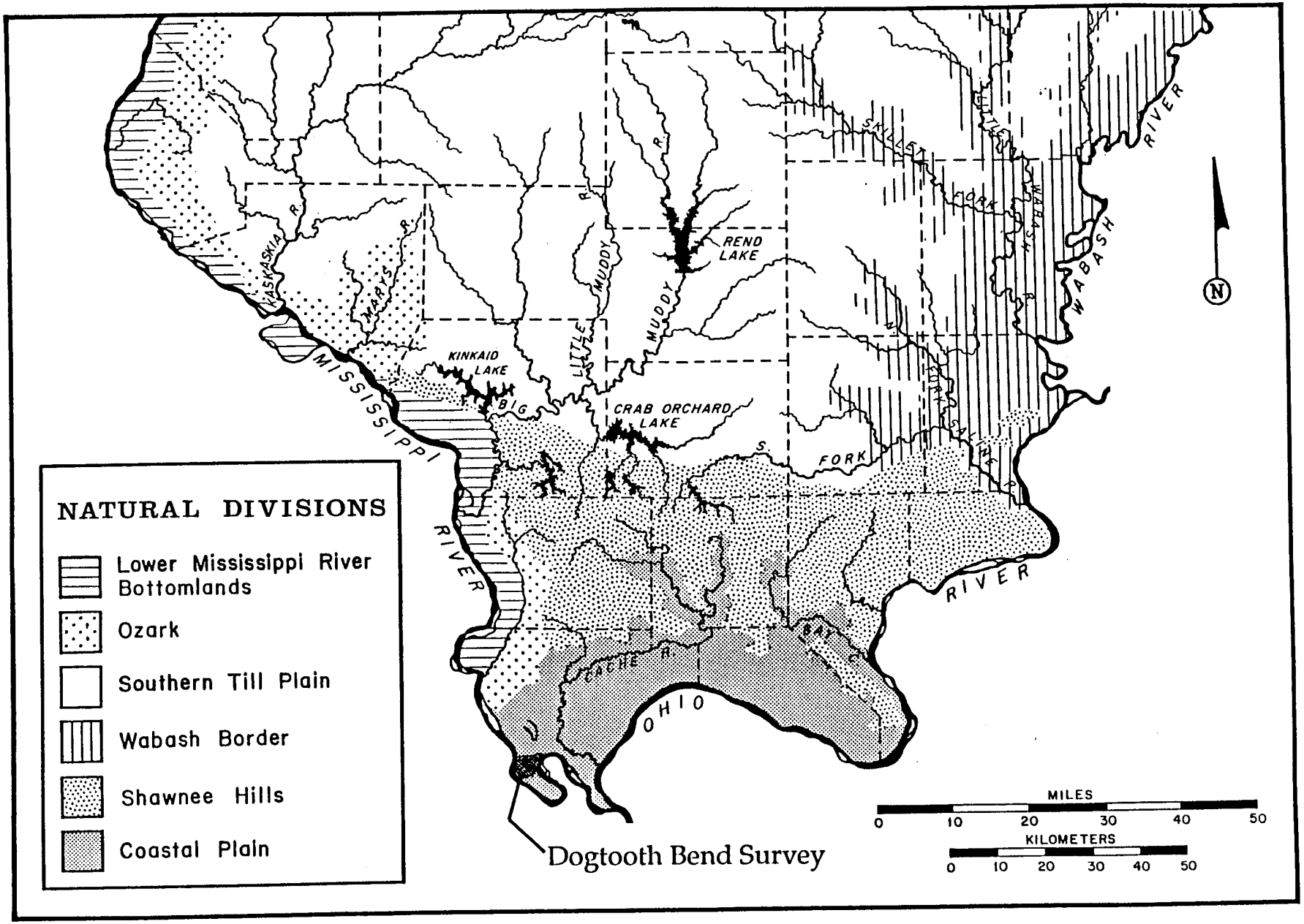


Figure 1-1. Dogtooth Bend Survey location.

extended periods of time and were subjected variously to saturation, erosion, or soil deposition associated with that catastrophic series of events. Subsequently, the bend was flooded again in spring 1994 and 1995, but not as dramatically. As a result, the Dogtooth Bend Survey data represent an unusual opportunity to examine an archaeological data base collected systematically from the floodplain immediately prior to the devastating 1993 flood, and review that base in relation to the flooding process.

The results of the archaeological survey of Dogtooth Bend are discussed in detail in the following chapters. Chapter 2 presents the environmental and cultural background to the Dogtooth Bend region. Chapter 3 discusses the project's research design, field methods used in the survey, and laboratory procedures employed in data analysis. Chapter 4 provides detailed descriptions of the 93 archaeological sites investigated in the survey. Chapter 5 presents the synthesized results of the survey, including aspects of survey coverage and site spatial density, the nature of the artifact assemblages, prehistoric settlement patterns, and cultural resource management concerns. Appendix A gives specific site locational information. That information is restricted in distributed versions of the report.

2 Environmental and Cultural Background

Environmental Setting

Dogtooth Bend is located on a narrow, extended meander loop on the east bank of the Mississippi River in the middle Mississippi River valley in extreme southwestern Illinois. The bend occurs between river miles 14 and 34 as measured from the confluence point of the Ohio and Mississippi Rivers at Cairo, Illinois (river mile 0). It is situated at the northern end of a broad expanse of floodplain that characterizes the lower Mississippi River Valley in southeast Missouri immediately across the channel from the bend and for extensive distances to the south.

Climate

The climate of the Dogtooth Bend region in Mississippi Valley is relatively mild and humid, like that to the south in the lower Mississippi Valley. The mean annual temperature is 60.1° F (15.6° C), with a mean of 37.6° F (3.1° C) for January, the coldest month, and 81.0° F (27.2° C) for July the warmest month. Average annual precipitation is slightly more than 1.14 m (45 inches). Precipitation is fairly uniformly distributed throughout the year; however, January and March are the wettest months and July is the driest (Cooperative Wildlife Research Laboratory 1985:16; Parks and Fehrenbacher 1968:117). The average number of frost-free days is approximately 208 days (Webb et al. 1989:3). The mild climate provides for a relatively long growing season, which may have been a contributing factor in prehistoric occupation of the region, particularly by later prehistoric groups who practiced horticulture.

Geomorphology

Dogtooth Bend is situated geologically at the northern edge the Mississippi Embayment, a long, broad syncline (Embayment Syncline) that dips from extreme southern Illinois to the Gulf of Mexico (Ross 1963). The embayment forms the surface bedrock of the lower Mississippi River valley. Deposits associated with the embayment are of Cretaceous and Tertiary age. Portions of older Ordovician, Silurian, Devonian, and Mississippian strata outcrop as upland hill formations at the northern boundary of

the embayment, beginning just 9 km to the north of Dogtooth Bend (Pryor and Ross 1962).

The Cretaceous and Tertiary bedrock materials of the Mississippi Embayment are overlain by Pleistocene alluvial deposits of the Mississippi River valley. The valley fill material consists primarily of sand and gravel beds that continue to considerable depth below the surface. Geological coring samples taken from a well in Dogtooth Bend, for example, indicate a succession of alluvial sand, silt, and gravel deposits to a depth of 67 m (205 feet) below the surface (Pryor and Ross 1962:31).

The geomorphology of the Mississippi floodplain reflects a complex history of fluvial processes and land modification. Dogtooth Bend is situated within the "meander belt" zone of the river valley (Fisk 1944), through which the active river channel migrates laterally back and forth in its downstream course. Within that zone, individual meanders tend to migrate downstream through the aggregation of soil deposits on their convex banks and at point bars at their heads, and through the attendant erosion of their concave banks. The velocity of discharge around a meander is fastest along the concave side which causes the undercutting of the bank. The differential velocity along the curve exaggerates the erosional and depositional processes and eventually results in a shift in the channel's course to reduce that energy differential (Leopold et al. 1964). The channel cuts a more efficient course by cutting off the meander loop through a cutoff chute at its neck, forming an oxbow lake from the meander remnant (Simons et al. 1974). Thus, the stream channel moves gradually across the landscape forming the meander belt in its wake (Lewis 1974:12; Saucier 1974:27).

The Mississippi Valley has an extensive history of such meander belt development from the Pleistocene through modern times. A prominent feature of the floodplain landscape near Dogtooth Bend is Horseshoe Lake, an oxbow lake believed to have formed sometime between 8000–3000 B.C., based on archaeological evidence (Knight et al. 1992). In the catastrophic flood of 1993 the Mississippi River began the process of meander cutoff of Dogtooth Bend, itself. The cutoff chute which formed at a break in the Fayville levee at the northwest edge of the bend, scoured a new channel 2.4 km (1.5 mi) long, 0.4 km (.25 mi) wide, and 27 m (90 feet) deep at its source. Had the velocity of the floodwaters persisted, Dogtooth Bend would have become an oxbow lake.

The Dogtooth Bend meander loop is 32 river km long (from river miles 14 to 34), between 3–6.5 km wide, and a 12 km-long land mass. It encompasses 40 km^2 of floodplain land (Stephens 1993). In historic times, the bend has been aggrading on the west and southeast and eroding on the northeast side (Figure 2-1). Since the early nineteenth century, over 9 km^2 of land have been added to the bend in a progression of point bars and meander scrolls. That progression appears to be the continuation of a process that was probably in place during late prehistoric times, at least. Its development has important implications for the prehistoric occupation of the landscape and the archaeological discovery of prehistoric sites there. Older portions of the bend are apparently at least 6000 years old, based on archaeological evidence obtained in the 1993 site survey. The landform at the northern end of the bend is the extension of a

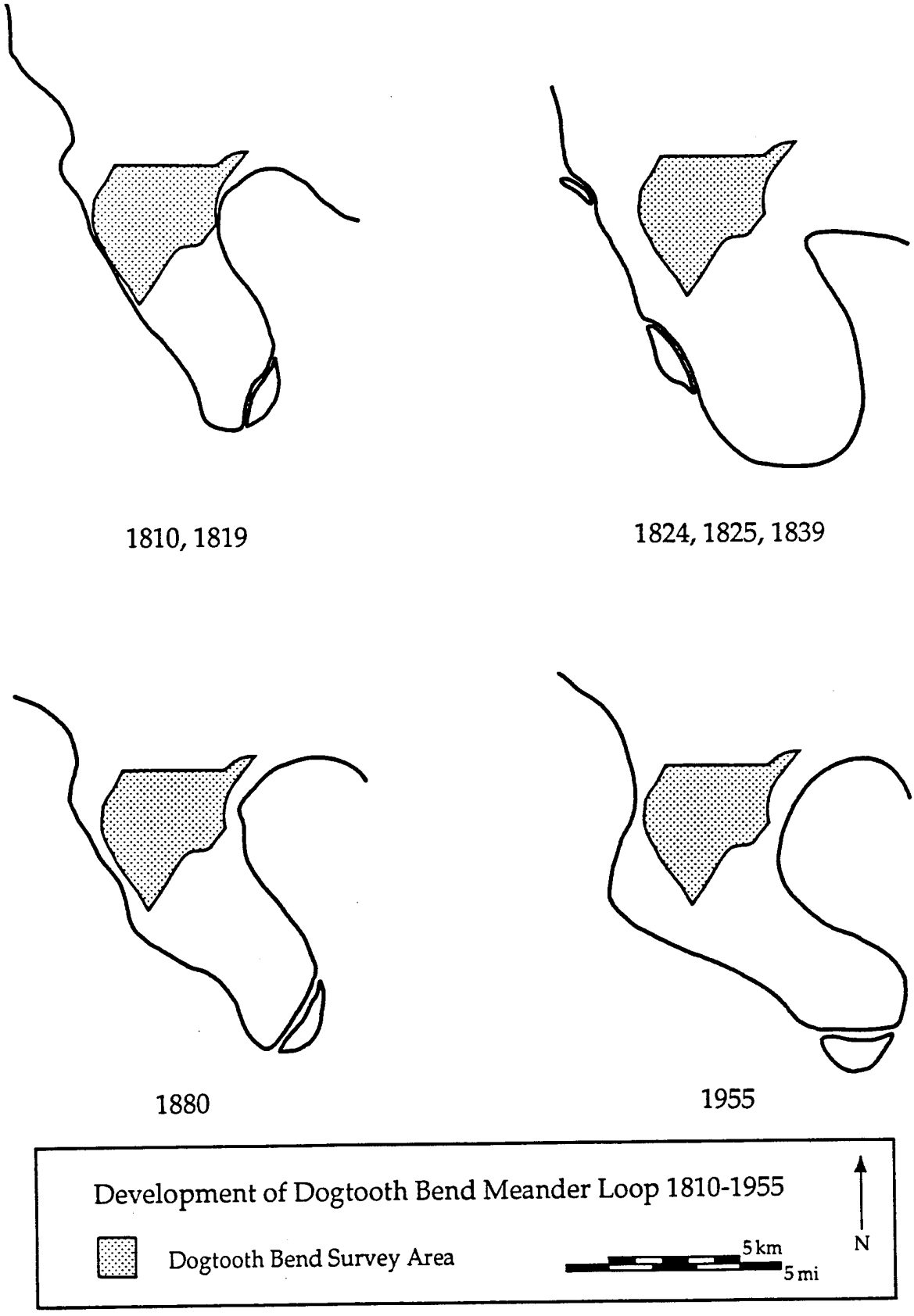


Figure 2-1. Development of the Dogtooth Bend meander loop between 1810-1955.

terrace of Wisconsin Pleistocene age that is associated with the Cache River valley to the immediate north of the bend (Alexander and Prior 1968).

The Dogtooth Bend land mass consists of low, flat terrain which may be divided into several local topographic features. The central part of the northern one-third of the bend is distinguished by a triangular-shaped area of relatively high ground which contains a succession of shallow east-west trending terrace and bottomland zones (Figure 2-2). That area represents the older portion of the bend's land mass. Because it is the most prominent landscape feature and most habitable land within the bend, it was the area defined for the 1993 Dogtooth Bend Survey. In discussions in this report the area in question is referred to simply as the "high ground" and it conforms to the designated survey area.

In geomorphological terms, the high ground as a whole is a remnant terrace feature which has undergone modification from subsequent floodplain activity. In more specific terms, the northern end of the high ground consists of a low terrace feature approximately 2 km wide and some 2 m high which extends east-west across the neck of the bend. The terrace, observed as a large ridge, is the most prominent feature on the local landscape. Current habitation of the bend is concentrated along the road (the Miller City blacktop) that runs its length. South of the terrace, the high ground is dissected by a 1–2 km-wide zone of relatively flat, lightly dissected floodplain, followed by another .5–2 km-wide zone of low terrace deposits. The latter terrace areas rise only 1.5 m or less above the surrounding terrain. Immediately south of the low terrace on the southwest side of the high ground, another stretch of bottomland soils occur. In much of the area, the terrace and floodplain zones are interlaced with one another rather than being monolithic features.

The high-ground landscape is dissected by a system of low, narrow ridges and adjacent swales that vary the topography further within the individual terrace or floodplain zones. The ridges occur in parallel bands trending east-west or northwest-south across the landscape. Many of the ridges are composed of thick sand deposits, although silts and dark clay soils may be interbedded with them. The ridges are generally less than 1 m-high. Swales occur as linear bands of low terrain that run parallel to the ridges. The swales contain dark silty clay and clay soils associated with deposition under slow-moving or still water. Ridges and swales are produced by drainage runoff and associated soil deposition that, at times, can be quite forceful. As seen in recent flooding episodes, the ridge and swale system is a dynamic aspect of the floodplain landscape that can change the latter's character rapidly and dramatically.

The high ground is separated distinctly from the lower two-thirds of the bend by a steep 3 m-high escarpment that trends northeast-southwest across the width of the bend. A former river chute, Lake Milligan, occurs as a narrow body of water at the edge of the escarpment on the eastern side of the bend. The land mass south of the escarpment is low and flat, and is characterized by more recent alluvial deposits. It is often subject to annual flooding from the river. That portion of the bend exhibits a series of meander scrolls from progressive point bar development.

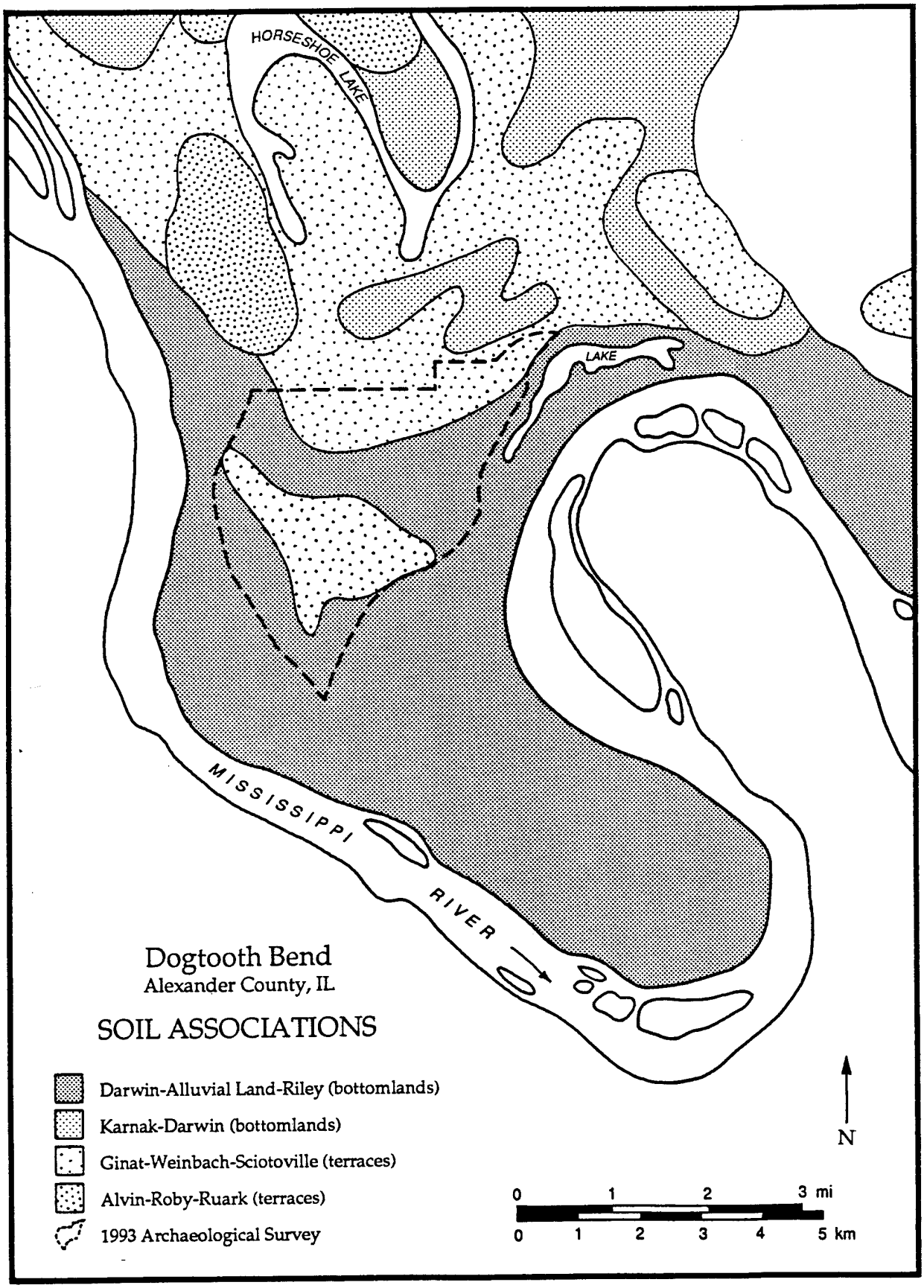


Figure 2-2. Soil Associations in the Dogtooth Bend area.

The geomorphology of Dogtooth Bend thus exhibits portions of older floodplain topography dissected and added-to by more recent fluvial events. In particular, the terrace zones in the upper bend represent an older landform that has been dissected by more recent fluvial activity. Current patterns of frequent flooding continue that process. The escarpment denotes a major geomorphological event in the history of the bend in which the land mass was heavily scoured in a northeast-southwest direction. That activity is believed to have occurred sometime before (probably well before) A.D. 1000, based on the presence of the Dogtooth Bend Mound Center along its bank. South of the escarpment the aggrading land mass continues to develop. To the west, southwest, and southeast of the high ground in the upper bend, sediments are currently being deposited by the active channel of the river; while on the east the channel is eroding the bank of the bend.

The high ground in the northern one-third of Dogtooth Bend is thus circumscribed by lower areas to the north (Horseshoe Lake and adjacent backwater areas), northeast (mouth of the Cache River valley and associated wetlands), south by the bottomlands of the lower bend, and east and west by the Mississippi River itself. Until modern land clearing and drainage those surrounding low areas would have been swampy, nearly uninhabitable wetlands. Within that low riverine environment, the upper bend area thus stands out as a prominent land mass for prehistoric and historic-period habitation.

Physiographic Setting

Physiographically, Dogtooth Bend is located in the Bottomlands Section of the Coastal Plain Division of Illinois (Figure 1-1), the northernmost part of the Gulf Coastal Plain Province of North America (Leighton, Ekblaw and Horberg 1948; Schwegman 1973:28). The Gulf Coastal Plain corresponds geologically to the Mississippi Embayment syncline. The Bottomlands Section of the Coastal Plain consists of broad floodplains, terraces, and meander scars which occur at the confluence of the Ohio and Mississippi Rivers and the nearby Cache River in extreme southwestern Illinois. The region is characterized by low, flat relief and low elevation (91–100 m, 300–330 ft. ASL). Floodplain topography consists of a series of shallow ridges and swales, which prior to modern land modification, contained alternating bottomland oak-hickory forests on the higher ground and cypress-tupelo swamps in the swales.

The Dogtooth Bend area of the Coastal Plain Bottomlands Section is bordered on the north and east by rugged terrain of several hill systems. To the northeast, are the rolling hills of the Cretaceous Hills Section, characterized by unconsolidated Cretaceous and Tertiary sediments (Schwegman 1973:29). The steep Shawnee Hills occur some 30 km to the north and east of the bend, and served prehistorically as source areas for chert and other upland resources. To the immediate north, a narrow portion of the Ozarks Section borders the Mississippi River valley. It is characterized by steep bluffs and rugged hilly terrain, and represents an extension of the broader Ozarks region to the west of the river in Missouri.

Soils

Soils found at Dogtooth Bend are those associated with bottomlands and terrace landforms in the Bottomlands Section of the Coastal Plain. Individual soil types are grouped within four soil associations: Darwin-Alluvial Land-Riley, Karnak-Darwin, Ginat-Weinbach-Sciotoville, and Alvin-Roby-Ruark. The characteristics of individual soil types within those associations is presented in Table 2-1. Darwin-Alluvial Land-Riley soils cover much of the floodplain of the Coastal Plain Bottomlands Section, including most of Dogtooth Bend. In general, that association is characterized by "moderately dark colored, generally moderately fine textured, somewhat poorly drained, nearly neutral soils on bottom lands; underlain in many places by sandy strata" (Parks and Fehrenbacher 1968:6). The terrain associated with that soil group is typically level to undulating and is dissected in many places by remnants of sloughs, stream channels and natural levees. A less prominent soil in the northern vicinity of the bend is Karnak-Darwin, which is a light or moderately dark colored, fine textured, generally poorly drained bottomland material (Parks and Fehrenbacher 1968:6).

Two other soil associations present in Dogtooth Bend are related to terraces. Those of the Ginat-Weinbach-Sciotoville association are characterized as "deep soils that have a moderately fine textured or fine textured subsoil and a medium-textured or moderately fine textured substratum; [located on] level to sloping stream terraces" (Parks and Fehrenbacher 1967:5). Alvin-Roby-Ruark soils are "deep, loamy soils that generally have a moderately fine textured subsoil and a coarse-textured to fine-textured substratum; [located on] level to sloping stream terraces" (Parks and Fehrenbacher 1968:5). Both of the terrace-related soil associations occur on narrow, flat, low terraces intermingled with bottomland soils and may form steep slopes at those junctions. In the Dogtooth Bend survey area, the terrace soils occur as narrow ridges that are only slightly higher (less than two meters) than adjacent bottomland areas.

Biotic Setting

The premodern biotic community of the Bottomlands physiographic region was dominated by bottomland forests, including several plant species associated with the southern climate of the Gulf Coastal Plain. Schwegman (1973:29) indicates that in the better drained soils, the forests included "Shumard oak, cherrybark oak, swamp white oak, swamp chestnut oak, pin oak, overcup oak, kingnut hickory, shagbark hickory, bitternut hickory, ashes, sweetgum, blackgum, honey locust, sugarberry, pecan, wild black cherry, and catalpa." Beach, tuliptree, and cucumbertree occurred on better drained bottomland soils. On the heavier terrace soils, pin oak predominated, along with post oak, and willow oak. Silver maple and American elm occurred along stream courses. Bottomland swamps contained bald cypress, tupelo gum, swamp cottonwood, Drummond's red maple, water locust, pumpkin ash, and overcup oak.

The diverse environment of the Bottomlands section provided extensive habitats for terrestrial and aquatic fauna before historic period settlement (Schwegman 1973:29). Species included white-tailed deer, eastern cottontail rabbit, swamp rabbit, gray and fox

Table 2-1. Dogtooth Bend Soil Characteristics

Soil Type	Soil Texture	Soil Slopes (%)	Soil Drainage	Soil Locations	No. Sites
Bottomland Soils: Darwin-Alluvial Land-Riley Association					
Cairo	silty clay	0-4%	poorly drained	gently sloping ridges, level areas, sloughs	21
Darwin	silty clay	0-2%	poorly drained, very poorly drained	broad level areas, depressions, old sloughs	3
Darwin	silty clay loam	0-4%	poorly drained, very poorly drained	broad, level, or nearly level areas	10
Dupo	silt loam	0-1%	somewhat poorly drained	drainageways	11
Gorham	silty clay loam	0-2%	somewhat poorly drained, poorly drained	level areas, slightly undulating ridges on bottom lands	12
Landes	fine sandy loam	2-6%	well-drained	narrow ridges, old natural levees on bottom lands	2
Riley	silty clay loam	2-4%	somewhat poorly drained	short slopes, undulating bottom lands	4
Ware	silt loam	0-2%	moderately well drained, well drained	level areas, low narrow ridges	1
Bottomland Soils: Karnak-Darwin Association					
Karnak	silty clay	0-1%	very poorly drained	broad level areas, long narrow depressions in sloughs	2
Terrace Soils: Ginat-Weinbach-Sciotoville Association					
Alvin	fine sandy loam	0-7%	well drained, moderately well drained	level areas, low narrow ridges, short slopes of terraces	4
Alvin (thick)	fine sandy loam	0-1%	well-drained	low terraces	2
Cape & Karnak	silty clay loams	0-4%	poorly drained, very poorly drained	broad level, nearly level areas	1
Disco	fine sandy loam	0-4%	well-drained	level, gently sloping low terraces	8
Harvard	silt loam	0-2%	moderately well-drained, well drained	nearly level, very gently sloping low terraces	6
Hurst	silt loam	0-4%	somewhat poorly drained	level areas, short side slopes of terraces	3
Millbrook	silt loam	0-2%	somewhat poorly drained	level areas,depressions on low terraces	20
Terrace Soils: Alvin-Roby-Ruark Association					
Lamont	fine sandy loam	0-7%	well-drained	level areas, low ridges of terraces	5

squirrel, opossum, red and gray fox, beaver, raccoon, muskrat, mink, and wild turkey (Terpening et al. 1974; Webb et al. 1989:8). Several species of ducks, Canada goose, and other waterfowl were available seasonally. The extensive aquatic environments also supported numerous species of fish including gar, shiner, buffalo, catfish, bass, sunfish, and drum (Webb et al. 1989:8). Numerous reptiles, amphibians, and invertebrate resources occurred as well, including a variety of turtles, the western cottonmouth snake, green water snake, green treefrog, mole salamander, and several mussel species (Cooperative Wildlife Research Laboratory 1985; Schwegman 1973:29).

Culture-Historical Setting

Dogtooth Bend lies at the edge of several cultural areas defined for surrounding regions. Since it is located within the political boundaries of Illinois, the limited archaeological work that has been done in the area has tended to define prehistoric cultural sequences in terms of those found elsewhere in interior southern Illinois. Many aspects of prehistoric cultural patterns in the bend area do, indeed, appear to fit those sequences. The location of Dogtooth Bend within the Mississippi Valley draws comparisons to similar cultural systems located elsewhere in the valley: to the near north in Union and Jackson Counties, Illinois, and to the American Bottom in the St. Louis vicinity. But, the bend's location on the northern edge of the Gulf Coastal Plain and lower Mississippi Valley suggest strong prehistoric cultural affinities with regions to the south rather than the north.

The cultural sequence in the research area relates in most cases to what is referred to as the Central Mississippi Valley in archaeological contexts. The prehistoric sequence extends from 10,000 B.C. to A.D. 1500, and is divided into four broad periods: Paleoindian, Archaic (Early, Middle, and Late), Woodland (Early, Middle, Late), and Mississippian (Emergent and full Mississippian). Each period is defined on the basis of diagnostic artifactual remains and settlement patterns that reflect changes in social, economic, and political organization as groups adapted in different ways to their environments through time. The historic Euro-American period dates from circa A.D. 1600 to the present and involves the large-scale transformation of the social and physical environment brought on by modern society.

Paleoindian Period (10,000–8000 B.C.)

The Paleoindian period is the earliest known period of human occupation in the New World. Paleoindian adaptation consisted of small, highly mobile bands of people who hunted and foraged in terminal Pleistocene environments. Part of their adaptive strategy involved the exploitation of Pleistocene megafauna, which were abundant in the central Mississippi Valley, but generalized foraging was also important (Meltzer and Smith 1986; Morse and Morse 1983). In southern Illinois and the central Mississippi

Valley, Paleoindian occupations are nearly always identified from surface finds, usually of isolated hafted bifaces (projectile points). Paleoindian bifaces, typified by the Clovis style, are finely made and exhibit distinctive fluting at the proximal (base) end. Sites often occur on the bluffs and terraces of major drainages. Other sites may be buried under more recent alluvium.

Archaic Period (8000 –600 B.C.)

The Archaic Period was the time of initial and increasingly effective adaptation to Holocene environments. Generalized settlement-subsistence patterns involved hunting and foraging by mobile or semimobile groups. Patterns of resource exploitation became more efficient and specialized throughout the period. The Archaic period is divided into three temporal subdivisions, Early Archaic, Middle Archaic, and Late Archaic based on differences in settlement-subsistence patterns and technology. In addition, a transitional Paleoindian-Archaic period, called Dalton, is included here with the Archaic discussion.

Dalton (8500 –7900 B.C.)

The Dalton horizon is transitional between Paleoindian and Archaic. It is considered with the latter here due to the nature of its settlement-subsistence pattern and relatively diverse technology. Dalton sites occur primarily in upland ridge and old river terrace locations, along with some rockshelters (Webb et al. 1989). Five Dalton sites were recently excavated in the Mississippi Valley in Alexander County, Illinois, 15 km north of Dogtooth Bend (Webb et. al. 1989) and a major Dalton and a major Dalton occupation occurs at the Olive Branch site near them. A Dalton component was also defined at the Modoc Rock Shelter in Randolph County (Styles et al. 1983). The Dalton settlement pattern involved a strategy of residential mobility in pursuit of diverse modern fauna and flora (Ahler 1984; Schiffer 1975; Styles et. al 1983; Webb et al. 1989). Dalton components are often defined on the basis of diagnostic lanceolate points/knives with markedly concave bases. These hafted bifaces often exhibit beveled, serrated edges due to resharpening. Other distinctive artifacts include endscrapers and chipped-stone adzes.

Early Archaic (8000–5000 B.C.)

The Early Archaic was a period of adaptational adjustment to modern (Holocene) environments that continued from the preceding Dalton period. Early Archaic sites are known primarily from surface finds of hafted bifaces, although buried components have been excavated at Modoc Rockshelter in the Mississippi Valley in southern Illinois (Ahler 1993; Styles et al. 1983) and the Koster site in the lower Illinois Valley (Brown and Vierra 1983). Early Archaic subsistence-settlement strategies are believed to have entailed the movement of small groups in generalized foraging pursuits. In southeast Missouri and elsewhere, sites are often small occupations located on high ground overlooking old river channels or streams (Chapman 1980). Early Archaic tool

technology is characterized by several kinds of finely made corner-notched hafted bifaces including Hardin Barbed, Kirk Corner Notched, St. Charles, and Thebes types.

Middle Archaic (5000–3000 B.C.)

The Middle Archaic occurred during the Hypsithermal climatic period, a drier and warmer time during which deciduous forests were replaced by prairies in many areas. Upland prairies were relatively less productive environments, and Middle Archaic sites were often concentrated in river valleys, particularly near swamps and marshes (Robison and Butler 1981:16). The settlement pattern is one of localized adaptation with relatively larger groups of people aggregated into certain settlements for prolonged periods. The Faulkner complex in the Black Bottom of the lower Ohio Valley is an example of such a riverine-focused adaptation (Muller 1986). Substantial Middle Archaic components have been excavated at the Black Earth site in the Carrier Mills Archaeological District (Jefferies and Butler 1982) and the West Harrisburg sites (Hargrave and Butler 1994) in interior southern Illinois, at Modoc Rockshelter in the Mississippi Valley (Ahler 1993), and at Koster and Napoleon Hollow in the lower Illinois Valley (Wiant et al. 1983). Those excavations indicate intensive, possibly year-round occupation of the sites, and the exploitation of nuts and deer as well as a focus on locally available seeds, fruits, fish, mussels, and mammals (Jefferies 1982). Middle Archaic tool technology is distinguished by several kinds of hafted bifaces and scrapers, grooved axes, bell pestles, and stone pendants (Webb et al. 1989). An early Middle Archaic biface was the Hidden Valley Stemmed form, followed slightly later by side-notched Godar and Faulkner varieties. The late Middle Archaic is distinguished by the side-notched Matanzas biface form (Justice 1987, May 1982).

Late Archaic (3000–600 B.C.)

The Late Archaic was a period of increasing adaptational efficiency, particularly in relation to local environments. Late Archaic settlements are characteristically more dispersed into the uplands as well as in the floodplains and less intensively occupied than some of the preceding Middle Archaic. Small bands of people were dispersed over a broader landscape, and increased population resulted in the reduction of individual territories, (Muller 1986). With reduced mobility, groups concentrated on local adaptations, such as that characteristic of the Wabash Valley Late Archaic (Winters 1967, 1969). Late Archaic components have been excavated at Modoc Rockshelter, Koster, and Napoleon Hollow, and at several sites in the American Bottom (McElrath et al. 1984). Among the latter, Late Archaic occupations are rather extensive, particularly on the higher, more stable landforms in the floodplain (Fortier et al. 1984). Late Archaic also witnessed the development of long-distance trade networks and some degree of social differentiation, although based on achieved rather than ascribed status (Muller 1986:68). An important Late Archaic development was the beginning of plant domestication, begun in some areas during the Middle Archaic, with squash, maygrass, sunflower, and sumpweed being cultivated (Webb et al 1989). Late Archaic components have diverse lithic tool technologies including Etley, Ledbetter, Karnak, and Saratoga stemmed bifaces; Sedalia and Wadlow points/knives; hafted drills; endscrapers; and

grooved axes. The Saratoga biface cluster (Saratoga Broad Bladed, Straight Stemmed, and Expanding Stem) also persisted into the subsequent Early Woodland period (Justice 1987, May 1982).

Woodland Period (600 B.C. to A.D. 800)

The Woodland period is distinguished from the preceding Archaic by changes in economic, social, and technological organization. These include increased emphasis on horticulture, construction of burial mounds, and the introduction of ceramics into the technology. The period is subdivided into three temporal units, Early Woodland, Middle Woodland, and Late Woodland.

Early Woodland (600 to 200 B.C.)

The Early Woodland period witnessed the introduction of ceramics, while lithic technology in many ways persisted from the Late Archaic . It was also a period of change in settlement patterns in and around southern Illinois, with more concentration on the floodplains of the major rivers than in the more dispersed Late Archaic pattern. In the American Bottom, the Early Woodland Marion phase is characterized by relatively small occupations with limited artifact assemblages, often located along low marshes, lake edges, or swales (Fortier et al. 1984). Early Woodland in southeast Missouri and the central Mississippi Valley is referred to as the Tchula period, with sites such as Burkett and Weems located on major floodplain ridges (Chapman 1980). In the Black Bottom, the Baumer complex is characterized by relatively large sites concentrated along bottomland ridges adjacent to sloughs (Muller 1986). Baumer continues into the Middle Woodland period, however, and its early expressions are difficult to distinguish. In interior southern Illinois, Early Woodland is defined as the early Crab Orchard period, which also persists into the later Crab Orchard. The Early Woodland subsistence system is not well defined in southern Illinois, although horticultural activity, including the cultivation of squash, likely continued. In other parts of the midwest and central Mississippi Valley, sunflower, goosefoot, maygrass, and sumpweed were apparently cultivated (Smith 1987, Webb et al. 1989). With increased attempts at horticulture came the trend toward sedentism, as the requirements of food production restricted options for residential mobility. Hunting and foraging a broad range of species did persist, however, with particular emphasis on deer and nuts.

The introduction of ceramics was an important technological development, facilitating new techniques of food preparation and the exploitation of new resources. Several regional ceramic styles developed in the Early Woodland period. Pottery first appeared in southern Illinois circa 600 B.C. Early forms are defined as Sugar Camp Hill Cordmarked and thick Crab Orchard Fabric Marked materials and are distinguished as thick walled, semiconoidal vessels with coarse grit temper and cordmarked or fabricmarked exterior surfaces (Hargrave 1994; Maxwell 1951; Stephens 1975). The

ceramics are very similar to those of the early Middle Woodland period and are distinguished primarily as more poorly made, thicker specimens (Butler and Jefferies 1986). Ceramics of the Baumer tradition in the lower Ohio Valley are very much like Crab Orchard Fabric Marked except that Baumer specimens tend to have limestone and/or grog temper rather than grit. The degree of valid differences between the two ceramic complexes is debatable (Muller 1986:94, 95). In the American Bottom region, Early Woodland Marion Thick ceramics have coarse grit-temper and cordmarked exterior and interior walls (Fortier et al. 1984). Tchula ceramics in the Cairo Lowland of southeast Missouri are characterized by grog temper, and plain, decorated, or cordmarked surfaces (Morse and Morse 1983).

Early Woodland lithic technology continued from that of the Late Archaic period. Several hafted biface styles, particularly Saratoga types, were still in use in southern Illinois. In addition, Cypress Stemmed, Kramer, and Motley points, and several contracting stemmed varieties (Adena, Cypress Constricting Stem, and Dickson Contracting Stem) occurred.

Middle Woodland (200 B.C. to A.D. 400)

In much of the Midwest, Middle Woodland is characterized by the intensification of earlier patterns of mortuary ceremonialism, long-distance exchange networks, greater social differentiation, increases in horticulture, and elaboration of ceramic styles (Webb et al. 1989). In some areas, especially in west-central Illinois and Ohio, regional centers developed that facilitated interregional exchange and ceremonialism associated with the Hopewellian Interaction Sphere (Caldwell 1964; Struever 1964). One such mound center was the Twenhafel site in the Mississippi floodplain in Jackson County, Illinois (Hofman 1980; Struever and Houart 1972). Materials from that site indicate exchange and interaction with Havana groups to the north, as well as a strong relationship to Crab Orchard areas in interior southern Illinois. Smaller mound centers, such as the Hubele and Wilson sites in the Wabash River valley in White County, Illinois are also associated with Hopewellian exchange networks (Neumann and Fowler 1952). In the American Bottom, the Havana-period Holding site also exhibits Hopewellian affiliations (Fortier et al. 1989) The Baumer tradition in the Black Bottom of the lower Ohio Valley was a more limited participant in interregional exchange. The Cairo Lowland region in southeast Missouri exhibits aspects of the Marksville tradition of the lower Mississippi Valley. The relationship of the Ohio-Mississippi River confluence region to surrounding Hopewellian or Marksville traditions is not yet fully defined. Its strategic geographical location at the crossroads of traditions to the north, south, and east suggests possible cultural affinities with any or all of them, and makes it an important locale for addressing aspects of Middle Woodland interregional cultural interaction.

The settlement patterns of Middle Woodland systems located in the Mississippi and lower Ohio Valleys focus on large sites with extended occupations. Smaller, less intensively occupied sites occur as well. Subsistence systems focus on bottomland resources, and horticultural activity becomes intensified. In contrast, the settlement-

subsistence patterns of Crab Orchard systems in interior southern Illinois focus on deciduous forest regions of the Mount Vernon Hill Country and Shawnee Hills. Many of the interior sites are small and represent seasonally occupied settlements inhabited by small groups of people (Denny 1972; McNerney 1975). More intensively occupied sites do occur as well, such as Sugar Camp Hill (Maxwell 1951), Mollie Baker (Hargrave et al. 1992), and the Carrier Mills and West Harrisburg sites (Hargrave and Butler 1994; Jefferies and Butler 1982). Subsistence strategies included hunting and foraging for a wide range of resources, along with an increased emphasis on cultivated seeds in the diet (Jefferies 1982).

Middle Woodland ceramic traditions vary in regions surrounding the Dogtooth Bend research area. In southern Illinois, middle and late Crab Orchard ceramics derive from Early Woodland forms. Crab Orchard Fabric Marked, Cordmarked, or Plain wares consist of large, thick-walled semiconoidal vessels with coarse grit or grit/grog temper and fabricmarked, cordmarked, or occasionally plain surface treatments. Through time, vessels tend to become thinner and better made (Braun 1987; Hargrave 1982). Baumer ceramics from the Black Bottom are essentially identical to Crab Orchard Fabric Marked materials except in having limestone and/or grog temper. Havana and Hopewell ceramics from the American Bottom and Illinois River valley exhibit characteristic thick walls, grit temper, and cordmarked or decorated (stamped, incised, zoned) surface treatment. Ceramics of the La Plant Phase in the Cairo Lowland are sand and grog-tempered and include Hopewellian or Marksville decorated wares (Morse and Morse 1983).

Lithic technology of the period includes corner-notched hafted bifaces (Snyders, Affinis Snyders, and Steuben points), thin lamellar blades, large scrapers, gouges, adzes, and celts. Some of these tools suggest an emphasis on woodworking activities. In addition, a disk core technology was present in southern Illinois which was based on the use of Cobden chert found in Union County, Illinois, 50 km north of the Dogtooth Bend research area, and other southern Illinois cherts (McNerney 1975; Morrow 1988).

Late Woodland (A.D. 400 to 800)

The Late Woodland period is one of decreased interregional exchange, exploitation of a broader food-resource base, apparent population increase, and dispersal into a broader range of environmental zones. Following the decline of Hopewell with its complex exchange systems, ceremonialism, and artistic traditions (e.g., decorated ceramics), the Late Woodland witnessed less complexly structured, although perhaps more broadly based, social systems (Braun 1977; Braun and Plog 1982).

Late Woodland in interior southern Illinois is referred to as the Raymond culture (Maxwell 1951). Raymond sites occur in both upland and bottomland locations and appear to have been occupied by small groups of relatively mobile hunters/gatherers and cultivators. Subsistence data from excavated sites suggest that Raymond groups exploited a broad range of species, probably emphasizing deer, small mammals, fish, and nuts; and cultivated several native plants and possibly maize (Muller 1986; Webb

et al. 1989). Raymond ceramics are cordmarked, grit or grit/grog-tempered, relatively thin, and sometimes decorated with nodes or notches on the lip. Hafted biface technology is characterized by Lowe Flared Base and Raymond Stemmed points. The contemporaneous Lewis culture of the lower Ohio Valley region has similar cultural characteristics to those of Raymond.

The Late Woodland sequence in the American Bottom includes the early Rosewood phase with predominately small settlements and occasional larger sites with large structures, followed by the similar Mund phase, and the subsequent Patrick phase. The latter phase sites, such as Range and Fish Lake, occur primarily on the Mississippi River floodplain or adjacent bluff crests and typically have several small distinctively keyhole-shaped structures (Kelly et al. 1984). The American Bottom Late Woodland subsistence pattern includes a relatively stable mixture of gathered wild plant species including nuts, fruits, berries and tubers, and domesticated squash and marsh elder, with sporadic amounts of maize and sunflower. Faunal resources include some deer and other mammals but emphasis was on aquatic species, especially fish (Kelly et al. 1984:125). The ceramic sequence consists of grit or grog-tempered subconoidal jar forms that are cordmarked or smoothed-over cordmarked with slight decoration to the rim or lip. Bowls also appear in the Patrick phase.

In southeast Missouri, Late Woodland is distinguished as the Baytown period (A.D. 400–700) defined on the basis of Baytown ceramics which include grog-tempered Baytown Plain and Mulberry Creek Cordmarked varieties. The ceramics are associated with the early Hoecake phase in the Cairo Lowland (Morse and Morse 1983; Webb et al. 1989). Hoecake sites occur primarily within the meander belt region of the central Mississippi Valley. A second Baytown ceramic tradition is associated with the Dunklin phase and contains sand tempered Barnes Cordmarked and Barnes Plain varieties (Dunnell and Feathers1991). The Hoecake and Dunklin phases are believed to overlap temporally.

The Late Woodland period in the Mississippi Valley of western Kentucky is divided into the Berkley (A.D. 400-600) and Cane Hill (A.D. 600-900) phases (Kreisa 1987). Baytown Plain and Mulberry Creek Cordmarked ceramics predominate during the two phases, although some shifts in surface treatment and vessel form occur through time. Bottomland settlement patterns in the earlier part of the Late Woodland sequence consist mainly of small sites and a few larger "village-sized" locales. In the later phase, population becomes aggregated into large nodal settlements (e.g., the Rice site) and associated hamlet-sized settlements (Kreisa 1987; Kreisa and Stout 1991).

Mississippian Period (A.D. 800–1500)

The Mississippian period is distinguished as a time of larger and more complexly organized societies than in the Woodland period. Mississippian societies were large by prehistoric standards and were hierarchically structured. Settlement centered on the floodplains of major river valleys and includes a range of sites from large civic-

ceremonial mound centers to hamlets and individual farmsteads. Subsistence was based to a substantial degree on maize horticulture, although native cultigens were also still produced and wild foods were collected. Extensive exchange systems existed within and between societies as well. The technology includes elaborate ceramic forms but a fairly expedient lithic assemblage.

Emergent Mississippian (A.D. 800–1000)

Emergent Mississippian is a transitional period between Late Woodland and the more complexly-structured full Mississippian period. Emergent Mississippian occupations represent a refocus of settlement in the major river valleys, although sites occupy upland settings as well. Floodplain sites include fairly substantial, formal settlements and small farmstead habitations. The changes in settlement patterns reflect apparent increases in population and the beginnings of hierarchical development within the local societies. Subsistence and technological changes occurred, as well, with the full establishment of maize horticulture and more varied ceramic forms.

Emergent Mississippian is represented by the Dillinger phase in southern Illinois (Webb 1992). Dillinger sites occur in the Mississippi Valley from the mouth of the Kaskaskia River to the Ohio-Mississippi confluence and in major interior drainages such as the Cache, Big Muddy, and Saline Rivers (Webb 1992). Dillinger is defined on the basis of a ceramic assemblage with distinctively folded or filleted rims (often with lugs) on cordmarked, grit or grog-tempered, thin walled vessels. A diverse vessel assemblage includes several sizes of globular jars, bowls, and platters (Hargrave et al. 1991; Webb et al. 1989). Lithic technology includes Mounds Stemless, Madison, and Scallorn hafted biface forms used with bow-and-arrow technology, and chert hoe digging implements. The Emergent Mississippian Petitt site, which overlooks the Mississippi River in Alexander County, Illinois, has a subsistence assemblage that includes maize, other cultigens, and wild plant resources, and substantial mammal and fish faunal resources (Webb 1992). An Emergent Mississippian component has also been excavated at the Swimming Snake site (Knight et al. 1992) adjacent to Horseshoe Lake 5.5 km north of the Dogtooth Bend Survey area. Other Emergent Mississippian complexes in the region include Yankeetown and Duffy found in the lower Wabash and Ohio River valleys of southeastern Illinois and southwestern Indiana (Winters 1967), and the Douglas phase in the Black Bottom (Muller 1968).

In the American Bottom, where the concept of the Emergent Mississippian period was originally defined, several local phases have been distinguished (Kelly et al. 1984). Sites in the American Bottom area are distributed in various environmental settings in both the floodplain and uplands. Site sizes range from small farmsteads to densely occupied settlements such as the Range site. Subsistence practices include substantial emphasis on maize horticulture and a focus on aquatic faunal resources. A diverse ceramic technology consists of grit and grog-tempered vessels in the northern American Bottom and limestone-tempered wares in the south (Kelly et al. 1984). Intraregional and interregional exchange also became more established during the period.

In the Cairo Lowland, Emergent Mississippian is represented by the late Baytown period, including the late Hoecake phase. Sites are dispersed within the meander belt and braided stream sections of the bottomland. A range of settlement sizes occur including the large Hoecake and Rich Woods sites (J. Williams 1974; Morse and Morse 1983). Ceramics include predominately grog-tempered Mulberry Creek Cordmarked and Baytown Plain varieties. Cairo Lowland ceramic varieties are similar stylistically and technologically to Dillinger materials. The difference in nomenclature is due in large part to the history of archaeological investigations in the respective southern Illinois and southeastern Missouri areas. Similar ceramic materials were sometimes given different names when distinguished by archaeologists working on different sides of the Mississippi or Ohio Rivers. The Dogtooth Bend area, located physiographically within the Cairo Lowland but in southern Illinois lies at the edge of potentially competing ceramic nomenclatures but not necessarily different traditions. The survey report follows the precedent established for the Petitt site (Webb 1992) and uses the term "Dillinger" for the Emergent Mississippian component in the survey area. It recognizes, however, the potentially close cultural affinities with the Cairo Lowland late Baytown period, and, for example, refers to plain surfaced ceramics in the artifact collection as "Baytown."

Mississippian (A.D. 1000 to 1500)

The Mississippian period is characterized by the development of complexly organized societies with hierarchical sociopolitical organization. Mississippian societies had large populations, elaborate ceremonialism, large-scale mound construction, and extensive interregional trade networks. Their subsistence systems were based considerably on maize production, along with other cultigens (squash, sunflower, and bean) as well as gathered wild resources. Mississippian settlement systems consist of a hierarchy of sites focused on the floodplains of major rivers where the most fertile and arable soils are found. Large mound centers developed in those settings surrounded by smaller hamlets and farmsteads dispersed across the floodplain landscape.

Mississippian period material culture was fairly elaborate, reflecting other aspects of increased social complexity. Ceramic assemblages consisted of well-made shell or shell/grog-tempered pottery in a variety of jar, bowl, plate, and bottle forms. Small triangular Madison or notched Cahokia arrow points were used, as were hoes made of Mill Creek or other chert. Other forms of chipped stone tools were often made expediently as needed. Well-executed ceremonial ornaments and items made of exotic materials were exchanged in long-distance trade networks, along with more mundane goods. Architecture consisted of rectangular wall-trench structures, covered by wattle-and-daub or thatch.

Large Mississippian systems developed in the Mississippi and lower Ohio River valleys. The largest was centered at the Cahokia site in the American Bottom in the Mississippi Valley east of St. Louis, Missouri. Cahokia existed as a dominant system in its locale between A.D. 900–1200, although occupation continued until A.D. 1400. Cahokia is an elaborate site that covers over 10.36 km^2 in the floodplain. It contained

over 100 mounds, the largest of which, Monks Mound, stands over 30 m high. Several other mound centers occur in the American Bottom, as do numerous hamlets and farmsteads. The population for the Bottom is estimated to have been at least 10,000 persons (Muller 1986; Muller and Stephens 1991). Cahokia had an elaborate exchange system with societies to the north and west, and less extensively, to the south (Kelly 1991). Cahokia ceramics included Ramey Incised and Powell Plain jars with distinctively angled shoulders, and later Cahokia Cordmarked, Cahokia Red Filmed jars, and Wells Incised plates occurred as well. Subsistence in American Bottom Missisippian society consists of a mixture of maize and native seed (e.g., goosefoot) horticulture, collected nuts and other wild plants, and aquatic faunal resources, small mammals, and deer (Milner et al. 1984).

Missisippian mound centers also occur south of the American Bottom in southern Illinois, and small-scale Mississippian sites (farmsteads and perhaps hamlets) occur within interior southern Illinois. The Ware and Linn sites are mound centers located in the Mississippi Valley in Union County, some 33 km and 22 km, respectively, north of Dogtooth Bend. Very little archaeological work has been done at those sites, but they are known to each contain several (4–6?) mounds, and no doubt, had a series of smaller outlying settlements associated with them (Cobb 1991; Stephens et al. 1993). The Dillows Ridge site, a densely occupied settlement in the uplands east of Linn, is related to the latter and to the adjacent Mill Creek chert quarries (Cobb and Thomas 1995). Linn may also have been a focal point for the distribution of the widely exchanged Mill Creek chert during the Mississippian period (Cobb 1989).

The Dogtooth Bend site (SIUC 24D3-13; IAS 11-Ax-31) is another Mississippian period mound center. It is located at the south end of the Dogtooth Bend Survey area, and is a dominant occupation there. The site is listed on the National Register of Historic Places in recognition of its significance as a cultural resource. The Dogtooth Bend site covers an estimated 28 ha of land (Stephens 1994a) and is believed to have had mounds. Its ceramic assemblage displays affinities with the Cairo Lowland of southeast Missouri, while its pattern of chert utilization indicates localized resource procurement and relationships with southern Illinois to the north.

A large Mississippian system exists in the Black Bottom of the lower Ohio River valley in southeastern Illinois. It centers around the Kincaid site, a large center (70 ha) with at least 10 mounds (Cole 1951; Muller 1978, 1986). The settlement system includes numerous smaller outlying sites distributed along the ridges in the Bottom. Kincaid society was based on relatively local household economic autonomy but hierarchical control within a broadly integrated sociopolitical system (Muller 86; Muller and Stephens 1991). The Kincaid subsistence system includes the use of maize and native-seed cultigens along with nuts and other wild resources (Muller 1986).

A moderate-sized Mississippian system occurs within 8 km of the Ohio-Mississippi River confluence at Cairo, Illinois, 10 km east of the Dogtooth Bend site. It centers on the Seven Mile site, which has three mounds and is located on a narrow floodplain ridge. Systematic archaeological work has not been done at that site and important location,

but general surface collections indicate that the ceramic assemblage is related to material in nearby southeast Missouri and western Kentucky.

The Mississippian period in the Cairo Lowland of southeast Missouri, across the Mississippi river from Dogtooth Bend, had a series of mound centers (Hunze, Sandy Woods, Hearnes, Crosno, Sikeston, Matthews, Lilbourn, Beckwith's Fort). The extensive floodplain there was heavily populated, but none of the systems dominated the area as, for example, Cahokia or Kincaid did in their respective areas. The mound centers typically are nucleated settlements surrounded by rectangular defensive enclosures (Chapman 1980; Morse and Morse 1983). The centers contain several mounds, as well as plazas, residential areas, and cemeteries. They are located generally on prominent ridges in the meander belt zone of the floodplain and are often adjacent to former river chutes or backwater lakes (Lewis 1974, 1991; Morse and Morse 1983). Systems of outlying hamlets and farmsteads are dispersed on ridges near the mound centers (Lewis 1982; Price 1978). The ceramic assemblage of Cairo Lowland Mississippian sites consists of several ceramic types and vessel forms that have shell or shell/grog-temper. Ceramics consist largely of Mississippi Plain or more finely-made Bell Plain materials. They also include Varney Red Filmed, Kimmswick Fabric Impressed, and Wickliffe Thick in early Missisippian times; O'Byam Incised, Mound Place Incised, Mathews Incised, and Nashville Negative Painted in the middle portion of the sequence; and Barton Incised, along with increased frequencies of Mathews Incised and O'Byam Incised in the later portion of the period (Lewis 1990, 1991; Morse and Morse 1983).

Western Kentucky also has a series of Mississippian mound centers: the Twin Mounds site on the Ohio River, the Wickliffe site just south of the Ohio-Mississippi confluence, and the Turk, Adams, and Sassafras Ridge sites in the Mississippi Valley (Lewis 1986; Wesler 1985). Some of those sites tend to be located on higher terrace ground, in more constricted or defensive locations, than are centers across the river in Missouri. In material culture, they share southeast Missouri ceramic and lithic characteristics (Lewis 1990, 1991; Wesler 1991). They represent another related aspect of Mississippian cultural in the confluence region of the Ohio and Mississippi Rivers.

Substantial population decline occurred in many areas of the midwest and southeast in the fifteenth and sixteenth centuries. The Confluence region was suggested to be a so-called "Empty Quarter" after A.D. 1450 (Smith 1986; Williams 1985), with complete or near complete abandonment of the area. The American Bottom and Black Bottom were essentially depopulated at that time (Milner et al. 1984; Muller 1986). The degree of regional abandonment is of somewhat dispute (Lewis 1990), however; but, it does appear that there was a dramatic decline in the size and complexity of whatever cultural systems were operating there at that time.

Postcontact Native Americans (A.D. 1500 to 1835)

Native American groups living in southern Illinois during the historic period cannot be linked directly to the prehistoric populations. In the early historic period, the region

was occupied only intermittently by displaced Algonquoin speaking groups (Illiniwek, Miami, Shawnee) who used the area primarily as a hunting territory (Temple 1966). The region was known as the "Illinois Country." A group of Miami were reported to be living near the mouth of the Ohio in 1794. Shawnee groups lived near present day Cape Girardeau, Missouri in the 1790s and at the mouth of the Cache River in 1810. Shawnee and Delaware groups were present near Cape Girardeau as late as 1827, but were removed to Arkansas in 1832 (Temple 1966; Webb et al. 1989). The Kaskaskia occupied a reservation at Sand Ridge in Jackson County between 1803 and 1832, when they were transferred to western reservations (Bauxer 1978; Temple 1966). In 1838–1839 large groups of Cherokee traveled across southern Illinois on the "Trail of Tears" during their forced migration to Oklahoma. In Illinois, the trail extended from the Ohio River at Golconda to the Mississippi River west of Jonesboro, Illinois, where the Cherokee camped for the winter of 1838–1839 (Muller 1986). The last Native American groups ceded all claims to Illinois lands and moved westward by the mid-1830s.

Euro-American Period (ca. A.D. 1600 –Present)

European settlement of southern Illinois began in the late seventeenth century with French exploration down the Mississippi River. Marquette and Joliet were the first Europeans to explore the region, in 1673. The French established forts and trading posts on the Mississippi and Ohio Rivers in the eighteenth century, and held them until relinquishing the southern Illinois territory to the British in 1760s. The British, in turn, gave up the Illinois region to the Americans in the 1780s following the American Revolution. Present day Illinois was considered part of the Northwest Territory, and in 1809 it became the Illinois Territory. Illinois was admitted to the Union in 1818.

Alexander County was established as a political entity in 1818 and grew in population as a consequence of its location at the confluence of the Ohio and Mississippi Rivers. River travel and commerce played an important role in its development. Alexander County grew from 625 persons in 1820, to 1,390 in 1830, and 3,314 in 1840 (Webb et al. 1989:17). Early settlement was concentrated in a series of towns in both Alexander and, especially, in adjacent Pulaski Counties at the river confluence. Towns were established at locations called Wilkinsonville (1812), Trinity (1816), America (1818), Cairo (1818), and Caledonia (1828) (Webb et al. 1989:17). The county seat was originally at America, located on the Ohio River, but was moved westward to Unity in 1833, and to Thebes overlooking the Mississippi River in 1845 (Bradsby 1883; Webb et al. 1989). Early settlers were primarily farmers and hunters who came from the south. River traffic encouraged the development of commerce at the river towns, especially Cairo; and starting in 1852, railroads were built, to connect the towns to more distant markets (Webb et al., 1989). During the Civil War, Cairo was a major Union resupply and debarkation point for military traffic moving down the Mississippi River. The commercial prosperity of the river towns declined, however, in the late nineteenth century with the ebbing of steamboat traffic on the rivers.

Agriculture developed as a major commercial activity in Alexander County in the later portion of the nineteenth century. By the early twentieth century, most suitable land had been cleared for farming or had been logged (Webb et al. 1989). The Depression era of the 1930s saw a decline in farm production and the abandonment of many farms, especially in the uplands. Small-scale family farms declined further in the 1950s, although agriculture remains a major economic activity in the county today. The development of a state park at the Horseshoe Lake Conservation Area in the Mississippi Valley removed some additional land from agricultural production but provided a preserve for the plant and animal species that had once typified the biotic community of the floodplain.

Dogtooth Bend was developed and is maintained as a fertile agricultural area although population in the bend has declined. Through the midtwentieth century, the bend had a mixed Euro-American and African-American community. The latter group is reported to have settled along the embankment at the south end of the Dogtooth Bend Survey area. The former Mount Zion church, located on Mound 2 at the Dogtooth Bend site, and the Lake Milligan cemetery were facilities associated with the African-American community. Dogtooth Bend and other portions of the county that are in the valley have become less populated since the 1950s as small farms declined economically and also, in part, as a result of the catastrophic 1974 flood which caused some residents to move to less flood-prone areas. The devastating flood of 1993 caused some of the remaining residents to leave, as well.

Previous Archaeological Research

Considerable archaeological research has been conducted in the southern Illinois which helps to place the Dogtooth Bend Survey data in broader cultural context. Research in the Dogtooth Bend area includes several projects, although little work has been done in the bend, itself. The area was visited sporadically by archaeologists and collectors during the last century but was not addressed formally until recent years. In 1951 Irvin Peithman, then associated with the Southern Illinois University Museum, mentioned the Dogtooth Bend Mound Center (24D3-13; 11-Ax-31) in an overview of southern Illinois archaeology (Peithman 1951:123, 124). The Historic Sites Survey program, directed by the Illinois Archaeological Survey in the early 1970s, included brief investigation of some archaeological sites in and around Dogtooth Bend (Naylor 1974; Rackerby 1974). The investigations were primarily informant interviews, however, with little field work. The Dogtooth Bend Mound Center (24D3-13; 11-Ax-31) was placed on the National Register of Historic Places in 1975 due to its significance as an archaeological site. Excavations occurred at the mound center in spring 1995 to salvage the remains of two burned Mississippian structures that had been impacted by the construction of a ditch (report in preparation, Stephens 1996).

Other projects have been conducted in the vicinity of Dogtooth Bend. The Illinois Department of Conservation surveyed portions of the Horseshoe Lake Conservation

Area immediately north of Dogtooth Bend (Clifton 1990; Sant et al. 1987). Test excavations have been conducted at the Mylar site, a Late Archaic and Late Woodland site (Cobb and Jefferies 1983), and the Swimming Snake site, an Emergent Mississippian settlement (Knight et al. 1992). Santeford and Lopinot (1978) test excavated two other small sites, Frog City and Red Light, where cultural material was eroding from the Mississippi River bank east of Dogtooth Bend. Archaeological survey and testing in Thebes Gap 15 km northwest of Dogtooth Bend yielded information on Dalton and Emergent Mississippian sites (Webb et al. 1989). Extensive excavations at the Petitt site provide detailed information on Emergent Mississippian in the area (Webb 1992).

Research conducted elsewhere in the Mississippi River valley in southwestern Illinois provides extensive contextual background for Dogtooth Bend. The Division of Mound Explorations of the Bureau of American Ethnology conducted early investigations in the valley (Thomas 1894), although they did not explore Dogtooth Bend, itself. Limited investigations of the area occurred in the early to midtwentieth century (e.g., Merwin (1935), and A. R. Kelly). In the late 1950s, the Illinois State Museum conducted excavations at the extensive Twenhafel site in western Jackson County, Illinois. Analyses of Twenhafel artifacts (Hofman 1980; Morrow 1988) provide comparative data for the Middle Woodland and other cultural periods. Charles Cobb is conducting ongoing research in and around the Linn site mound center in the Mississippi Valley immediately west of the Mill Creek quarries (Cobb 1988, 1991). The SIUC Center for Archaeological Investigations recently completed a survey of the floodplain in the Union County Conservation Area between the Ware and Linn mound centers (Knight and Butler 1995). George Milner's long-term survey, site and artifact analyses, and environmental reconstructions of the Mississippi Valley in Union and other counties provide very useful models of prehistoric settlement patterns and ecological relationships (Milner 1993).

Archaeological research in interior southern Illinois also bears on the Dogtooth Bend data base. Howard Winters conducted initial research in the Cache River valley to the northeast of Dogtooth Bend in the 1950s (Winters n.d., 1967). That work had a major impact on understanding the cultural history of the region. Recent limited surveys in the lower Cache provide detailed descriptions of sites just inland from Dogtooth Bend (Butler and Hargrave 1993; Wagner 1994). A survey of the upper Cache River drainage detailed prehistoric settlement-environmental relationships in the interior uplands of region. (Canouts et al. 1984). Recent excavations by Brian Butler and Charles Cobb at the Dillow's Ridge site in the Shawnee National Forest in Union County, Illinois provide intensive investigation of a Mississippian residential settlement in the midst of the Mill Creek quarries (Cobb and Thomas 1995).

Long-term research in the lower Ohio Valley also provides a contextual framework for the Dogtooth Bend Survey data. Jon Muller has conducted extensive surveys and excavations in and around the Kincaid mound center in the Black Bottom, in Pope and Massac Counties, Illinois (Muller 1978, 1986). The work of he and his colleagues focuses particularly on the late prehistoric period and provides important settlement-subsistence models that can be applied to the Dogtooth Bend data. Extensive archaeo-

logical research has been conducted in surrounding portions of western Kentucky and in southeastern Missouri, as discussed above for individual prehistoric cultural periods. The results of the work of the many archaeologists working there places the Dogtooth Bend findings in broader cultural contexts within the Ohio-Mississippi River Confluence region.

3 Research Design and Methodology

Research Objectives

The Dogtooth Bend Survey was conducted between 2 June and 9 July 1993 as part of a field training program for students in archaeology. A total of 25 students from four universities (Southern Illinois University at Carbondale, Southeast Missouri State, Murray State, and Eastern Kentucky) participated in the cooperative program. The Dogtooth Bend area was chosen for the survey because of its important geographical location near the confluence of the Ohio and Mississippi Rivers, at the crossroads of the midwest and southeastern regions of North America. Little was known of the Dogtooth Bend prehistoric record beyond the previous sketchy recording of 15 archaeological sites there and the designation of the Dogtooth Bend Site (ll-Ax-31, SIUC 24D3-13) on the National Register of Historic Places. The location was also logistically feasible from the field school base and excavation at Wickliffe Mounds Research Center in Wickliffe, Kentucky. The project had several key teaching and research objectives related to student training and long-term archaeological investigation of the Confluence area.

Archaeological Field Training

One of the primary objectives of the 1993 Dogtooth Bend investigation was the teaching of archaeological survey methods to university students. The students participated directly in the survey, learning to define archaeological sites, record site information, and place the data in local and larger-scale geographical contexts. Methods were careful and tight, progressing in a manner that allowed the students to learn to make decisions about archaeological surface data and the nature of site definition.

Prehistoric Settlement Patterns

The survey's research design focused on prehistoric settlement patterns in Dogtooth Bend; that is, on the way in which prehistoric groups organized their settlements on the local landscape and potentially used their environment. Settlement pattern studies investigate changes in land-use patterns through time and relate directly to aspects of subsistence and social systems within those societies. The study is part of ongoing research by Jeanette Stephens and other researchers at the Center for Archaeological

Investigations into prehistoric settlement patterns and land use in southern Illinois (e.g., Hargrave and Butler 1993; Muller 1986; Stephens 1991). It is also part of longer term research by Stephens on the prehistory of the Confluence region, with particular emphasis on the late prehistoric Mississippian period (Stephens et al. 1993).

The Dogtooth Bend Survey program was designed to investigate three aspects of settlement patterns in the Confluence area. A major emphasis was on variation in settlement patterns through time. It involved establishing the chronological sequence of habitation of the bend through time and determining the relationship of individual sites and components to the surrounding physical environment (e.g., various landforms, the Mississippi River). The variation in settlement across time and space was also an important aspect of the study. Information on settlement size, artifact assemblage, and site artifact density can provide data for determining such chronological settlement patterning. The settlement study also included the analysis of technological change (chert utilization and ceramic technology) through time.

A second major emphasis of the Dogtooth Bend survey was the investigation of the Mississippian-period settlement system, in terms of the major Dogtooth Bend site, itself, and the relationship of outlying sites to the mound center, each other, and the local physical landscape. Models of comparison for the structure of the main site and broader settlement system occur in Muller 1978 for the Black Bottom of the lower Ohio Valley 80 km east of the survey area (Muller 1978, 1986), the Powers phase in southeast Missouri (Price 1978), and the American Bottom (Milner et al. 1984).

A third emphasis was on relating the Dogtooth Bend Mississippian settlement system to the political geography of contemporaneous systems in the Confluence region. The Dogtooth Bend material can provide important comparative data for addressing the broader political geography in southeast Missouri, western Kentucky, and the lower Ohio Valley. Expectations are that the Dogtooth Bend adaptational patterns and material culture would fit directly with contemporaneous societies in those adjacent areas, and that Dogtooth Bend shared a significant role with those systems in the occupation of the strategic Confluence region.

While the study of Dogtooth Bend settlement patterns focuses on prehistoric components, the survey also addresses historic period occupations to some degree. The survey data provide a brief, sampled overview of historic period settlement patterns. More detailed studies are needed, however, for a thorough analysis of historic period land use and social relationships. More complete studies derived from the historic-period survey data should include oral histories, and historical and archival research.

Field Methods

The Dogtooth Bend Survey area is defined as the triangular shaped area of relatively higher, more habitable ground in the northern one-third of Dogtooth Bend (see Figure 2-2). The area extends from 400 m (one-fourth mile) north of the east-west trending

blacktop road that traverses the north end of the bend at Willard, Illinois, to the northeast-southwest trending embankment some 3–5 km (2–3 miles) to the south. It is bordered on the west by a levee, with low ground and the Mississippi River beyond, and on the east by the embankment of the active channel of the eastern portion of the river meander loop. The triangular survey area extends approximately 4.8 km (3 miles) north-south and east-west, encompassing an area of 1600 ha (3,955 acres).

The survey field program was designed to sample the defined research area in a way that would reflect variation in landform and thus potential site distributions across the land surface. The systematic sample was based on using elements of the legal system as the basic units of study. The area was divided into a series of 16 ha (40 acre) quadrats based on land ownership. Within a given 1/4 section of land, one 1/4, 1/4 section was randomly chosen for survey. The use of 1/4, 1/4-section quadrats allowed both an adequately sized data collection unit and a logistically workable one. The 40 a quadrats conformed well with units of land ownership and crop planting. They were also easy to locate and find boundaries for on the ground. The quadrat size was manageable for the field school setting, while it allowed an adequate size to identify archaeological sites. The entire survey area was under cultivation at the time of the field investigation. Although the project design called for the random selection of a sample quadrat from within a given 1/4 section, that process could not be achieved in all instances, due to some landowners' refusal for access to their property, crop density (especially wheat crops), or other conditions that precluded the random selection of survey quadrats. In such cases, a unit was chosen nonrandomly from those accessible within the 1/4 section. In any event, the survey was able to cover a diverse cross-section of the designated research area.

On a given day, the survey was conducted by the Jeanette Stephens, one of two graduate-student assistants, and a crew of six or seven students from the combined university field crew. A total of four student crews were used during the six-week survey; each spent one and one-half weeks on that portion of the field training. Each day, the survey crew of eight or nine persons walked one 16 ha (40 a) quadrat, with persons spaced 10 m apart in parallel transects. The crew walked 5 m-interval transects within defined site areas. Thus, a close inspection of the ground surface was made in the surveyed tracts, and all visible archaeological sites are believed to have been found within them. The identification of archaeological sites was aided greatly by excellent ground visibility (80–100%) in most quadrats. Nearly all of them were planted in low soybeans at the time or were newly plowed fields following the wheat harvest in late June. Ground visibility in the latter fields was 100%, although the surface was dry from lack of rain on it. In sum, the field conditions were almost ideal at the time of the survey: the land was all relatively flat and open, in cultivation with low or no crops, and accessible from nearby roads. Those factors aided greatly in obtaining an excellent sample of the survey area.

Sites were defined by the presence of artifact scatters on the ground surface. The size and density that defined a site varied considerably. Scatters were defined as separate sites when they formed a continuous distribution across a particular landform. Artifact

scatters could be very sparse and dispersed, but if they formed a unit on a given landform (e.g., across a broad stretch of the floodplain) and were separate from other, more clustered distributions, they were considered a separate site. Conversely, sites could be spaced very closely together; in some cases separated by as little as 20 meters. When there was an intervening landform (e.g., a swale) or different terrain (e.g. a ridge crest versus flat bottomland), the scatters were generally designated as separate sites even though they were located close together. The category "Isolated Find" was used for single artifacts or small groups of artifacts (less than ten items) that lacked spatial integrity within a particular geographical setting. The process of site definition required the evaluation of each site on a case-by-case basis in the field, and subsequent analysis of the site date in the lab/office.

Survey methods were modified at three large sites with dense artifact scatters on their surfaces. A temporary grid was placed over the ground surface at sites 24D3-50, 24D3-261, and 24D3-13 (subsite areas DBS-104, DBS-106, and DBS-107), and a large-scale controlled surface collection was made. The grid units (site subareas) were 50 m x 50 m in size. Crew members walked 5-m parallel transects within a given grid unit and collected the artifacts together from within it. The entire 16 ha quadrat(s) that contained the site (or subsite) was surveyed in the 50 m-square units. Although the collection units were large, they allowed the coarse-grained definition of site areas within a practical system of data collection that could accommodate both large, possibly dense artifact scatters and realistic time constraints on data acquisition. The 50 m-square grid method worked quite well for the large, heavily occupied sites in the survey.

Sites were initially given "DBS" (Dogtooth Bend Survey) numbers in the field. They were later assigned an SIUC site number prefixed by "24D3-," which corresponds to the U.S.G.S. "Thebes Ill.-Mo." 15' quadrangle map in the SIUC-CAI site-recording system. The sites are also assigned a Illinois Archaeological Survey number prefixed by "11-Ax-" for Alexander County, Illinois. The sites are referred to by SIUC number in this report.

Analysis Methods

The artifacts collected in the Dogtooth Bend Survey were processed and analyzed at the Center for Archaeological Investigation's laboratory in Carbondale, Illinois. Artifacts were initially washed, sorted into categories of lithics, ceramics, and historic material, and accessioned. Material was then tabulated within each artifact category according to specific relevant attributes. Thomas Prang conducted the lithic debitage analysis; the author did the other analyses.

Lithic Analysis

Lithic artifacts were initially sorted by raw material into chert and nonchert rock categories. Chert material was divided into categories of debitage and tools (formal and informal). Individual chert specimens were tabulated by count, weight, and raw material, and additional attributes were recorded for chert tools. Nonchert rock was sorted into nontool and tool categories, and attributes were recorded about each of the items.

Chert Debitage

The chert debitage category consists of the discarded byproducts of chert tool production and maintenance, and unmodified pieces of raw chert material.

Reduction Flake. A reduction flake is a piece of chert that exhibits a prominent bulb of percussion, a striking platform, and few if any flake scars on the dorsal surface. Reduction flakes are produced early in the reduction sequence and are sometimes referred to as "percussion flakes."

Thinning Flake. A thinning flake has a multifaceted striking platform and multiple flake scars on the dorsal surface. Thinning flakes are typically longer than they are wide, relatively small, and lack a prominent bulb of percussion. They are produced later in the reduction sequence.

Shatter. Chert shatter consists of broken flake fragments that lack a striking platform or bulb of percussion. Shatter is the most common byproduct of chipped stone tool manufacture.

Angular Fragment. An angular fragment is an irregular, blocky piece of chert that is the byproduct of knapping but which lacks flake or shatter characteristics.

Hoe Flake. A hoe flake is characterized by glossy silica polish on its dorsal surface. Hoe flakes are removed in the process of resharpening digging implements (hoes).

Core. A core is a piece of chert from which one or more flakes have been removed but which has not been utilized or formed into a recognizable tool.

Debitage Fragment. A debitage fragment is a piece of chert that is smaller than 1.25 cm square (<.5 in square). Fragments represent small pieces of shatter or other chert debris. Chert raw material type is difficult to establish for the fragments because of their small sizes. In analysis, debitage fragments are only counted and weighted.

Primary Form. A primary form is a chert cobble or other unmodified piece of chert.

Formal Chert Tools

This category includes all chert items that exhibit intentional flake modifications on all or most surfaces as the result of shaping the items into functional tools.

Hafted Biface. A hafted biface is a sharp-pointed, symmetrical biface that exhibits evidence of hafting (i.e., attachment to a handle or shaft). Hafted bifaces may have functioned as projectile points or knives. Specimens are placed typologically into temporal/cultural categories when possible.

Finished Biface. A finished biface is an artifact with overall bifacial symmetry, regular margins, and evidence of thinning. Finished bifaces may be complete or fragmentary. They represent the final stages of biface production and include items referred to as knives.

Thick Biface. A thick biface is a roughly worked, unfinished bifacial tool that represents an early stage in biface production. Thick bifaces possess overall bilateral symmetry but exhibit sinuous lateral margins with large flake scars. They correspond to what are generally termed preforms or blanks, and often show evidence of having been broken and/or discarded prior to thinning.

Scraper. A scraper is a chert item with steep unifacial retouch on a convex distal (endscraper) or lateral (sidescraper) margin. Endscrapers may be made on flakes (generally biplano in cross section), unifacially flaked (plano-convex in cross section), or bifacial and hafted (biconvex in cross section). Hafted endscrapers are often reworked hafted bifaces that have been modified to create a transverse scraping edge along the distal end of the tool.

Drill. A drill is a narrow, parallel-sided, pointed biface. Drills are basically symmetrical in shape and circular or diamond-shaped in cross section. They may or may not display hafting modification.

Hoe. A hoe is a large biconvex biface with a rounded, highly polished (silica-glossed) distal (bit) end. Hoes are generally ovoid in shape.

Adze. An Adze is a bifacially flaked tool with a beveled distal end. Adzes are plano-convex in cross section and often exhibit wear on the working (distal) end, as well as grinding on the lateral margins to facilitate hafting.

Gouge. A gouge is a trianguloid or parallel-sided biface with a plano-convex distal (bit) end. The bit end may exhibit use-polish on the convex side and steep beveling on the opposite face of the tool.

Hammerstone. A chert hammerstone is a cobble or other relatively large piece of chert that exhibits a battered, pitted, and possibly ground wear pattern along one or more margin.

Grinding Stone. A chert cobble or other large piece of chert that exhibits a ground and possibly pitted wear pattern on one or more surface.

Lamellar Blade. A lamellar blade is a flake struck intentionally from a prepared core in order to be used as a tool. Blades have parallel or subparallel lateral margins (edges) and a length at least twice as long as the width. They have flake scars on the dorsal surface that run parallel to the long axis. The striking platform can have either an acute or obtuse angle and is often ground. Some specimens that exhibit less than distinct lamellar blade characteristics may be referred to as "bladelets" and may have functioned as informal tools.

Informal Tools

This category includes flakes or other pieces of debitage that exhibit limited retouch or use wear and no formal shaping or haft modification. Such items were used as expedient tools.

Retouched Flake. A retouched flake is a piece of debitage that exhibits systematic retouch on one or more margin but that has not been shaped into a formal tool.

Utilized Flake. A utilized flake is a piece of debitage that exhibits wear on one or more edge but that has not been systematically retouched.

Nonchert Rock

Nonchert rock includes a wide variety of lithics that lack evidence of utilization other than possible heat treatment. Since such material does not occur naturally in Dogtooth Bend, it had to be imported by prehistoric inhabitants. Nonchert rock includes igneous/metamorphic cobbles or pebbles, and pieces of sandstone, limestone, ocher, and other stone.

Nonchert Tools

Nonchert lithic tools include complete or fragmentary items that are produced by pecking, grinding, or polishing cobbles or other pieces of rock. They are nearly always made of igneous/metamorphic rock, sandstone, or limestone. Nonchert tools are often referred to as groundstone artifacts. They include the morphofunctional categories of ax, celt, grinding stone, pitted grinding stone, grinding slab, abrader, plummet, and hammerstone.

Chert Raw Material Analysis

Chert artifacts were tabulated by raw material in addition to their debitage or tool category. Chert raw material identification provides data for ongoing research into chert procurement and utilization in southern Illinois. Chert type identification was based on macroscopic inspection of each chert artifact in regard to its color, texture, and other

physical properties. Nine chert types were recognized in the analysis. They are divided into two groups based on the distance that they outcrop from the survey area: local cherts (Bailey, Devonian, Kornthal, and Mounds Gravel) obtainable within 5–20 km, and nonlocal cherts (Cobden/St. Louis, Elco, Kaolin, and Mill Creek) that occur 20 km or more from the area.

Local Cherts

Bailey. Bailey chert occurs in the Devonian-period Bailey Limestone, which caps the southern Illinois Ozark hills, and is found as residuum in streams in southern Union and northwestern Alexander Counties 10 km north of the survey area. Bailey chert usually occurs as small, fractured nodules and blocky lenses. Specimens can range in color from white to gray, olive green (the stereotypical variety), and blue-gray (Webb et al. 1989). Although Bailey chert is considered to be of secondary quality for tool production/utilization, it does occur fairly often on archaeological sites in and near Dogtooth Bend.

Devonian. Devonian chert is distinguished as a dull, coarse-grained material that derives from upper Devonian strata in the southern portion of the Illinois Ozarks in Union and Alexander Counties (Koldehoff 1985; Webb et al 1989). Devonian chert (also called Clear Creek chert) ranges in color from white to light buff to tan, and often has iron inclusions. The chert is often highly fractured and may be coarse-grained. It appears to be more suitable for use as large, coarse tools (e.g., hoes, adzes) than for smaller, finer implements.

Kornthal. Kornthal chert is a distinctive brecciated material of possible Devonian age. It outcrops in Dutch Creek in Union County and at numerous locations along the drainages in the southern portion of the Illinois Ozarks in southwestern Union and northwestern Alexander Counties. Kornthal chert ranges from fine-grained to coarse in texture, and from gray (often with a pinkish tinge) to red in color. It can be highly conglomeratic and contain inclusions of angular white chert that may be up to 3 cm in diameter (Webb et al 1989). Specimens also sometimes have tiny crystalline quartz inclusions. The color of the Kornthal chert can vary widely (red, blue, gray, yellow, brown, or white) within or among individual specimens. Thermal alteration (heat treatment) of the chert produces a glossy gray to red specimen with boldly contrasting angular white chert inclusions.

Mounds Gravel. Mounds, or Lafayette, Gravel occurs as a tan or brown chert cobble with a polished cortex. This chert gravel occurs in drainages throughout the Gulf Coastal Plain Division of southern Illinois where it was redeposited as a river gravel during the Pliocene and Pleistocene epochs. It generally occurs as polished nodules that rarely exceed 15 cm in length. It is highly variable in color, texture, and quality, but it is commonly brown and often grainy.

Nonlocal Chert

Cobden/St. Louis. Cobden chert is a distinctive, high-quality nodular chert found in portions of the Clear Creek drainage in Union County and several other locations in southern Illinois. It is derived from the upper portion of the Mississippian St. Louis Limestone formation (Spielbauer 1976). This chert is usually blue-gray to gray in color and often exhibits bands of concentric rings. The cortex has a distinctive relatively-smooth, gray to dark brown color. May (1984) combines the term Cobden with the very similar Dongola form found along Big Creek in Union County, defining them as Cobden/Dongola ball cherts. He associates the high-quality, gray, banded variety with the Cobden source. Cobden/Dongola chert was utilized from Paleoindian through Mississippian times, with particular emphasis during the Middle Woodland period when it was exploited intensively and traded widely (Koldehoff 1985; McNerney 1975).

St. Louis chert is a broad category that includes all chert believed to be derived from the Mississippian St. Louis Formation but that cannot be associated specifically with the Cobden/Dongola varieties. It ranges in color from very light to dark gray, to dark blue. It occurs in both nodular and bedded forms and exhibits great textural variability. St. Louis cherts are found at numerous locations in the Shawnee Hills (May 1984).

Elco. Elco chert is a distinctive gray to black chert that is usually streaked or mottled with light-colored inclusions. Elco materials are derived from the Mississippian Fort Payne Limestone formation and occur as blocky chunks of residuum. The primary source area for Elco chert is in northern Alexander County, although it also occurs in southeastern Illinois. Elco chert appears macroscopically to be almost identical to Dover chert, which occurs along the lower Tennessee and Cumberland Rivers in western Tennessee and Kentucky and is derived from the lower St. Louis or upper Warsaw/Salem formations (Nance 1984; Webb et al. 1989).

Kaolin. Kaolin chert is a high-quality, clear to semitranslucent material that ranges in color from white (most common), to yellow, brown, reddish brown, reddish orange, or bluish gray. Its texture can vary from extremely grainy to smooth, with small fossiliferous inclusions common. It occurs as irregular-to-rounded nodules with rough, pitted, brown-colored cortex. Kaolin chert is found near the Cobden source area in Union County, Illinois. Heavy concentrations occur on the upper slopes of Iron Mountain (Billings 1984) and lesser amounts occur as gravel in the bed of Clear Creek. Kaolin chert was utilized throughout prehistory, but especially during the Middle Woodland period.

Mill Creek. Mill Creek chert is a distinctive opaque, grainy, gray-to-brown colored material derived from the Mississippian Salem Limestone formation. It is found primarily as flat, oblong nodules in stream beds and on ridgetops in Union and northern Alexander Counties. A main source area for this material occurs near the town of Mill Creek, where extensive prehistoric quarry areas and workshops are found (Cobb 1988). These sites represent the intensive mining of Mill Creek chert for the production of hoes during the Mississippian period.

Other. The Other category of chert consists of material that cannot be identified to a particular type or source area. Some of this chert is unidentifiable due to heat-treatment or small specimen size. Other examples represent material that either originated outside southern Illinois or are unusual varieties of local cherts.

Prehistoric Ceramic Analysis

Ceramic sherds found in the survey were sorted into categories based on surface treatment and tempering material, and to a lesser degree, sherd thickness. Sherds were examined macroscopically or with the aid of a 10X hand lens. While surface treatment and temper vary somewhat independently, they overlap in the ceramics of a given period and form the basis for assigning sherds to specific cultural components. The following attributes were used in the analysis.

Surface treatment. Surface treatment refers to the decoration or finishing treatment of a vessel's surfaces. Varieties of surface treatment recognized in the analysis are fabricmarked, cordmarked, plain, decorated, and eroded/unidentified. Fabricmarking consists of the impression of a coarse, plain-plaited fabric over the vessel exterior leaving a distinctive wavy surface (Stephens 1975). The fabricmarked surface may also be smoothed considerably. This treatment is indicative of the Middle Woodland component and is referred to as Baumer Fabric Marked or Crab Orchard Fabric Marked pottery. Cordmarked surface treatment is produced by the application of twisted cord impressions from a cord-wrapped paddle to the vessel exterior. Cordmarked ceramics occur from the Early Woodland through the Emergent Mississippian periods. Some Mississippian ceramics may also be cordmarked. Plain surface treatment occurs in the absence of other decoration and consists of a smoothed vessel exterior. Plain surfaces are definitive of Baumer Crab Orchard Plain and Emergent Mississippian Baytown vessels. They are also common on Mississippian wares. The eroded/unidentified category encompasses fragmentary sherds that were too small to identify or are missing exterior surfaces.

Temper. Temper refers to the particles of crushed rock or other material mixed with vessel paste to act as an agent for even heat distribution during vessel production and use. Tempering agents present in the ceramic assemblage include grit (crushed igneous/metamorphic rock, limestone, or chert), sand, grog (crushed potsherds), grit/grog, shell, and shell/grog. Tempering material, size, and amount varies among Middle Woodland, Late Woodland, Emergent Mississippian, and Mississippian ceramics.

Thickness. Sherd thickness is another potentially diagnostic attribute within some cultural components. There is a general trend toward reduced sherd thickness through the Middle and Late Woodland sequences (Braun 1987, Hargrave 1982), but it can vary considerably on a given vessel. Thickness is a useful secondary attribute for the assignment of sherds to either of those cultural components. It is not as useful a variable

for categorizing Emergent Mississippian or Mississippian ceramics, since they vary in thickness depending on vessel form and size.

Ceramics of Individual Cultural Components

Middle Woodland ceramics in the survey area are distinguished primarily by fabricmarked exterior surface treatment. Surfaces may also be cordmarked or plain. In rare instances, sherds may be decorated with single cord impressions, cross-hatching, punctations or nodes, or incised or zoned designs. Fabricmarked specimens are referred to as Baumer/Crab Orchard Fabric Marked (also called Withers Fabric Impressed in southeast Missouri). Sherds are tempered with grit, grit/grog, or grog. Middle Woodland vessels are large subconoidal items with relatively thick walls and poorly mixed paste, and are not heavily fired.

Late Woodland ceramics have cordmarked or plain surface treatments, occasionally decorated with rim nodes or dowel impressions on the lip. They are tempered with grit, grit/grog, grog, or commonly in the survey area, sand. Grit-tempered cordmarked sherds with thin vessel walls are called Raymond Cordmarked. They occur primarily to the north of the survey area in southern Illinois. Sand-tempered, cordmarked or plain-surfaced sherds are Barnes Cordmarked or Barnes Plain materials, respectively.

Emergent Mississippian ceramics are characterized by cordmarked or plain surface treatments, and sometimes have folded ("filleted") rims and/or lugs at the lip margin. They have grog or occasionally grog/grit temper. Cordmarked, grog (or grog/grit)-tempered sherds are referred to as Dillinger (also called Mulberry Creek Cordmarked or Korando Cordmarked in southeast Missouri). Plain surfaced, grog-tempered sherds are Baytown material.

Mississippian ceramics are shell or shell/grog tempered. They have a variety of plain, cordmarked, and decorated surface treatments. They also are expressed in several vessel forms: jars, bowls, plates, bottles, pans, and funnels. Individual ceramic types are based primarily on surface decoration and vessel form. Undecorated sherds are referred to as Mississippi Plain (with coarse shell-temper), or Bell Plain (with fine shell-temper) and occur throughout the Mississippian period. Through time, the Mississippi Plain jar form tends to change from an everted (flaring) rim to a straighter one (Morse and Morse 1983), and Bell Plain wares tend to become more common in the ceramic assemblage (Lewis 1991). Another apparent stylistic shift on jars is that from the use of loop handles (with rounded cross-sections) in earlier Mississippian to strap handles (flat and lenticular in cross-section) in the middle and later portions of the sequence.

Decorated ceramics represent small, but distinctive portions of the ceramic assemblages throughout the Mississippian period. Several temporal trends occur within decorated Mississippian wares, although they tend to be expressed as changes in relative percentage of a given design style. The early portion of the Mississippian sequence has a greater prevalence of Varney Red Filmed, Kimmswick Fabric Impressed, and Wickliffe Thick wares than later portions (Lewis 1990, 1991; Morse and Morse 1983;

Phillips 1970). The middle portion of the sequence (ca. A.D. 1100–1300) includes some O'Byam Incised and Mound Place Incised, but not present as frequently as in subsequent times. The middle period also has increased frequencies of Bell Plain fine-paste ware, and the appearance of Nashville Negative Painted ware. Vessel forms also become more diverse during that time (Lewis 1991). The later portion of the middle period also includes Matthews Incised vessels, and effigy-decorated bowls (bird, fish, mammal, human effigies). Late Mississippian ceramics include greater quantities of incised wares, Matthews Incised, *vars. Beckwith, Matthews,* and *Manly;* Barton Incised, var. *Barton;* and O'Byam Incised, var. *O'Byam* relative to its presence in earlier Mississippian assemblages (Lewis 1990:48).

Historic Artifact Analysis

Historic period artifacts were recovered from 27 sites in the survey. Analysis of those collections was limited and descriptive in nature. Historic material was sorted into major artifact categories (ceramics, glass, metal, etc.) and subdivided by stylistic or functional characteristics which helped to determine the period of manufacture or use. Standard references on the identification of historic material (Majewski and O'Brien 1984; McCorvie 1987; Powell 1981; Price 1979, 1981; Santeford 1981; Shepard 1981; and Stewart-Abernathy 1986) were used to classify the artifacts and identify their temporal context. The following categories were used in the analysis.

Ceramics. Historic ceramics were divided into categories based on manufacturing technique and surface treatment. Whiteware, the most common form, was divided into decorated and undecorated varieties. Temporally-sensitive variation in surface decoration was also recorded. Pearlware, porcelain, stoneware, yellow ware, and earthenware are other kinds of ceramics recorded in the analysis.

Glass. Glass fragments were divided into two basic categories: container glass and flat (window) glass. Container glass was further categorized by color and vessel function.

Metal. Metal artifacts were distinguished as nails (wire and cut), metal tools, metal hardward, and other metal objects.

Construction Materials. Nonmetal construction materials, including brick (unglazed and glazed), concrete, and ceramic tile, were recorded.

Other Items. Various other historic items were also collected and analyzed. They included a wide range of materials and forms: cinder/coal, rubber, bakelite, plastic, organic materials (e.g., freshwater mussel shells and leather), and miscellaneous items.

4 Survey Results: Site Descriptions

The 1993 Dogtooth Bend Survey focused on the high ground at the northern end of Dogtooth Bend (Figure 4-1). Twenty-three survey units (quadrats) totaling 344 ha were investigated. A total of 93 sites were defined (Figure 4-2), including 88 newly recorded sites and revisits to five previously recorded locations. Ten other previously known sites from the area were not considered in the survey results, as they were not located in the quadrats investigated.

In the survey and following site descriptions, spatially separate artifact clusters were considered to be part of the same site or different sites depending on the uniformity of the landform and distances between the clusters. Separate or combined site definition also depended on the clusters' relative artifact densities and the uniformity of their distributional patterns. In addition, some sites were subdivided into either spatially separate or contiguous subareas (e.g., Areas A and B) for better spatial control during the surface collection, or to reflect noticeable differences in artifact distributions between the subareas. Accurate site measurements were determined in most cases by taping the maximum extents of the surface distributions in the field. Site shape (e.g., L-shaped, oval, crescent) was taken into account in the estimates of site size in the descriptions below.

The following site descriptions give details of each site's locational and distributional characteristics, artifact assemblage, and survey conditions. Each site is assigned to a cultural component(s) based on its diagnostic artifacts and is given a descriptive "site type" designation based on the nature of its artifact distribution. Settlements <.5 ha (5000 m^2) in size are termed "small open habitations;" those ≥.5 ha are called "large open habitations." Sites of similar sizes but less likely to be habitations are, respectively, "small open sites" and "large open sites." Other designated site types are "isolated find" (single or small group of artifacts), and historic period farmsteads, homesteads, and cemeteries.

Site Descriptions

24D3-13 (IAS 11-Ax-31, DBS-104, 106, 107) Dogtooth Bend Mound Center (Dogtooth Bend site) (Revisit)

Site Type: large open habitation, civic-ceremonial center
Component: Late Archaic, Early Woodland, Late Woodland, Emergent Mississippian, Mississippian, Late Nineteenth-Midtwentieth Century

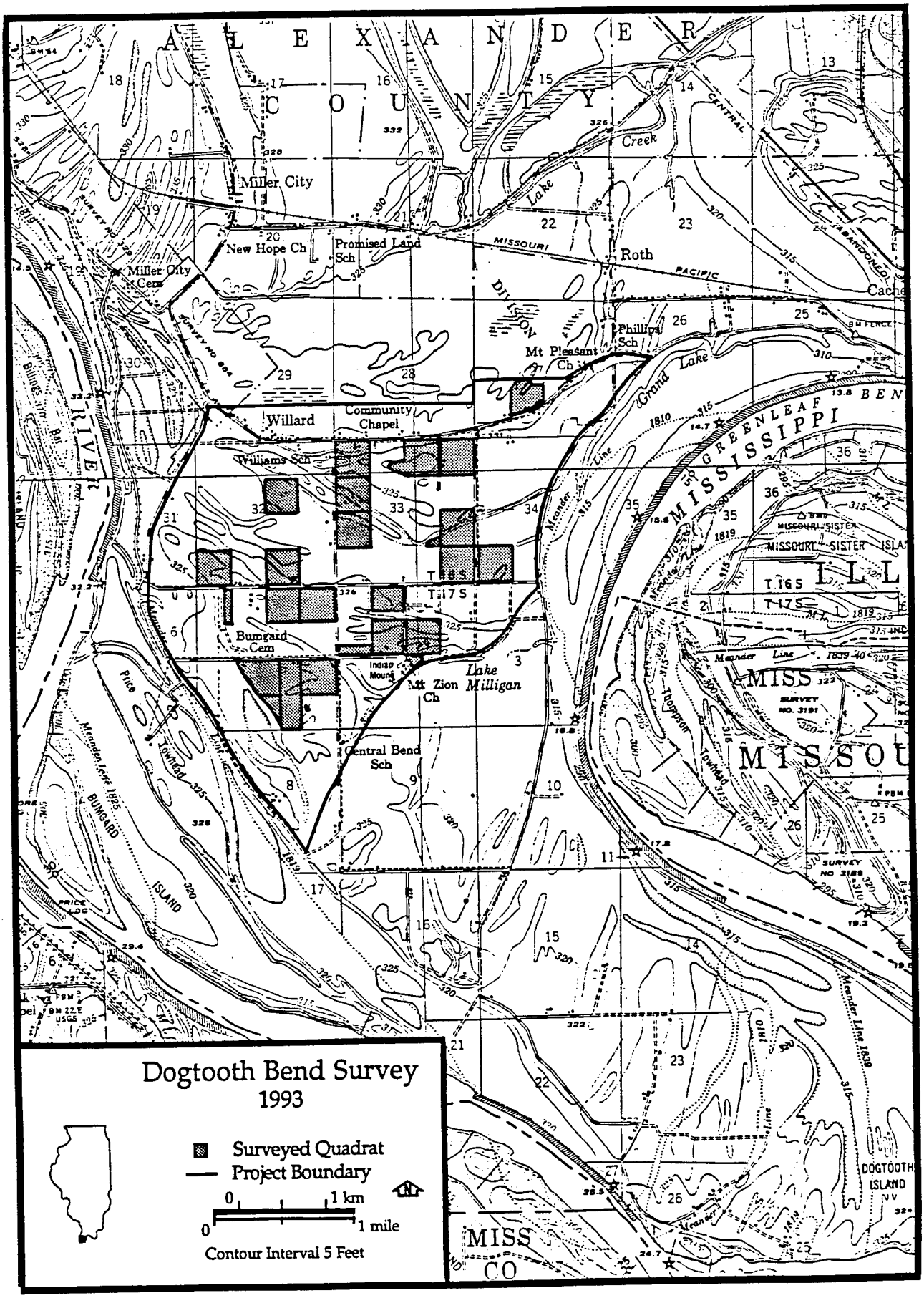


Figure 4-1. Dogtooth Bend Survey area and surveyed quadrats.

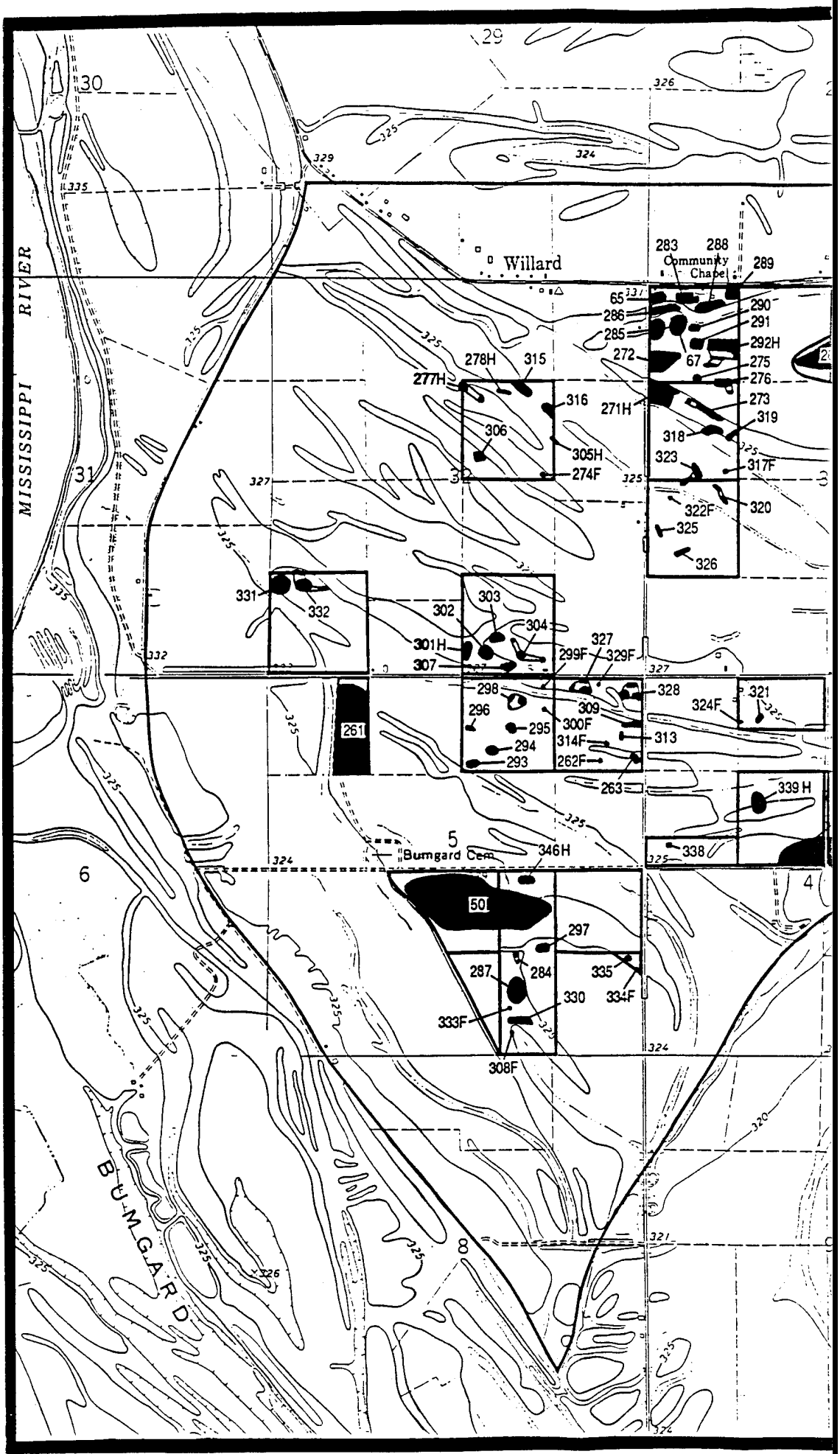
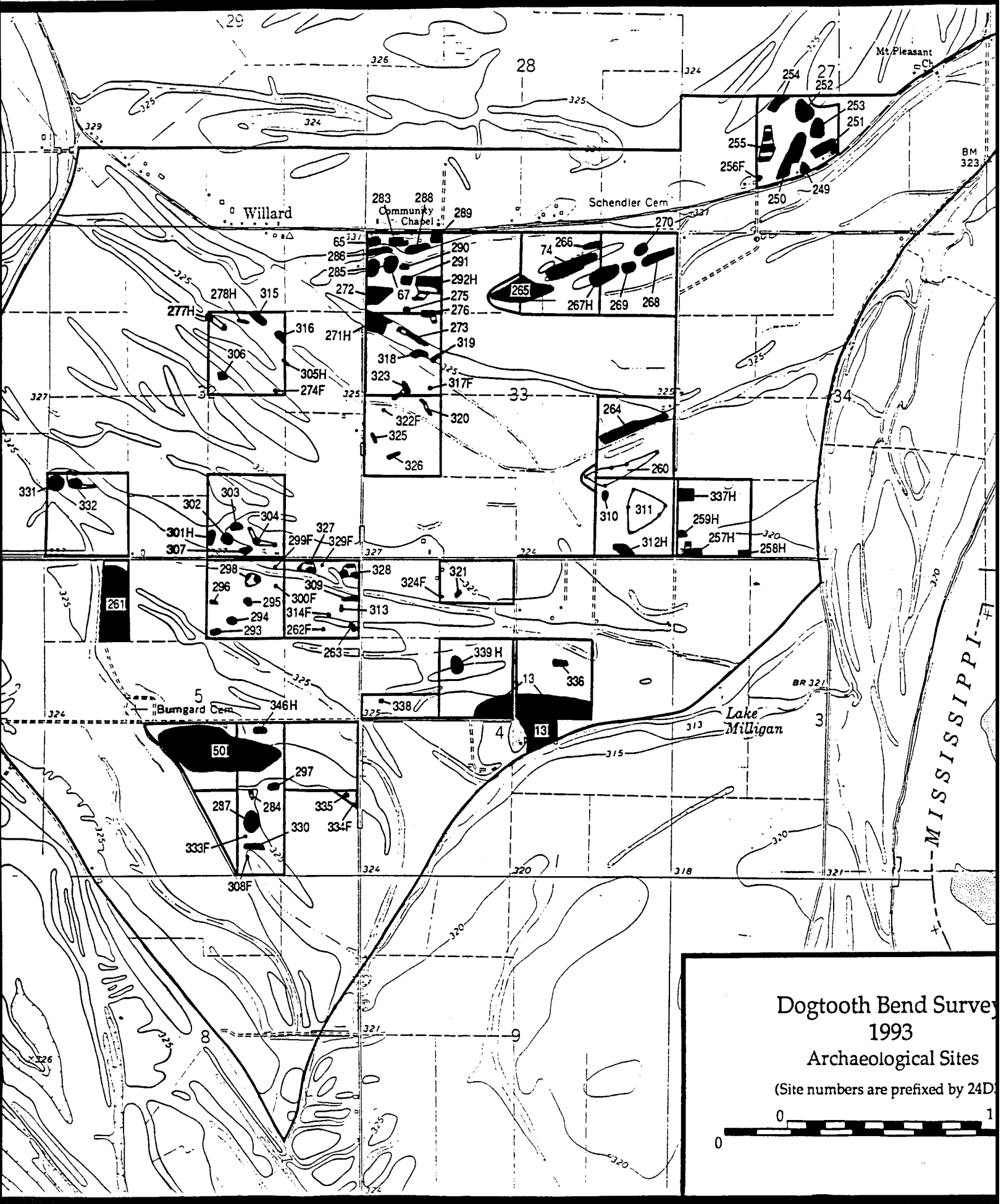


Figure 4-2. Dogtooth Bend Survey archaeological sites.



th Bend Survey archaeological sites.


Mt Pleasant Ch
Schendler Cem
Community Chapel
Grand
BM 323
MISSISSIPPI
Lake Milligan
BR 321
28
27
33
34
3
4
9
283
288
289
290
291
292H
67
275
276
273
319
318
323
317F
322F
320
325
326
74
266
265
267H
269
268
254
252
253
251
255
256F
250
249
270
264
260
310
311
337H
259H
257H
258H
312H
328
324F
321
313
339 H
13
336
338
Dogtooth Bend Survey
1993
Archaeological Sites
(Site numbers are prefixed by 24D3-)
N
0
1 km
0
1 mi

Size: site size 28 ha (estimated); surveyed areas 12.6 ha (DBS-104: 170 m N-S x 400 m E-W [68,000 m^2], DBS-106: 120 N-S m x 250 m E-W [30,000 m^2], DBS-107: maximum 140 m N-S x 200 m E-W [28,000 m^2])
Landform: sand ridge and flat terrace adjacent to Lake Milligan (river chute) on south edge of Dogtooth Bend high ground
Soil Type: Disco fine sandy loam
Elevation: >325' AMSL
Survey Conditions: DBS-104: cultivated field (drilled soybeans 45 cm high), 50-60% surface visibility; DBS-106, 107: cultivated field (new soybeans), hard dry soil, 100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected within 58 individual 50-m square blocks, walking 5 m transects in heavily occupied central portion of site (23 subareas) and 10 m transects on other site areas; 9-person crew
Description: the Dogtooth Bend Mound Center (also, Dogtooth Bend site) is an extensive Mississippian-period civic-ceremonial center. Archaeologists and artifact collectors have visited the site over the years, and it was added to the National Register of Historic Places in 1975, but the 1993 Dogtooth Bend Survey was the first formal archaeological work at the site.

The Dogtooth Bend site extends over an estimated 28 ha (68 a) area adjacent to (north of) Lake Milligan at the south edge of the survey area (Figure 4-3). Although the National Register form defines a potential site area of 97 ha (240 a), the 1993 survey indicates a smaller site area. The site may extend more than 1000 m east-west by 500 m N-S. Portions of the site formerly extended at least 30 m farther south, but they have been destroyed by major erosion of the lake bank. Near the lake margin, the site's terrain is a broad, flat portion of the terrace. The north one-half of the site sits on two to four low, narrow, east-west trending sand ridges adjacent to shallow swales. A fairly prominent sand ridge in the north-central part of the site has particularly dense prehistoric occupation. The prominent ridge marks the northern edge of the site and is bounded by a substantial swale on the north. The site's landscape is quite dynamic, however, as witnessed in the 1993 flooding (see Chapter 5), and portions of the local terrain may have been altered since the prehistoric occupation. The northern site boundary, which ends abruptly at the swale, may have been partly obliterated by localized fluvial processes. The eastern and western site boundaries are still undetermined.

Site Structure

The site is dominated by a large truncated pyramidal mound (Mound 1) located near the bank of Lake Milligan in the east-west center of the site. Mound 1 stands 5 m high, is rectangular with a terrace on the south side, and covers approximately 50 m square at its base. A house stood on the mound in the earlier part of this century, and several vandal pits are present on its top. It is now covered in trees and brush. A smaller pyramidal(?) mound (Mound 2) occurs 75 m east of Mound 1, in line with the latter along the lake bank. Mound 2 was 1.5 m high and 35 m N-S x 40 m E-W at its base at the

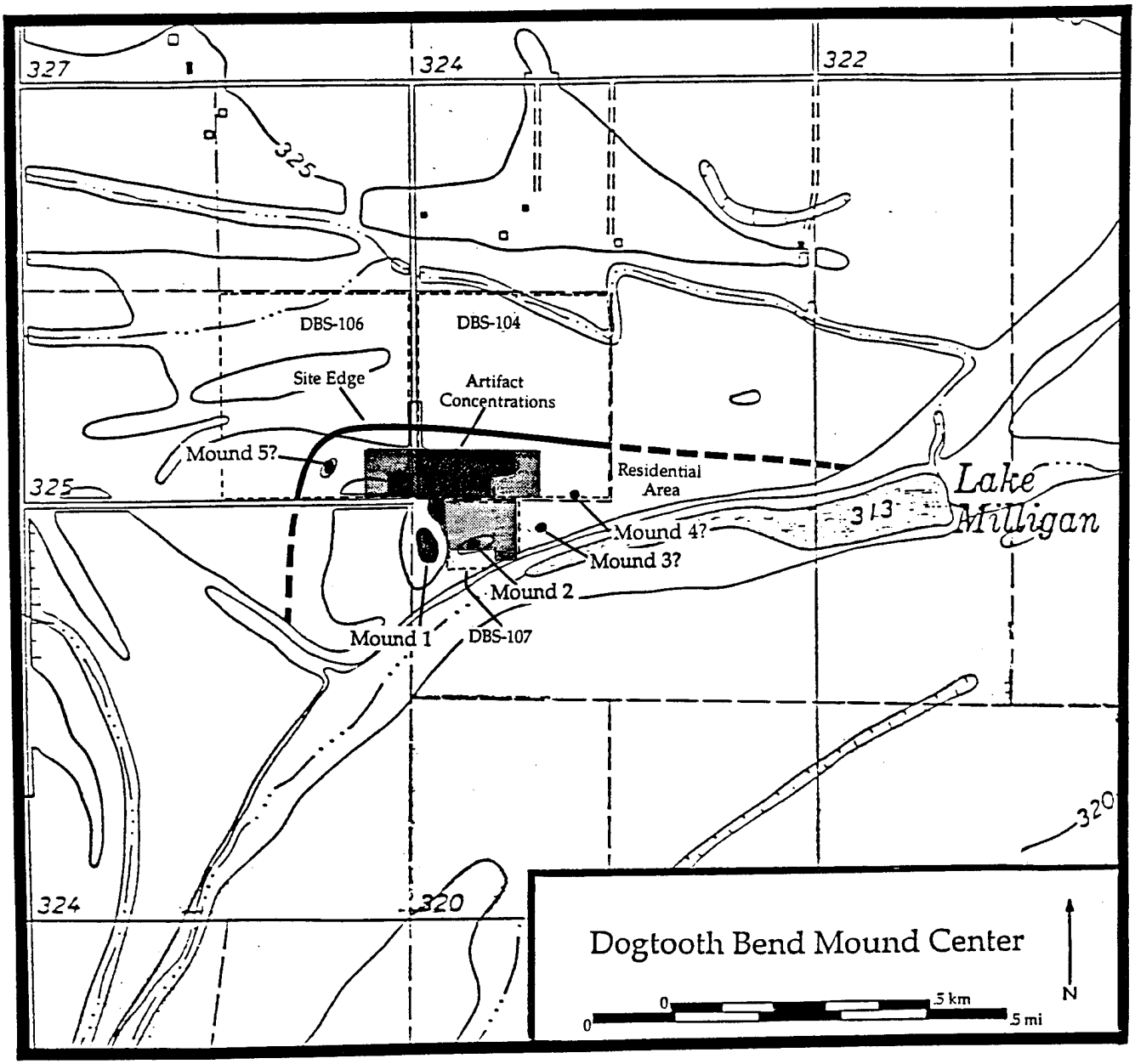


Figure 4-3. Dogtooth Bend Mound Center (24D3-13, IAS 11-Ax-31).

time of the 1993 survey. It has, no doubt, been partly deflated by years of plowing, and some 50 years ago the Mt. Zion Baptist Church stood on it. The 1993 floods left thick sand deposits between Mounds 1 and 2, and subsequently, the mound is a much less visible feature on the landscape.

The remnants of three other mounds are believe to be present at the site. Slight rises on relatively flat, plowed terrain are believed to be the remains of Mound 3 (?) and Mound 4 (?) that 125 m east and 200 m northeast of Mound 2, respectively. Mound 5 (?) is located 200 m northwest of Mound 1. Its basal dimensions are 40 m N-S x 30 m E-W. Mound 5 (?) was used in the early-midtwentieth century as a platform for a milk house. Local residents refer to it as a "man-made" mound rather than an "Indian mound." However, the feature's size, shape, and spatial configuration are similar to those of other mounds at the site and suggest that it too is aboriginal. Finally, a possible sixth, and fairly prominent mound is reported to have been formerly present at the extreme eastern end of the site area, possibly outside the formal site boundary, per se. It was outside the 1993 survey area, and its presence has not been confirmed by archaeologists.

Other aspects of site structure include a potential plaza immediately east of Mound 1 and north of Mound 2. A borrow area may be indicated by the presence of a closed depression 100 m west of Mound 1. A cemetery area is reported by a local informant to be some 125 m north of Mound 1, on the narrow, prominent ridge along the northern edge of the site. The informant discovered the burial area and recovered several dozen intact vessels from it in 1985, when the ridge was land-leveled slightly for farming. Another possible cemetery is reported to be near the west side of Mound 1. The site has a residential area near the present lake bank to the east of possible Mounds 3 and 4. Other residential areas are believed to occur to the north and west of the main mounds.

Site Survey

Portions of the Dogtooth Bend Mound Center are owned by seven different land-owners, some of whom did not allow access to their property for the 1993 survey. The survey concentrated on the investigation of three tracts in the north and south-central portions of the site. A gravel road extends east then north through the site in that area. Its L-shaped path demarks the edges of the tracts. Tract DBS-104 is a 16 ha survey quadrat located east of the road, although the actual site incorporates only 6.8 ha within the tract. DBS-104 includes the prominent ridge where the Mississippian cemetery reportedly occurs. Tract DBS-106 is a 16 ha quadrat on the north and west sides of the road. The site covers 3.0 ha area within that tract and includes possible Mound 5 and potentially has portions of the cemetery on the western end of the prominent sand ridge. Tract DBS-107 is a 2.8 ha field immediately south of DBS-104. It includes Mound 2 and surrounding areas up to the brush and trees that surround and cover Mound 1 at the west end of the field.

Tract DBS- 107 corresponds to the site area that was given SIUC Site Number 24D3-13 in 1972. Tracts DBS-104 and 106 have not been given separate SIUC numbers. However, Mound 1 was designated as 24D3-6 in 1950, and the field west of Mound 1 was called

24D3-12 (1972). To avoid the use of more numbers for what are actually parts of the same large site, the 1993 survey refers to all of the Dogtooth Bend Mound Center as SIUC 24D3-13.

A total of 12.6 ha were surveyed, representing 45% of the estimated 28 ha site area. A total of 2958 artifacts were recovered in the survey. DBS-104 had the heaviest prehistoric artifact scatter (2771 artifacts), which produces an artifact density of 407.5 artifacts/ha for that site area. DBS-106 yielded 349 prehistoric artifacts, a density ratio of 116.3 items/ha of site area. DBS-107 produced 240 prehistoric items (85.7 artifacts/ha). The prehistoric artifacts were concentrated on the sand ridge in DBS-104, particularly within a 100 m square area immediately east of the gravel road in the site's north-central area. One collection unit (DBS-104 Area D) yielded 391 prehistoric artifacts; adjacent areas also had more than 300 items. The artifact distribution tapers of to the east, west, and south, and ends abruptly to the north. The dense artifact scatter in the north-central area indicates a location of substantial occupation and also may well reflect the reported land-leveling activity there which resulted in the subsequent disturbance to more deeply buried archaeological materials.

The prehistoric artifact collections from the surveyed tracts include 1130 lithic items, 1637 ceramics, and four marine shell fragments. In addition, a selective sample of 187 historic period items were collected. The prehistoric lithics consist of 731 pieces of chert debitage, six hafted bifaces, three hoes, 335 other chert tools (most of which [289] are light-utility retouched or utilized flakes), 20 nonchert tools, and 36 nonchert rock specimens. Mill Creek chert comprises 52.4% of the identifiable chert debitage recovered at the site. That is a much larger percentage than found at other Dogtooth Bend sites. It suggests a focus on Mill Creek procurement and its concentration at the site, presumably during the Mississippian period (see Chapter 5). The next most common identifiable chert materials site's in the survey collection are Devonian (8.7%), Kaolin (6.5%), and Kornthal (5.0%) cherts. They suggest a fairly uniform low-level usage of various local and nonlocal materials other than, and in contrast to, Mill Creek chert.

Five prehistoric components are represented at the site. A small Late Archaic occupation is indicated on the DBS-106 tract by the presence of a chert drill diagnostic of that period. A limited Early Woodland occupation is indicated by presence of a Cypress Straight Stemmed point fragment on tract DBS-104. A small Late Woodland occupation is denoted by the presence of two Barnes Plain and one Raymond cordmarked sherds on DBS-104. The heaviest occupations, which define the site as an entity, occurred during the late prehistoric (Emergent Mississippian and Mississippian) periods. Both of those occupations are defined primarily on the basis of ceramic evidence.

The Emergent Mississippian component is represented by 196 cordmarked Dillinger sherds, 40 plain-surfaced Baytown sherds, and 22 eroded/fragmentary pottery specimens. The Emergent Mississippian material is distributed over an area 150 m N-S x 350 m E-W on the prominent ridge and adjacent area to the south, in the north-central portion of the Dogtooth Bend site area. It occupies, in affect, a core area, that remained such in the subsequent Mississippian period. Although the Emergent Mississippian

occupation is overshadowed by the much larger Mississippian one, it represents a substantial habitation area in its own right. Along with sites 24D3-261 and 24D3-50, it represents a nodal Emergent Mississippian settlement (village?) situated along the margins of the Dogtooth Bend high ground. It is another indication of the concentration of population into larger focal settlements during that time period.

The Mississippian component stands out prominently within the 1993 survey collection at the Dogtooth Bend Mound Center. A total of 1318 Mississippian ceramics were collected. Five Madison points were also obtained, which belong to the Mississippian or Emergent Mississippian component(s). The ceramics consist of a wide variety of plain and decorated sherds. Most specimens are plain (1163 Mississippi Plain [Plate 4D, E] and 39 Bell Plain), and 10 have cordmarked surface treatments. Sixty-nine decorated varieties (31 incised, 24 slipped or painted, and 14 otherwise decorated) are also present (see Materials Collected below, and Chapter 5). The ceramic assemblage also includes a portion of a human-head effigy water bottle (Plate 4F).

Mississippian ceramics were distributed over an area 290 m N-S x 550 m E-W but were concentrated most heavily within an area 150 m N-S x 250 m E-W in the north-central portion of the surveyed area. The heaviest concentration within a 50 m-square collection unit was one with 222 sherds (DBS-104 Area D), while adjacent areas in DBS-104 yielded 189, 176, and 175 sherds, respectively. Sixty-two (89.9%) of the decorated sherds also came from the DBS-104 survey tract. The concentrations of ceramics in the north-central site area is another indication of the intensive utilization of that portion of the site, and also, no doubt, reflects the probable land alterations there.

Variation in ceramic decorative forms provides some relative indications of the temporal sequence of Mississippian occupation at the site. The presence of 16 Varney Red Filmed, five Kimmswick Fabric Impressed, and two Wickliffe Thick sherds suggest an Early Mississippian occupation (ca. A.D. 1000–1100). Also, six sherds with lip notching and the 10 cordmarked specimens may relate to an early Mississippian occupation. The presence of 39 Bell Plain, four negative painted, five Matthews Incised (Plate 4G), and two effigy forms suggest a Middle Mississippian occupation (ca. A.D. 1000–1300). The Matthews Incised varieties, O'Byam Incised (Plate 4H), and Barton Incised sherds may also relate to the Late Mississippian period (A.D. 1300–1500), but taken together with the other Middle period materials, suggest an occupation focusing around ca. A.D. 1300. As best it can be understood from the ceramic evidence, which derives from a general chronology based on the relative presence/absence of various decorated wares, the Mississippian occupation of the site appears to be continuous from the earlier portion of that period.

The 1993 survey of portions of the Dogtooth Bend site provide the most information available on that strategic late prehistoric settlement. It allows the definition of some of the site's boundaries, yields a large surface collection that provides information, particularly, on the ceramic and chert assemblages, and it allows the preliminary investigation of site's spatial structure. The Dogtooth Bend Mound Center is shown to

be a significant entity in the Ohio-Mississippi River confluence region in late prehistoric times.

In addition to the substantial prehistoric occupations, the site contains late nineteenth–midtwentieth century historic occupations, as well. Historic materials were collected selectively in the survey to provide information on site function and period of occupation. The historic materials cluster at three locations within the general 24D3-13 site area. A group of 20 artifacts, including seven ceramics, 10 container and one flat glass, and two unglazed bricks occur just east of the gravel road on the DBS-104 tract, at the north end of prehistoric site area. A larger cluster with 75 collected items also occurs adjacent to the road, at the southwest corner of the DBS-104 tract. That collection contains 15 ceramics, 11 container and one flat glass, 28 unglazed and one glazed brick fragments, and 19 other items. U.S. Department of Agriculture aerial photographs indicate the presence of a structure at that location in 1938. A third cluster of 65 artifacts (24 ceramics, 21 container and four flat glass, seven unglazed brick, and nine other items) is present just north of the east-west gravel road on tract DBS-106. The material is concentrated 200 m west of the road bend. Aerial photographs and U.S.G.S topographic maps show the presence of a farmstead at that location through the mid-1950s. Sparse historic artifacts were also present on tract DBS-107 in the vicinity of Mound 2, where the Mt. Zion Baptist Church had stood in the early -midtwentieth century. None of the artifacts was specifically indicative of that site usage, however.

Material Collected: (CAI Accession Nos.: 93.136, 138, 139) n=2958

Prehistoric:

138	reduction flakes
133	thinning flakes
310	shatter/angular fragments
11	hoe flakes
4	cores
3	primary forms
132	debitage fragments
1	Cypress Straight Stem point (fragment)
5	Madison points
4	finished bifaces
34	thick bifaces
1	scraper
2	drills
3	hoes
1	gouge
1	hammerstone
226	retouched flakes
63	utilized flakes
2	other chert tools
11	groundstone fragments
2	grinding stones
5	grinding slabs
1	abrader

1 other nonchert tool
36 nonchert rock
1 Raymond sherd
2 Barnes Plain sherds
196 Dillinger sherds
40 Baytown sherds
22 Emergent Mississippian sherds (eroded/fragments)
1163 Mississippi Plain sherds
39 Bell Plain sherds
10 Mississippian cordmarked sherds
16 Varney Red Filmed sherds
5 Kimmswick Fabric Impressed sherds
2 Wickliffe Thick sherds
4 O'Byam Incised sherds
2 Matthews Incised, *var. Manley* sherds
2 Matthews Incised, *var. Matthews* sherds
1 Matthews Incised, *var. Beckwith* sherd
1 Barton Incised sherd
4 Mississippian negative painted sherds
4 Mississippian slipped sherds
18 Mississippian incised sherds
1 Mississippian trailed sherd
1 Mississippian embossed sherd
2 Mississippian effigy form sherds
6 Mississippian notched lip sherds
37 Mississippian eroded sherds
58 daub
4 marine shell (fragments)

Historic:

1 blue shell-edge pearlware
11 thin whiteware
15 thick whiteware
1 handpainted polychrome whiteware
1 blue slipped whiteware
3 molded plain whiteware
1 molded decorated whiteware
2 plain porcelain
1 plain porcelain with backmark
18 stoneware
54 container glass
10 flat glass
3 other metal
38 unglazed brick
2 glazed brick
3 ceramic tile
11 cinder/coal

1 bakelite
5 plastic
2 asbestos shingle
1 leather
2 freshwater mussel shell
1 limestone

24D3-50 (IAS 11-Ax-76, DBS-80) Elizabeth Youch Site (Revisit)

Site Type: large open habitation
Component: Early Woodland, Middle Woodland, Late Woodland, Emergent Mississippian, Mississippian, Midnineteenth–Midtwentieth Century Historic
Size: lenticular, maximum 250 m N-S x 650 m E-W (103,100 m^2)
Landform: crest of ridge on broad northwest-southeast trending terrace remnant
Soil Type: Millbrook silt loam
Elevation: >325' AMSL
Survey Conditions: cultivated field (drilled soybeans 30 cm high), 60% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within each of 65 50-m square blocks (Areas A–MMM); 9-person crew
Description: site 24D3-50, the Elizabeth Youch site, is a large prehistoric settlement with areas of dense-to-sparse artifact scatter over its surface The site is situated on the crest of an east-west trending ridge on a broad portion of the terrace remnant on the southwest side of the survey area. The site trends along the ridge for a maximum of 650 m east-west, extending back (east) from the western margin of the high ground in Dogtooth Bend. In prehistoric times, the Mississippi River may have been only 1 km to the west of the site, although it now flows some 2 km from it.

The 1993 investigation was a revisit to site 24D3-50. It was recorded originally in 1974 as a large site of unknown prehistoric cultural affiliation, and no artifact collection was made at that time. The 1993 survey redefined the site as a larger entity and made a systematic surface collection from it by dividing the area into a series of 50-m square units (Areas A-MMM) and transecting each at 5-m intervals. The artifact collection produced a coarse-grained controlled surface collection that shows a dense artifact scatter in the west-central portion of the site and moderate scatter surrounding that area in a diagonal line trending northwest-southeast. The artifact density is much sparser on the eastern one-third of the site. The site's artifact collection consists of 1295 artifacts, including 541 chert debitage, 173 chert tools, 8 nonchert tools, 24 nonchert rocks, 518 ceramics, and 31 historic items. A portion of the site (four collection units) on the northeast edge was redefined as a separate site (24D3-346H) when, in analysis, it was found to form a spatially separate historic period occupation.

Site 24D3-50 was occupied during several prehistoric periods. It has a sparse Early Woodland occupation represented by two Cypress Constricting Stem points. In contrast, the Middle Woodland component is extensive. It is defined by the presence of

122 Baumer/Crab Orchard sherds (Plate 4A), most with definitive fabric-impressions on the exterior surface. The Middle Woodland is also represented by a Snyders point (Plate 2G), a hafted biface fragment, two lamellar blades, and a flake scraper. Many of the 114 pieces of Cobden/St. Louis chert debitage may also relate to the Middle Woodland component. The ceramic and lithic materials are distributed over a diagonal area 400 m long on the west-central portion of the site. The densest ceramic concentration (24 sherds) occurred in a collection unit (Area W) located toward the western edge of the artifact distribution. The Middle Woodland occupation at 24D3-50 is the largest of that component recorded in Dogtooth Bend. It represents the nodal site in the area. Its focus toward the Mississippi River to the west provided it access to broader regional and interregional exchange networks, such as that centered at the Twenhafel site to the north in Jackson County, Illinois.

Site 24D3-50 has a sparse Late Woodland component defined by the presence of seven potsherds scattered loosely in the central and southwestern portions of the site. The ceramics consist of three Raymond Cordmarked, two Barnes Cordmarked, three Barnes Plain, and two eroded sherds. The items suggest light occupation(s?) of the site during that time.

The Emergent Mississippian component is extensive at the site. A total of 241 ceramics were found, including 214 Dillinger (Plate 4B), 20 Baytown, and 7 eroded sherds. The sherds are distributed over a broad area 250 m N-S x 450 m E-W. They tend to cluster in two areas: along a diagonal strip on the northwest side and on the south side of the site. The densest sherd clusters occur in individual collection units on the west-central portion of the site and north edge (31 and 30 sherds, respectively). The site's ceramic assemblage also includes three buff-colored, teardrop-shaped, baked clay objects that measure between 2.0–2.8 cm long x 1.8–1.9 cm wide x 1.5–1.9 cm thick. The items' functions and cultural affiliations are unknown, however their general morphological characteristics suggest possible Emergent Mississippian affiliation. The extensive Emergent Mississippian Petitt site located upstream on the Mississippi River also contains various kinds of baked clay objects in its assemblage. Another possible Emergent Mississippian item at 24D3-50 is the Mill Creek hoe fragment found near the dense ceramic cluster in the west-central portion of the site. That area also produced Mississippian ceramics, however; so the cultural affiliation of the hoe is uncertain. The Emergent Mississippian occupation represents one of three large settlements located on the west and south peripheries of the Dogtooth Bend high ground during that period. Along with the occupations at 24D3-261 and 24D3-13 (the Dogtooth Bend Mound Center), the Elizabeth Youch site functioned as a nodal center with substantial, sustained population.

The Mississippian occupation at the site is less extensive than that of the preceding Emergent Mississippian, however it is an important one. The surface collection yielded 51 Mississippian sherds. They occur in two clusters separated by more than 50 m. One cluster contains 32 sherds within an oval area 200 m in dimension in the west-central part of the site. The other cluster (or two subclusters) occur in the east-central site area. The ceramic distributions there form two L-shaped areas with five and 14 sherds,

respectively, that are approximately 25 m apart. The Mill Creek hoe fragment found at the site may relate to the west-central occupation area, as discussed above. The Mississippian artifact quantities and distributions suggest the presence of a possible hamlet-sized settlement in the west-central area and farmsteads in the east-central. The site thus would have functioned as an important focal point for the local community. The farmstead-sized clusters are like those of the group of Mississippian sites found 500 m north of site 24D3-50 and represent a continuation of the pattern of farmsteads scattered over the broad, flat landscape 1–1.5 km west of the main mound center.

The Elizabeth Youch site also has two minor historic period occupations. A selected sample of 31 diagnostic artifacts were collected in the survey. Two blue-shell edge pearlware and one blue handpainted sherds indicate a small midnineteenth century occupation. Several items including a thin whiteware sherd with a backmark, a fragment of a porcelain plant stand (?), and white pressed-glass indicate the presence of a larger late nineteenth–midtwentieth occupation. The historic material is clustered along the western edge of the site, facing the drop-off toward the Mississippi River to the west. A small amount of material also trails eastward across the site. This historic occupation is distinct from that defined as site 24D3-346H at the northeast edge of the site. A U.S. Department of Agriculture photograph from 1938 suggests the presence of a structure (cabin?) on the site's western periphery. A different abandoned structure was observed 30 m west of the site and adjacent to the road in the 1993 survey.

Material Collected: (CAI Accession No. 93.127) n=1295

Prehistoric:

6	reduction flakes
61	thinning flakes
84	shatter/angular fragments
14	hoe flakes
1	primary form
376	debitage fragments
2	Cypress Constricting Stem points
1	Snyders point
1	Middle Woodland hafted biface (fragment)
1	thick biface
1	scraper
1	hoe
2	lamellar blades
66	retouched flakes
99	utilized flakes
5	groundstone fragments
2	grinding stones
1	grinding slab
24	nonchert rocks
121	Baumer/Crab Orchard sherds
1	Middle Woodland sherd (eroded)
3	Raymond sherds
5	Barnes sherds

2 Late Woodland sherds (eroded)
214 Dillinger sherds
20 Baytown sherds
7 Emergent Mississippian sherds (eroded)
48 Mississippi Plain sherds
3 Mississippian cordmarked sherds
86 eroded sherds
8 daub

Historic:
2 decorated pearlware
4 thin whiteware
4 thick whiteware
1 blue handpainted whiteware
1 whiteware with backmark
1 decorated porcelain
7 stoneware
7 container glass
1 unglazed brick
3 cinder/coal

24D3-65 (IAS 11-Ax-91, DBS-34) (Revisit)

Site Type: small open habitation
Component: Middle Woodland
Size: 41 m N-S x 77 m E-W (3157 m^2)
Landform: south slope of prominent east-west trending ridge (terrace remnant) at north end of Dogtooth Bend
Soil Type: Alvin fine sandy loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (soybeans 12.5 cm high, sparse soybean stubble), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: the 1993 investigation of site 24D3-65 was a revisit to a site originally recorded in 1974. Very little information was recorded on the original survey form and no surface collection was made. The 1993 survey revealed the site to be a moderate lithic scatter located on the south slope of the prominent ridge at the north end of the survey area. The assemblage contains a diverse range of artifacts including one lamellar blade-like item. It is assigned a Middle Woodland cultural affiliation. The site is located in close proximity to two other Middle Woodland sites (24D3-283 and 286) on and near the ridge slope. The three sites may represent portions of a more substantial Middle Woodland habitation area at that general location.
Material Collected: (CAI Accession No. 93.81) n=83
13 reduction flakes
16 thinning flakes

16 shatter/angular fragments
2 cores
1 primary form
17 debitage fragments
1 hafted biface (fragment)
1 finished biface (fragment)
3 thick bifaces
1 lamellar blade
6 retouched flakes
5 utilized flakes
1 grinding stone

24D3-67 (IAS 11-Ax-93, DBS-37) (Revisit)

Site Type: large open habitation
Component: Early Woodland, Emergent Mississippian, Mississippian
Size: 100 m N-S x 84 m E-W (8400 m^2)
Landform: south slope of east-west trending ridge (terrace remnant) at north end of Dogtooth Bend
Soil Type: Lamont fine sandy loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (soybeans 15 cm high), dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: site 24D3-67 was originally recorded on a Illinois Archaeological Survey form in 1974. It was described as a "Poss. Woodland" habitation area that extended over a 20 m x 20 m area on a ridge. Artifacts observed but left in situ were a "hoe fragment, scraper, several utilized flakes, [and] two sherds." Projectile "points and pottery-burial" were also reported as belonging to the site.

The 1993 survey revisited the site. It was observed at that time as a moderate-heavy, oval-shaped artifact scatter on a ridge slope. It contains an Early Woodland Cypress Constricting Stem point, and Emergent Mississippian and Mississippian pottery sherds. It also yielded a Madison point (Plate 2I), which is assigned to the Mississippian component. The site represents a sizable habitation area that was reused repeatedly in prehistory. It occupied an advantageous location on the prominent landform at the northern end of Dogtooth Bend with access (facing south) into the bend.

The site is located near 24D3-285 on the same ridge. The landowner reported that soil was removed from the ridge top to elevate a barn near his house along the Miller City road. Sites 24D3-67 and 285 were no doubt disturbed by the earthmoving, however they still retain cultural material.
Material Collected: (CAI Accession No. 93.84) n=319
27 reduction flakes
41 thinning flakes

70 shatter/angular fragments
1 core
130 debitage fragments
1 Cypress Constricting Stem point
1 Madison point
5 thick bifaces
1 scraper
1 hammerstone
33 retouched flakes
3 utilized flakes
1 perforator
1 nonchert rock
2 Dillinger sherds
1 Mississippi Plain sherd

24D3-74 (IAS 11-Ax-100, DBS-20) (Revisit)

Site Type: large open habitation
Component: Late Archaic, Early Woodland, Late Woodland, Mississippian, Mid–Late Nineteenth Century Historic
Size: subrectangular, maximum 60 m N-S x 298 m E-W (16,018 m^2)
Landform: top of narrow NE-SW trending ridge on prominent ridge feature (terrace remnant) at north end of Dogtooth Bend
Soil Type: Lamont fine sandy loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high, sparse corn stubble), dry soil, 90–100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: the site was originally reported in 1974 as a "Poss. Woodland" occupation. Little information was recorded about it, and no surface collection was made. In the 1993 survey, the site was revisited and redefined as a smaller area than had been indicated. The site occupies the top of a long, low ridge on the large ridge feature at the north end of Dogtooth Bend. The site was divided into two areas (Areas A and B) for surface collection based on area shape and artifact density. Area A, measuring 41 m N-S x 98 m E-W on the east side of the site, had a moderate scatter of 44 artifacts, including a Late Archaic finished biface, 38 other chert items, a groundstone fragment, one grit-tempered Late Woodland sherd, a piece of daub, and a historic period whiteware sherd. The diagnostic biface indicates a Late Archaic occupation of the area in prehistory.

Area B at the site measures 60 m N-S x 200 m E-W and is adjacent to (west of) the smaller Area A. Area B had a moderate artifact scatter of 87 items, including a Saratoga Straight Stemmed point, seven finished biface fragments, 12 other chert tools, 49 pieces of chert debitage, seven groundstone tools, and two rocks. The collected assemblage also included seven Mississippian pot sherds, an eroded sherd, and a piece of daub. The

Mississippian occupation appears consistent with that of a farmstead, or perhaps multiple farmsteads extending along the ridge top. Area B is located 50 m southwest of another probable Mississippian farmstead (site 24D3-266) which occurs on a parallel-trending ridge. A Late Archaic occupation continues in Area B, as well as in Area A, as indicated by the presence of the Saratoga point.

Material Collected: (CAI Accession No. 93.62) n=131

Prehistoric:

- 10 reduction flakes
- 7 thinning flakes
- 25 shatter/angular fragments
- 2 primary forms
- 31 debitage fragments
- 1 Saratoga Straight Stemmed point
- 1 Late Archaic finished biface
- 7 finished bifaces (fragments)
- 4 thick biface
- 11 retouched flakes
- 7 utilized flakes
- 1 perforator
- 1 chert polishing-stone
- 2 grinding stones
- 3 pitted grinding stones
- 3 groundstone fragments
- 2 nonchert rocks
- 1 Late Woodland plain sherd
- 2 Mississippi Plain sherds
- 1 Mississippian cordmarked sherd
- 4 Mississippian sherds (eroded)
- 1 eroded/fragmentary sherd
- 3 daub

Historic:

- 1 whiteware sherd

24D3-249 (IAS 11-Ax-353, DBS-1)

Site Type: small open habitation

Component: Early Woodland, Middle Woodland, Late Woodland, Emergent Mississippian

Size: parabolic, 65 m N-S x 35 m E-W (3412 m^2)

Landform: top of low north-south trending terrace ridge at northeast end of Dogtooth Bend

Soil Type: Alvin fine sandy loam (thick)

Elevation: >325′ AMSL

Survey Conditions: cultivated field (soybeans 7.5 cm high), dry soil, 95–100% surface visibility

Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 10 m transects within site; 8-person crew
Description: the site is defined by a moderate scatter of lithics and sparse ceramics on the top of a small ridge. Material tapers off on the east and west sides as the ridge dips into adjacent swales. The site's southern boundary is defined arbitrarily at the northern edge of the Miller City blacktop road at the north end of Dogtooth Bend. Culturally diagnostic artifacts indicate that the site was used repeatedly, though probably ephemerally, at various times in prehistory. It is located approximately 75 m east of the more predominant site 24D3-250 and may be related to some of its prehistoric components.
Material Collected: (CAI Accession No. 93.44) n=52

- 4 reduction flakes
- 2 thinning flakes
- 18 shatter/angular fragments
- 1 primary form
- 8 debitage fragments
- 1 Steuben point
- 4 thick bifaces
- 1 Cypress Constricting Stem perforator
- 3 retouched flakes
- 4 nonchert rocks
- 1 Raymond sherd
- 5 Dillinger sherds

24D3-250 (IAS 11-Ax-354, DBS-2) Forrest Ice Site

Site Type: large open habitation
Component: Early Woodland, Middle Woodland, Late Woodland, Emergent Mississippian, Mississippian
Size: maximum 280 m NE-SW x 75 m NW-SE (17,438 m^2)
Landform: top of northeast-southwest trending ridge at northeast end of Dogtooth Bend
Soil Type: Landes fine sandy loam
Elevation: >325' AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high), dry soil; 95–100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 10 m transects within site; 8-person crew
Description: site 24D3-250, designated the Forrest Ice site, is a prominent multicomponent habitation site. It covers the top and slope of a low ridge which extends north of the Miller City blacktop road at the north end of Dogtooth Bend. The linear site was divided into five sequential segments (Areas A–E) based on differential artifact density. Artifacts were collected separately within each of the areas. Area A extended 100 m NE-SW x 50 m E-W immediately north of the road and west of Forrest Ice's yard. It had a

sparse artifact scatter (n=24), primarily of chert debitage (n=14) but also had Baytown, Dillinger, and Mississippi Plain ceramics (two of each type).

Area B (50 m NE-SW x 75 m E-W) just north of the yard, had a moderate-dense artifact scatter (n=99). It was occupied during several periods of prehistory, as indicated by sherds relating to the Middle Woodland (two Baumer/Crab Orchard Fabric Marked), Late Woodland (three Barnes), Emergent Mississippian (eight Baytown), and Mississippian (eight Mississippi Plain and one Mississippian cordmarked) components. It also had a Madison point and a Mill Creek hoe fragment, which relate to the Mississippian (or possibly Emergent Mississippian) occupation.

Area C, (25 m NE-SW x 75 m E-W) had only a sparse artifact scatter (n=33), but was also multicomponent. It produced an Early Woodland Motley point, Middle Woodland sherd (eroded), and Emergent Mississippian Dillinger sherd.

Area D (55 m N-S x 75 m E-W) had a moderate scatter (n=50), primarily of chert debitage, and had ceramics that relate to Late Woodland (one Raymond sherd), Emergent Mississippian (one Dillinger sherd), and Mississippian (two Mississippi Plain, two Mississippi cordmarked sherds).

Area E (50 m NE-SW x 60 m E-W) had a sparse scatter (n=48) that tapered off at the northeast end of the ridge. As the other defined subareas, it contained sherds from multiple components: Middle Woodland (one Baumer/Crab Orchard Cordmarked, one Baumer/Crab Orchard Plain), Late Woodland (two Raymond), Emergent Mississippian (three Dillinger), and Mississippian (one Mississippi Plain, one Mississippian cordmarked). It also yielded a Madison point and a Mill Creek hoe fragment that relate to the Mississippian (or possibly the Emergent Mississippian) occupation.

As the diagnostic artifacts indicate, Emergent Mississippian and Mississippian are the primary periods of occupation at 24D3-250. The site's size and artifact assemblage suggest that it was a prominent settlement during late prehistoric occupation. It was clustered with several other nearby sites at the northeast end of the river bend. It was thus well situated to avail of the low, swamp-land resources to its near north and east, and to have served as a perimeter settlement for those more confined within the bend. It was, no doubt, related to the Dogtooth Bend Mound Center (24D3-13) located 3 km south, and it may well have served as a hamlet (or closely spaced farmsteads) within that settlement system.

Material Collected: (CAI Accession No. 93.45) n=272

- 18 reduction flakes
- 11 thinning flakes
- 39 shatter/angular fragments
- 1 core
- 3 primary forms
- 78 debitage fragments
- 1 Motley point
- 2 Madison points

3 finished bifaces
1 scraper
2 hoe fragments (Mill Creek)
10 retouched flakes
4 utilized flakes
1 chert grinding stone
26 nonchert rocks
5 groundstone fragments
1 pitted grinding stone
1 grinding slab
2 Baumer/Crab Orchard Fabric Marked sherds
1 Baumer/Crab Orchard Cordmarked sherd
1 Baumer/Crab Orchard Plain sherd
4 Middle Woodland sherds (eroded)
4 Raymond sherds
3 Barnes sherds (eroded)
2 Late Woodland (eroded)
7 Dillinger sherds
10 Baytown sherds
3 Emergent Mississippian sherds (eroded)
13 Mississippi Plain sherds
4 Mississippian cordmarked sherd
4 Mississippian sherds (eroded)
6 eroded sherds
1 daub

24D3-251 (IAS 11-Ax-355, DBS-3)

Site Type: large open habitation
Component: Late Archaic, Middle Woodland, Late Woodland, Emergent Mississippian, Mississippian, Early–Midtwentieth Century Historic
Size: L-shaped, maximum 90 m N-S x 140 m E-W (9975 m^2)
Landform: low north-south trending ridge on terrace remnant at northeast end of Dogtooth Bend
Soil Type: Alvin fine sandy loam (thick)
Elevation: >325′ AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high), dry soil; 95–100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 10 m transects within site; 2-person crew
Description: this site is defined as a moderate-to-heavy scatter of lithics and sparse ceramics over an L-shaped area on a low ridge immediately north of the Miller City blacktop road in the northeast portion of Dogtooth Bend. Artifact material tapers off on the west edge of the site as the terrain drops into a swale. The site is located approximately 100 m east of the large site 24D3-250 and may well relate to it during

Woodland and late prehistoric (Emergent Mississippian and Mississippian) occupations. Site 24D3-251 also has a Late Archaic component defined by the presence of an Etley point (Plate 2B). The site's south and east edges are defined arbitrarily at the edges of the surveyed 16 ha (40 acre) tract, and the L-shape reflects the presence of a grassed yard, which was not surveyed. The associated house was observed in aerial photographs as early as 1938. The small historic period artifact collection relates to that homestead.

Material Collected: (CAI Accession No. 93.46) n=79

Prehistoric:

- 4 reduction flakes
- 1 thinning flake
- 6 shatter/angular fragments
- 1 core
- 1 primary form
- 12 debitage fragments
- 1 Etley point
- 2 thick bifaces
- 3 retouched flakes
- 1 chert grinding stone
- 2 groundstone fragments
- 21 nonchert rock
- 1 Baumer/Crab Orchard sherd
- 1 Middle Woodland sherd (eroded)
- 5 Raymond sherds
- 4 Dillinger sherds
- 2 Mississippian sherds
- 2 Mississippian cordmarded sherds
- 1 Mississippian sherd (eroded)

Historic:

- 2 thick whiteware
- 1 stoneware
- 1 container glass
- 3 unglazed brick
- 1 cinder

24D3-252 (IAS 11-Ax-356, DBS-4)

Site Type: large open habitation
Component: Unknown Prehistoric
Size: oval, 140 m N-S x 110 m E-W (11,200 m^2)
Landform: slopes of two low ridges and adjacent swale on terrace remnant at northeast end of Dogtooth Bend. Site faces slough with standing water to the north.
Soil Type: Hurst silt loam
Elevation: 325' AMSL

Survey Conditions: cultivated field (soybeans 7.5 cm high), dry soil, 95–100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 10 m transects within site; 5-person crew
Description: this site consists of a very sparse lithic scatter over a large oval-shaped area on the slopes of two low ridges and an adjacent swale. The site is adjacent to standing water in a slough to the north. Given its location, site 24D3-252 is of questionable integrity as a place of habitation, but was defined as an individual site based on its spatially distinct location. The site occurs approximately 50 m northeast (downslope) of the prominent site 24D3-250 and may relate to some aspects of the latter's occupation.
Material Collected: (CAI Accession No. 93.47) n=8

1 reduction flake
4 shatter/angular fragments
1 retouched flake
2 nonchert rocks

24D3-253 (IAS 11-Ax-357, DBS-5)

Site Type: large open habitation
Component: Mississippian
Size: 115 m N-S x 90 m E-W (10,350 m^2)
Landform: low north-south trending floodplain ridge at northeast end of Dogtooth Bend
Soil Type: Dupo silt loam
Elevation: >325' AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high), dry soil, 95–100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 10 m transects within site; 4-person crew
Description: site 24D3-253 is characterized by a very sparse artifact distribution over an oval-shaped area on the top of a low, flat ridge. The site's Mississippian occupation, defined by the presence of one ceramic sherd, may well relate to that at the nearby prominent site 24D3-250. The site is also located only 20 m north of site 24D3-251, but is separated from the latter by a change in terrain to a broader, flatter ground surface.
Material Collected: (CAI Accession No. 93.48) n=5

1 reduction flake
1 shatter/angular fragment
1 thick biface
1 nonchert rock
1 Mississippian sherd

24D3-254 (IAS 11-Ax-358, DBS-6)

Site Type: large open habitation
Component: Unknown Prehistoric

Size: trapezoidal, maximum 90 m N-S x 60 m E-W (6300 m^2)
Landform: base of northeast-southwest trending ridge on terrace remnant at northeast end of Dogtooth Bend
Soil Type: Hurst silt loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high), dry soil, 95–100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 10 m transects within site; 5-person crew
Description: the site consists of a very sparse lithic scatter on low ground at the base of a low ridge point. It is adjacent to standing water in a slough to the north. The site has questionable integrity as a habitation area, but the presence of the artifacts within the area warrant its designation as an archaeological site. It is located 65 m north and downslope of site 24D3-255 and may be related to it.
Material Collected: (CAI Accession No. 93.49) n=5

1 reduction flake
1 shatter/angular fragments
1 finished biface
1 retouched flake
1 grinding slab fragment

24D3-255 (IAS 11-Ax-359, DBS-7)

Site Type: large open habitation
Component: Emergent Mississippian
Size: maximum 180 m N-S x 90 m E-W (11,800 m^2)
Landform: top of narrow, low, north-south trending ridge on terrace remnant at northeast end of Dogtooth Bend
Soil Type: Hurst silt loam
Elevation: >325′ AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high), dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 10 m transects within site; 5-person crew
Description: site 24D3-255 consists of a linear series of four separate artifact scatters (Areas A–D) trending along the top of a long, narrow ridge. The scatters are separated from one another by 10 to 25m , and the artifact density within each of the areas is very sparse. The definition of the four areas as one site is based on their cooccurrence on the same continuous topographic feature (ridge). The site's western boundary is arbitrary, at the edge of the surveyed tract, and the site may well continue to the west. As defined, the site represents a very light, though spatially extensive occupation or series of discrete occupations. The presence of a Baytown sherd indicates its utilization during the Emergent Mississippian period, at least. The site may be associated with the prominent site 24D3-250, which occurs on the adjacent ridge some 50 m to the south.

Material Collected: (CAI Accession No. 93.50) n=22

1 reduction flake
5 thinning flake
11 shatter/angular fragments
3 debitage fragments
2 nonchert rock
1 Baytown sherd

24D3-256F (IAS 11-Ax-360, DBS-8F)

Site Type: isolated find
Component: Unknown Prehistoric
Size: 17 m N-S x 6 m E-W (102 m^2)
Landform: flat top of low floodplain ridge at north end of Dogtooth Bend
Soil Type: Landes fine sandy loam
Elevation: >325' AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 10 m transects within site; 5-person crew
Description: this site is designated as an "isolated find" based on the presence of a few lithic artifacts within a small 17 m x 6 m area. The site occurs on the top of a broad ridge which also contains site 24D3-255 further along its extent. The site was originally designated as part of the latter, but given its separation of 55 m from 24D3-255, it was deemed to hold integrity as a separate isolated-find unit. The site is also located approximately 50 m west of the more prominent site 24D3-250 on the next ridge.
Material Collected: (CAI Accession No. 93.51) n=4

3 retouched flakes
1 nonchert rock

24D3-257H (IAS 11-Ax-361, DBS-9H)

Site Type: large open habitation (farmstead)
Component: Early–Midnineteenth Century, Late Nineteenth–Midtwentieth Century Historic
Size: L-shaped, maximum 82 m N-S x 90 m E-W (5780 m^2)
Landform: top of slight, east-west trending floodplain ridge near the eastern edge of Dogtooth Bend
Soil Type: Gorham silty clay loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 2.5 cm high), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: the site is defined as an L-shaped distribution of nineteenth and twentieth century artifacts that occur at two spatially distinct locations (Areas A and B). Area A,

the main distribution, contains a moderate artifact scatter within an area 60 m north-south x 110 m east-west immediately north of an east-west trending gravel land-section line road. The artifact distribution is slightly denser on the eastern side of Area A than elsewhere on the site. Area B is located north of Area A and is separated from it by approximately 10 m which lacked artifacts at the time of the survey. Within Area B, artifacts are scattered sparsely over an area 22 m north-south x 40 m east-west.

The site's artifact contents and distribution suggest that the site was a historic period farmstead, with the main habitation location at Area A and possible associated out building(s) at Area B. U.S. Department of Agriculture aerial photographs from 1938 confirm that suggestion. The main period of occupation was the late nineteenth–midtwentieth century. The site's artifact collection also includes 14 early–midnineteenth century pearlware sherds, which may indicate an earlier occupation, as well, or the later retention of the ceramics as heirlooms.

Material Collected: (CAI Accession No. 93.52) n=126

12	plain pearlware
2	decorated pearlware
23	thin whiteware
9	thick whiteware
2	molded whiteware
5	plain porcelain
1	decorated porcelain
1	molded porcelain
6	stoneware
1	yellow ware
27	container glass
5	flat glass
2	metal tools
4	metal hardware
3	other metal
7	unglazed brick
1	concrete
2	cinder/coal
1	bakelite
1	shell button
1	glass marble

24D3-258H (IAS 11-Ax-362, DBS-10H)

Site Type: small open habitation
Component: Late Nineteenth–Early Twentieth Century Historic
Size: 15 m N-S x 50 m E-W (750 m^2)
Landform: level floodplain near east edge of Dogtooth Bend
Soil Type: Gorham silty clay loam
Elevation: 321–324' AMSL

Survey Conditions: cultivated field (soybeans 2.5 cm high, corn stubble), 85% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site consists of a sparse scatter of late nineteenth–early twentieth century artifacts within a narrow area 15 m north-south x 50 m east-west immediately north of a gravel section-line road. The eastern boundary of the site is arbitrary at the edge of the surveyed quadrat. The artifact assemblage suggests that the site was a small habitation area, perhaps a homestead, although the 1938 Department of Agriculture aerial photographs show the area to be just a cultivated field.
Material Collected: (CAI Accession No. 93.53) n=19

- 4 thin whiteware
- 3 thick whiteware
- 9 stoneware
- 2 container glass
- 1 metal hardware

24D3-259H (IAS 11-Ax-363, DBS-11H)

Site Type: small open habitation
Component: Early–Midtwentieth Century Historic
Size: 25 m N-S x 45 m E-W (1125 m^2)
Landform: level floodplain near east edge of Dogtooth Bend
Soil Type: Millbrook silt loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (newly planted soybeans), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: the site consists of a sparse scatter of early–midtwentieth century artifacts within an area 25 m north-south x 45 m east-west. The site occurs immediately east of a gravel section-line road. Three cottonwood trees occur near the road at the site, suggesting the location of a former house site. The artifacts suggest primarily a midtwentieth century occupation. Department of Agriculture aerial photographs from 1938 indicate the presence of a farmstead at the site location. The house is not noted on a 1955 U.S.G.S. 15' topographic map of the region, however. The site is situated 22 m northwest of site 24D3-257H, but faces a different road. The two habitations may well have been at least partly contemporaneous.
Material Collected: (CAI Accession No. 93.54) n=46

- 7 thin whiteware
- 2 thick whiteware
- 1 blue transfer-print whiteware
- 1 yellow ware
- 3 container glass
- 5 metal hardware
- 2 unglazed brick

2 cinder/coal
2 porcelain insulators
1 glass marble

24D3- 260 (IAS 11-Ax-364, DBS-13, 14F, 15F, 16F, 59F)

Site Type: large open site
Component: Unknown Prehistoric
Size: triangular, 620 m NE-SW x 90 m NW-SE (27,000 m^2)
Landform: flat floodplain terrain sloping gently toward swale to northeast
Soil Type: Gorham silty clay loam
Elevation: 321–324′ AMSL
Survey Conditions: plowed field (soybeans 7.5 cm high, some corn stubble), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site consists of a very sparse, dispersed scatter of lithics that occur as isolated artifacts over a broad expanse of level floodplain terrain. The artifacts are grouped together as a site due to their consistent occurrence on that landform and the lack of other, more clustered artifactual remains in their vicinity. The integrity of the collection as a functional site is questionable, however. A similarly-structured site (24D3-311) which also consists of a few artifacts, including one Late Archaic biface, that are dispersed across the floodplain, is present some 125 m to the southeast. In both cases, site definition consists of a "dot-to-dot" connection of the isolated artifacts. The presence of those dispersed artifact scatters in a portion of the floodplain that is susceptible to flooding suggests that there may have been some artifact displacement from original prehistoric spatial contexts. The closest formal occupation area is a small Emergent Mississippian/Mississippian site (24D3-310) that occurs approximately 50 m south of the site but does not appear to be associated with 24D3-260.
Material Collected: (CAI Accession No. 93.55) n=6
1 core
1 debitage fragment
3 retouched flakes
1 pitted grinding stone

24D3-261 (IAS 11-Ax-365, DBS-83) Jerry Pecord Site

Site Type: large open habitation
Component: Middle Woodland, Late Woodland, Emergent Mississippian, Mississippian, Late Nineteenth–Midtwentieth Century Historic
Size: minimum 400 m N-S x minimum 110 m E-W (minimum 44,000 m^2)
Landform: broad, flat east-west trending floodplain ridge
Soil Type: Ware silt loam
Elevation: >325′ AMSL

Survey Conditions: cultivated field (drilled soybeans 25 cm high), ground surface wet or damp in some areas, 60% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within each of 16 50-m square blocks (Areas A–P); 9-person crew
Description: site 24D3-261, designated the Jerry Pecord site, is large site with a dense artifact concentration. It extends over a long rectangular area that is minimally 400 m N-S x 110 m E-W. The site appears to continue to the south and east, but those locations were outside the landowner-allowed survey zone. It may also extend slightly to the west, beyond a gravel road on the west edge of the surveyed field. The site is located on a broad, flat foodplain ridge on the western margin of the Dogtooth Bend Survey area. The high ground drops off rapidly west of the gravel road. The site faces the western exposure of Mississippi River, which in prehistoric times may have been only 1 km from it.

The site's extensive surface scatter was apparent even though the surface visibility was only 60% (low compared to other fields surveyed in the project). A different collection procedure was employed which involved collecting artifacts within each of 16 50-square m units (Areas A–P), thus producing a coarse-grained controlled surface collection. The collection yielded 2190 artifacts, including 421 pieces of chert debitage, 99 chert tools, eight nonchert tools, 70 nonchert rocks, 1555 ceramics, and 37 historic-period items. Many of the potsherds were small specimens (<2.5 cm square), and many of the nonchert lithics are small pieces of sandstone (fire-cracked rock?). The nature of these artifact classes suggests that the site has been deeply (chisel) plowed recently, and that subsurface features may have been impacted.

Prehistoric material occurred in all 16 collection units, but was concentrated most heavily on the southwest side of the defined site. Two areas there each contained over 400 artifacts, while three surrounding ones had over 200 items. Prehistoric ceramics comprise the largest artifact category found (n=1555 sherds), and along with diagnostic lithics, indicate differential location and intensity of various prehistoric occupations.

A limited Early Woodland occupation, defined by the presence of two Cypress Constricting Stem points, occurred within a 100 m square area in the south-central portion of the site. Fairly substantial Middle and Late Woodland occupations occur in the southwest quarter. The Middle Woodland component contained 26 ceramics, a Snyders point, two lamellar blades, a flake scraper, and a hafted biface fragment. That occupation is related to the large Middle Woodland presence at 24D3-50, 550 m south and also facing the Mississippi River along the western margin of the bend's high ground. The Late Woodland occupation, only slightly more extended than that of the Middle Woodland, had 34 sand-tempered Barnes potsherds, which is the largest concentration of Late Woodland materials at any of the 93 survey sites.

The Emergent Mississippian occupation dominates the site. It is represented by the presence of 1380 sherds in the surface collection. Most are cordmarked Dillinger ceramics (n=1227), but plain-surfaced Baytown specimens occur as well (n=23). The

sherds are heavily fragmented from plowing. A Mill Creek hoe fragment may relate to the component. The Emergent Mississippian occupation is focused on the southwest one-forth of the site, over an area 250 m long (N-S), where more than 300 sherds were found in each of two collection units. The occupation also extends to the east and is noticeably present in the northwest corner of the defined site area. The occupation represents a major Emergent Mississippian site, even taking into account the effect of plowing on the presence of artifacts. It suggests a village-sized settlement. Along with the large occupation at 24D3-50, site 24D3-261 indicates a population concentration along the western margin of the bend during Emergent Mississippian.

A sizable Mississippian component is also present at 24D3-261. It is represented by the presence of 37 sherds over a 200-m long area on the west-central portion of the site. The material is concentrated particularly in one 50-m square collection unit (Area E) that yielded 22 of the sherds. The Mill Creek hoe fragment could also relate to the Mississippian component. The occupation appears to be a large hamlet-sized settlement on the western edge of the Dogtooth Bend high ground. It is located nearly 2 km northwest of the focal Dogtooth Bend Mound Center.

The site also contains limited midnineteenth century and moderate late nineteenth–midtwentieth century occupations concentrated, respectively, in the northwest, east-central, and southwest portions of the site. A selected collection of 37 diagnostic artifacts was made among the three areas. A 1938 aerial photograph and a 1955 15′-quadrangle topographic map indicate the presence of a farmstead just south of the surveyed tract's southwest corner.

Material Collected: (CAI Accession No. 93.56) n=2190

Prehistoric:

38	reduction flakes
37	thinning flakes
118	shatter/angular fragments
27	hoe flakes
1	core
1	primary form
199	debitage fragments
1	hafted biface
3	thick bifaces
2	lamellar blades
31	retouched flakes
59	utilized flakes
3	other chert tools
7	groundstone fragments
1	pitted grinding stone
70	nonchert rocks
21	Baumer/Crab Orchard sherds
5	Middle Woodland sherds (eroded)
33	Barnes sherds
1	Late Woodland sherd (eroded)

1227 Dillinger sherds
23 Baytown sherds
130 Emergent Mississippian sherds (eroded)
20 Mississippi Plain sherds
15 Mississippian cordmarded sherds
2 Varney Red Filmed sherds
30 eroded/fragmentary sherds
48 daub

Historic:
1 pearlware sherd
9 whiteware sherds
1 annular painted sherd
11 stoneware sherds
4 container glass
5 unglazed brick
3 cinders
1 concrete
1 faceted glass bead
1 glass button

24D3-262F (IAS 11-Ax-366, DBS-84F)

Site Type: Isolated Find
Component: Unknown Prehistoric
Size: 1 m x 1 m (1 m^2)
Landform: level floodplain
Soil Type: Gorham silty clay loam
Elevation: >325' AMSL
Survey Conditions: cultivated field (soybeans 35 cm high), 90% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site is defined by the presence of an isolated chert flake on level floodplain terrain. Three other small sites or isolated finds (24D3-263, 313, 314F) occur in its vicinity within the 16-ha survey quadrat where it occurred, suggesting a light, dispersed utilization of that area by prehistoric groups.
Material Collected: (CAI Accession No. 93.57) n=1
1 reduction flake

24D3-263 (IAS 11-Ax-367, DBS-85)

Site Type: small open habitation
Component: Unknown Prehistoric
Size: 40 m NW-SE x 15 m NE-SW (600 m^2)
Landform: level terrace remnant in the floodplain

Soil Type: Millbrook silt loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (soybeans 30 cm high), 90–95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 9-person crew
Description: the site consists of a very sparse scatter of lithic debitage and tools found within a small area on the level floodplain terrace. The site is similar in structure to several other small sites in its vicinity and represents a very light prehistoric utilization of the surrounding area.
Material Collected: (CAI Accession No. 93.58) n=5

- 2 shatter/angular fragments
- 1 primary form
- 1 retouched flake
- 1 grinding stone

24D3-264 (IAS 11-Ax-368 DBS-17)

Site Type: large open habitation
Component: Early Woodland
Size: maximum 45 m NW-SE x 365 m NE-SW (12,040 m^2)
Landform: slope of floodplain ridge adjacent to a swale
Soil Type: Riley silty clay loam
Elevation: 320′ AMSL
Survey Conditions: plowed field, dry soil, 95–100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within individual subareas (Areas A–E) at the site; 8-person crew
Description: 24D3-264 is a long narrow site with a moderate-to-dense artifact scatter that extends along the slope of a northeast-southwest trending floodplain ridge. The site was divided arbitrarily into five sequential subareas (Areas A–E) for purposes of artifact collection. Material from the site consisted primarily of various kinds of chert debitage (n=240) and lightweight tools (n=41), with only one diagnostic hafted biface (Kramer point). Area A (triangular, 36 m N-S x 80 m E-W) on the west side of the site, west of a shallow drainage ditch, had 47 chert and one nonchert rock items. Area B (trapezoidal, between Areas A and C, 45 m N-S x 50 m E-W) had 62 chert and two nonchert rock specimens. Area C (45 m N-S x 50 m E-W) located near the site center had a denser artifact scatter of 116 chert items (including 19 tools), one grinding stone, and two rocks. Area D (trapizoidal, 45 m N-S x 80 m E-W, immediately east of Area C) had a moderate distribution of 50 chert artifacts, including 12 tools, and one rock. Area E (triangular, 37 m N-S x 116 m E-W) on the site's east side, yielded 22 chert artifacts and a nonchert hammerstone. The site's artifact distribution suggests a fairly tight occupation of the ridge slope, concentrated toward the center of the site. The Kramer point indicates an Early Woodland period of occupation for the site.

Material Collected: (CAI Accession No. 93.59) n=302

21 reduction flakes
31 thinning flakes
56 shatter/angular fragments
2 primary forms
130 debitage fragments
1 Kramer point
6 finished bifaces
6 thick bifaces
39 retouched flakes
2 utilized flakes
1 grinding stone
1 hammerstone
6 nonchert rocks

24D3-265 (IAS 11-Ax-369, DBS-18) James Ice Site

Site Type: large open habitation
Component: Late Archaic, Early Woodland, Middle Woodland, Late Woodland, Emergent Mississippian, Mississippian
Size: diamond-shaped, maximum 335 m E-W x 150 m N-S (23,000 m^2)
Landform: crest of prominent east-west trending ridge (terrace remnant) in floodplain at the north end of Dogtooth Bend
Soil Type: Lamont fine sandy loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 10 cm high, some corn stubble), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: site 24D3-265, the James Ice site, consists of a large, dense scatter of artifacts over a diamond-shaped area on the crest of the prominent ridge at the north end of Dogtooth Bend. The site faces the bend to the south and would have been a point of access and observation of that area. The site has a broad multicomponent occupational history from the Late Archaic through the Mississippian periods. The surface collection yielded 143 chert tools of various functional categories, including four hafted bifaces, 12 finished and 27 thick bifaces, two scrapers, five woodworking tools, two digging implements, 2 grinding or hammerstones, and 87 lightweight cutting/scraping tools. The diverse tool assemblage indicates that 24D3-265 was a prominent, heavily utilized, and repeatedly occupied settlement location. Ceramics include a full spectrum of defined Middle Woodland through Mississippian varieties (Plate 4C) distributed loosely over the site.

In the process of defining the shape and extent of the site, surface material was observed extending well beyond the western edge of the defined survey quadrat (Quadrat 4). The site was pursued to the west into the next 16-ha area, and fully one-half of surface

scatter was found there. This resulted in an extended definition of the size and shape of Quadrat 4 in order to include the site area. The site was divided into four sequential areas (Areas A–D) for the surface collection. Area A was a triangular area 90 m N-S x 120 m E-W on the western end of the site. It yielded 244 lithics and 24 ceramics. Area B was a trapezoidal area measuring 150 m N-S x 47 m E-W which contained 222 lithics and 26 ceramics. Area C, also trapezoidal, measured 150 m N-S x 77 m E-W and had 209 lithics and 27 ceramics. Area D, on the eastern end of the site, was a triangle measuring 75 m N-S x 92 m E-W, with a smaller, but still diverse artifact assemblage of 52 lithic artifacts, including a large piece of galena, and 9 ceramics.

Diagnostic chert and ceramic artifacts indicate a pattern of shifting spatial utilization of the site. Late Archaic diagnostics (projectile points) occur on the western one-half of the site (Areas A and B). Early Woodland lithics are present on the site's west and east ends (Areas A and D). Middle Woodland ceramics occur on the western one-half and eastern end of the site (Areas A, B, and D). Late Woodland ceramics are found on the western end (Area A) and eastern one-half (Areas C and D) of the site. Emergent Mississippian ceramics occur on the western two-thirds of the site (Areas A, B, and C). Mississippian ceramics and lithics (hoe) are present across the entire site area (Areas A–D). The differential distributions indicate a shifting pattern of site utilization at different periods of prehistory, rather than a continuous occupation across the site as a whole. At different times, occupation was concentrated on various subareas and resulted in a site structure that is a palimpsest of overlapping occupations on the prominent ridge crest overlooking Dogtooth Bend to the south.

Material Collected: (CAI Accession No. 93.60) n=810

74	reduction flakes
70	thinning flakes
176	shatter/angular fragments
1	hoe flake (Bailey)
4	cores
4	primary forms
197	debitage fragments
1	Etley point (fragment)
1	Saratoga Straight Stemmed point
1	Cypress Constricting Stempoint
1	Motley point
12	finished bifaces
27	thick bifaces
1	Cypress Constricting Stem scraper
1	scraper
2	hoes (1 Mill Creek, 1 Mounds)
4	adzes
1	gouge
3	chert hammerstones
1	lamellar blade
72	retouched flakes
14	utilized flakes

1 chert grinding stone
2 grinding stones
3 pitted grinding stones
1 hammerstone
1 polishing stone
1 galena
50 nonchert rock
4 Baumer/Crab Orchard Fabric Marked sherds
5 Middle Woodland sherds (eroded)
1 Raymond sherd
1 Barnes Plain sherd
1 Barnes Cordmarked sherd
7 Dillinger sherds
2 Baytown sherds
2 Emergent Mississippian sherds (eroded)
7 Mississippi Plain sherds
3 Mississippian cordmarked sherds
7 Mississippian sherds (eroded)
17 eroded ceramics
26 daub

24D3-266 (IAS 11-Ax-370, DBS-19)

Site Type: small open habitation
Component: Mississippian
Size: parabolic-shaped, maximum 30 m N-S x 95 m E-W (2138 m^2)
Landform: low secondary ridge on prominent east-west trending ridge (terrace remnant) at the north end of Dogtooth Bend
Soil Type: Cairo silty clay
Elevation: 321–324' AMSL
Survey Conditions: plowed field (some corn stubble), dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 7-person crew
Description: the site consists of a sparse scatter of chert, nonchert tools, and ceramics on the north edge of a low east-west trending ridge. The single sherd is an eroded shell and grit-tempered Mississippian item. The nonchert tools include a grinding stone, hammerstone, and the distal end of a celt (?). The site's artifact assemblage might be considered typical of those from Mississippian farmsteads. The site's size is also consistent with such sites. A similar Mississippian occupation also occurs at 24D3-74, on the next ridge, approximately 50 m to the south.
Material Collected: (CAI Accession No. 93.61) n=13
1 reduction flake
1 thinning flake
2 shatter/angular fragments
3 debitage fragments

1 thick biface
1 retouched flake
1 grinding stone
1 hammerstone
1 celt (distal fragment)
1 Mississippian sherd

24D3-267H (IAS 11-Ax-371, DBS-21H)

Site Type: large open habitation (Historic farmstead)
Component: Middle Archaic; Middle Woodland; Late Woodland; Early–Midnineteenth, Late Nineteenth, Early–Midtwentieth Century Historic
Size: subtriangular, maximum 77 m N-S x 188 m E-W (8200 m^2)
Landform: prominent east-west trending floodplain ridge (terrace remnant) at north end of Dogtooth Bend
Soil Type: Lamont fine sandy loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (new soybeans), dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 7-person crew
Description: the site consists primarily of a historic period occupation distributed on the east and west sides of a gravel road. A sparse prehistoric scatter relating to small-scale Middle Archaic, Middle Woodland, and Late Woodland occupations occurs, as well. A dense scatter of historic material covered the site, and only a sample of it was collected in the survey. Diagnostic artifacts indicate occupation during the early-midnineteenth century (1830–1850) (e.g., pearlware, sponged and transfer print whiteware), late nineteenth century (1880–1900) (e.g., molded whiteware, "Alfred Meakin" whiteware, 1891 penny, and a bottle with seam marks to the lip), and early–midtwentieth century (decaled whiteware, handpainted porcelain, glass insulators, depression glass, a "Ponds Cold Cream" jar, and a glass marble). Site occupation from the late nineteenth to midtwentieth century may well have been continuous.

Department of Agriculture aerial photographs from 1938 indicate the presence of a farmstead at the site location at that time. The main buildings were on the east side of the gravel road, and a tree was on the west side. The 1993 landowner, Mrs. James Dickerson, informed the survey crew that the house had burned down in 1952, thus ending the site's residential occupation.
Material Collected: (CAI Accession No. 93.63) n=120
Prehistoric:
3 reduction flakes
5 thinning flakes
5 shatter/angular fragments
2 debitage fragments
1 Matanzas point (fragment)
1 scraper

6 retouched flakes
1 nonchert rock
1 plain-surfaced Middle Woodland sherd
1 Barnes sherd

Historic:

2 plain pearlware
10 plain whiteware
2 sponged whiteware
3 transfer print whiteware
1 hand painted polychrome whiteware
1 molded whiteware (plain)
1 decaled whiteware
1 thin whiteware with backmark ("ALFRED ME...ENGLAN...")
1 plain porcelain
1 hand-painted porcelain
24 stoneware
3 yellowware
30 container glass
1 machine-cut nail
2 metal tools
2 metal hardware
1 Indian Head penny ("1891")
2 glazed bricks
3 ceramic tiles
1 coal
2 marbles (1 clay, 1 glass)

24D3-268 (IAS 11-Ax-372, DBS-22)

Site Type: large open habitation
Component: Late Archaic, Early Woodland, Emergent Mississippian, Late Nineteenth–Midtwentieth Century Historic
Size: maximum 53 m NW-SE x 192 m NE-SW (9131 m^2)
Landform: top and slopes of low, flat NE-SW trending floodplain ridge at north end of Dogtooth Bend
Soil Type: Cairo silty clay
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 10 cm high, some soybean stubble), wet surface on slopes, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: site 24D3-268 has a uniformly dense scatter of prehistoric artifacts over the top and slopes of a low ridge. The site ends arbitrarily on the east at a gravel road. The site was arbitrarily divided into Areas A and B for collection purposes. Area A, the eastern one-half of the site, yielded a total of 300 prehistoric artifacts, primarily chert

debitage (n=211), as well as numerous finished bifaces, thick bifaces, retouched flakes and Late Archaic and Early Woodland projectile points (Plate 2D). Area B, the western one-half of the site, produced 233 items with a similar artifact profile to that of Area A. It included 177 pieces of chert debitage, bifaces and biface fragments, retouched flakes, and Early Woodland and Emergent Mississippian projectile points. The range of artifacts, including the numerous chert tools, recovered from the site suggest that it had a fairly substantial occupation during portions of prehistory.

A sparse historic period occupation is also present at the site. A selective collection was made of that material. The presence of two sponged-blue whiteware sherds indicate a sparse midnineteenth century presence, or possibly the retention of heirloom objects in a later occupation. The majority of diagnostic artifacts relate to the late nineteenth to midtwentieth centuries.

Material Collected: (CAI Accession No. 93.64) n=562

Prehistoric:

- 53 reduction flakes
- 49 thinning flakes
- 130 shatter/angular fragments
- 2 cores
- 8 primary forms
- 146 debitage fragments
- 1 Saratoga Straight Stemmed point
- 1 Cypress Straight Stemmed point
- 1 Cypress Constricting Stem point
- 1 Scallorn point
- 1 Late Archaic biface
- 10 finished bifaces
- 16 thick bifaces
- 1 scraper
- 1 chert hammerstone
- 77 retouched flakes
- 10 utilized flakes
- 1 grinding stone (fragment)
- 1 worked quartzite
- 23 nonchert rocks

Historic:

- 6 thin whiteware
- 2 sponged-blue whiteware
- 1 plain molded whiteware
- 1 decaled whiteware
- 2 porcelain
- 1 porcelain castor
- 5 stoneware
- 3 container glass
- 1 flat glass
- 1 unglazed brick

3 ceramic tiles
1 horseshoe
1 lead shot ball
1 bullet

24D3-269 (IAS 11-Ax-373, DBS-23)

Site Type: large open habitation
Component: Middle Archaic, Emergent Mississippian, Early–Midtwentieth Century Historic
Size: 106 m NE-SW x 90 m NW-SE (9540 m^2)
Landform: top of low, flat ridge (terrace remnant) trending NE-SW at north end of Dogtooth Bend
Soil Type: Alvin fine sandy loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 10 cm high), wet surface, 95–100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 5-person crew
Description: this site consists of a moderate-heavy artifact scatter over a low ridge top. Diagnostic artifacts indicate site utilization during the Middle Archaic period (Matanzas point) and Emergent Mississippian (Scallorn point and Mill Creek hoe flake). The site is located on part of the prominent ridge that trends east-west across the north end of Dogtooth Bend. It is situated in a linear arrangement between sites 24D3-267H on the west and 24D3-268 on the east. The three form a nearly continuous occupation on the relative high ground overlooking the bend to the south. The sites overlap in occupation, with Middle Archaic Matanzas points present at 24D3-267H and 269, and Emergent Mississippian Scallorn points found at 24D3-268 and 269.

A sparse historic occupation that pertains to the early–midtwentieth century also occurs at the site. The selective artifact collection indicates the possible presence of a structure at the location, although the 1938 Department of Agriculture aerial photographs show a cultivated field there at that time.
Material Collected: (CAI Accession No. 93.65) n=153
Prehistoric:
19 reduction flakes
12 thinning flakes
31 shatter/angular fragments
1 hoe flake
3 primary forms
27 debitage fragments
1 Matanzas point (fragment)
1 Scallorn point
2 finished bifaces
9 thick bifaces

25 retouched flakes
2 utilized flakes
6 nonchert rocks

Historic:

1 thick whiteware
1 whiteware with backmark ("...HLIN...")
2 porcelain
5 stoneware
1 container glass
1 flat glass
1 metal hardware
6 unglazed bricks

24D3-270 (IAS 11-Ax-374, DBS-24)

Site Type: small open site
Component: Late Archaic
Size: 63 m NE-SW x 48 m NW-SE (3024 m^2)
Landform: low, flat terrain between two low ridges and a swale at the northern end of Dogtooth Bend
Soil Type: Darwin silty clay
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 10 cm high, sparse soybean stubble), moist soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 5-person crew
Description: this site occurs as a very sparse lithic scatter located on low terrain between ridges and a swale. The site is situated only 25 m from site 24D3-268 on the southeast and 50 m from 24D3-269 on the southwest. However, the low lying terrain forms a distinctive landscape feature which warrants the separate definition of site 24D3-270. The site may well have been related to either of the two nearby sites. The site's surface collection yielded a hematite plummet, which is considered to be associated with a Late Archaic occupation.
Material Collected: (CAI Accession No. 93.66) n=22

5 reduction flakes
2 thinning flakes
5 shatter/angular fragments
3 debitage fragments
2 finished bifaces (fragments)
3 retouched flakes
1 grinding stone
1 plummet

24D3-271H (IAS 11-Ax-375, DBS-25H)

Site Type: large open habitation (homestead)
Component: Mississippian; Midnineteenth, Late Nineteenth–Midtwentieth Century Historic
Size: trapezoidal, maximum 120 m N-S x 110 m E-W (13,800 m^2)
Landform: top of low, flat northwest-southwest trending floodplain ridge
Soil Type: Gorham silty clay loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (soybeans 12.5 cm high, sparse bean stubble), moist soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site is characterized by a dense-to-moderate scatter of historic period artifacts on a low, flat ridge immediately east of a gravel road. The site was divided into two arbitrary areas (Areas A and B) for surface collection. Only a selective sample of historic artifacts, but all prehistoric artifacts, encountered on the 5-m transects were collected. Area A encompassed the western one-third of the site and is nearest to the road. It contained a dense historic artifact scatter (n=71 collected artifacts) including items indicative of a small midnineteenth century occupation (e.g., transfer print whiteware, and seamed and indented-based bottle fragments). Most of the historic material relates to late nineteenth–midtwentieth century, however. It includes pressed decorator glass, carnival glass, a "Ponds Cold Cream" jar fragment, and threaded metal hardware items. The material relates to a wide range of household and architectural activities, which reflect the location of a former house site.

Area B, the eastern two thirds of the site, contains a moderately dense distribution of historic period artifacts (n=30 items collected) consistent in character with that of Area A. It includes a few midnineteenth century artifacts (e.g., pearlware ceramics), but most material relates to the late nineteenth–midtwentieth century (e.g., embossed medicine bottles, a "Vicks Vaporub" jar fragment, and a glass insulator. Area B appears to represent the "out back" portion of the homestead.

U.S. Department of Agriculture aerial photographs from 1938 and 1956 confirm the presence of a farmstead at the site location in the twentieth century. The 1993 landowner, Charles Bonifield, told the survey crew that he had grown up and lived in the associated house until it was demolished in the 1960s.

In addition to the historic component, a sparse prehistoric occupation is present at site 24D3-271H. Twenty-four and 21 artifacts were recovered from Areas A and B, respectively, which indicates more concentration on the smaller Area A vicinity. The artifact collection consists of chert debitage, a small variety of chert and nonchert tools, and nonchert rock. The presence of a Mill Creek hoe among the items indicates that the occupation relates to the Mississippian (or Emergent Mississippian) period and represents a small, dispersed open-habitation site.

Material Collected: (CAI Accession No. 93.67) n=146
Prehistoric:

- 3 reduction flakes
- 4 thinning flake
- 18 shatter/angular fragments
- 3 debitage fragments
- 1 thick biface
- 1 hoe
- 1 chert hammerstone
- 3 retouched flakes
- 1 grinding slab (fragment)
- 6 nonchert rocks

Historic:

- 1 pearlware
- 3 whiteware
- 1 cranberry transfer-print whiteware
- 1 whiteware with backmark ("...WARRANTED...")
- 3 porcelain
- 27 stoneware
- 1 yellow ware
- 1 earthenware
- 2 porcelain fixtures
- 40 container glass
- 3 cut nails
- 1 wire nail
- 11 metal hardware
- 2 unglazed brick
- 1 cinder
- 1 plastic
- 1 glass marble
- 1 marine shell

24D3-272 (IAS 11-Ax-376, DBS-26)

Site Type: large open habitation
Component: Late Archaic, Early Woodland, Mississippian, Late Nineteenth–Midtwentieth Century Historic
Size: trapezoidal, maximum 97 m N-S x 141 m E-W (10,340 m^2)
Landform: top of low east-west trending floodplain ridge
Soil Type: Darwin silty clay loam
Elevation: 321–324′ AMSL
Survey Conditions: cultivated field (soybeans 10 cm high), wet soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew

Description: the site is distinguished by a sparse, dispersed scatter of prehistoric artifacts on a low ridge top. The assemblage includes a Late Archaic Etley point, an Early Woodland Motley point (Plate 2F), and a Mississippian (or Emergent Mississippian) hoe made of Devonian chert, which suggest that the site was utilized periodically but not intensively during prehistory.

A sparse historic period artifact scatter is also present at site 24D3-272. The small selective collection indicates a late nineteenth–midtwentieth century occupation. The site area was used as an agricultural field in the late 1930s, however, as indicated in the U.S. Department of Agriculture 1938 aerial photographs.
Material Collected: (CAI Accession No. 93.68) n=47
Prehistoric:

- 3 reduction flakes
- 4 thinning flakes
- 12 shatter/angular fragments
- 6 primary forms
- 6 debitage fragments
- 1 Etley point
- 1 Motley point
- 1 finished biface (fragment)
- 1 thick biface
- 1 hoe
- 5 retouched flakes
- 2 nonchert rocks

Historic:

- 1 container glass
- 1 cut nail
- 1 unglazed brick
- 1 slate handle

24D3-273 (IAS 11-Ax-377, DBS-27)

Site Type: small open habitation
Component: Unknown Prehistoric
Size: trapezoidal, maximum 35 m N-S x 135 m E-W (4725 m^2)
Landform: top of broad, flat, northwest-southeast trending floodplain ridge
Soil Type: Gorham silty clay loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (soybeans 12.5 cm high, sparse soybean stubble), moist soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site is characterized by a very sparse artifact scatter (n=12) over an area 135 m NW-SE x NE-SW located on the flat top of a broad ridge. The site consists of two spatially separated areas (Areas A and B). Area A, the main site location, contained

four items of chert debitage, three chert tools, and three nonchert rocks. Area B located 40 m northwest of Area A had 3 lithic artifacts (two debitage and one nonchert tool) within a 10 m x 15 m triangular area. The site represents an area of very light prehistoric utilization.

Material Collected: (CAI Accession No. 93.69) n=13

- 4 shatter/angular fragments
- 2 debitage fragments
- 2 thick bifaces
- 1 utilized flake
- 1 grinding stone (fragment)
- 3 nonchert rocks

24D3-274F (IAS 11-Ax-378, DBS-91F)

Site Type: isolated find
Component: Unknown Prehistoric
Size: 1 m x 1 m (1 m^2)
Landform: top of northwest-southeast trending floodplain ridge
Soil Type: Dupo silt loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (drilled soybeans 30 cm high), 60% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 9-person crew
Description: 24D3-274F is represented by the isolated find of a single piece of chert shatter/angular fragment on a floodplain ridge. The item is made of an unknown chert type and weighs 2 g. No other material occurred within 30 m of the find spot.
Material Collected: (CAI Accession No. 93.70) n=1
1 shatter/angular fragment

24D3-275 (IAS 11-Ax-379, DBS-29)

Site Type: small open site
Component: Unknown Prehistoric
Size: 15 m N-S x 25 m E-W (375 m^2)
Landform: crest of east-west trending floodplain ridge
Soil Type: Darwin silty clay loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 12.5 cm high, slight soybean stubble), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this small site is defined as a sparse distribution of artifacts (n=8) within an area 15 m N-S x 25 m E-W on a ridge crest. The light lithic scatter includes 6 pieces of

debitage, a thick biface of Mill Creek chert, and a utilized flake of Kornthal material. The site apparently sustained only marginal prehistoric activity.
Material Collected: (CAI Accession No. 93.71) n=8

- 2 thinning flakes
- 2 shatter/angular fragments
- 2 debitage fragments
- 1 thick biface
- 1 utilized flake

24D3-276 (IAS 11-Ax-380 , DBS-30)

Site Type: small open habitation
Component: Unknown Prehistoric
Size: L-shaped, 43 m N-S x 70 m E-W (1906 m^2)
Landform: broad, flat portion of floodplain between two east-west trending ridges
Soil Type: Darwin silty clay loam
Elevation: 321–324′ AMSL
Survey Conditions: cultivated field (soybeans 12.5 cm high, sparse bean stubble), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site contains a very sparse, L-shaped artifact scatter on the broad Mississippi River floodplain. The site consists of Area A (18 m N-S x70 m E-W), which yielded 11 pieces of chert debitage and one Cobden utilized flake, and Area B, a single Mill Creek retouched flake located 15 m south of Area A. The site represents an ephemeral occupation of the floodplain terrain.
Material Collected: (CAI Accession No. 93.72) n=13

- 1 reduction flake
- 2 thinning flakes
- 5 shatter/angular fragments
- 3 debitage fragments
- 1 retouched flake
- 1 utilized flake

24D3-277H (IAS 11-Ax-381, DBS-92H)

Site Type: small open site
Component: Late Nineteenth–Midtwentieth Century Historic
Size: maximum 23 m NE-SW x 88 m NW-SE (1130 m^2)
Landform: low, flat, northwest-southeast trending floodplain ridge
Soil Type: Dupo silt loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (soybeans 5–15 cm high), 85–95% surface visibility

Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site is represented by a sparse scatter of historic period artifacts in two separate areas (Areas A and B) on a low ridge adjacent to a swale. Area A is rectangular-shaped 23 m N-S x 30 m E-W. It contained artifacts related to the late nineteenth–midtwentieth centuries, including a diagnostic Meakin porcelain sherd, and portions of two rectangular, one-half pint liquor bottles. Area B lies to the southeast and is a small triangular-shaped location which contained early–midtwentieth century items, including a molded, gold and floral-painted porcelain sherd, and the embossed base of an aqua-colored bottle. Given the sparse, dispersed nature of the surface scatter and the site's isolated location, the site does not appear to be a substantial historic period occupation. Rather, as with three other sites in its vicinity, 24D3-277H may well represent an "outback" waste area. The site was covered by bottomland forest in the late 1930s, as shown in Department of Agriculture 1938 aerial photographs.
Material Collected: (CAI Accession No. 93.73) n=18

1 thick whiteware
1 porcelain with backmark ("...STONE CHINA...S MEAKIN...ANLEY...LAND...")
2 decorated porcelain
3 stoneware
7 container glass
1 unglazed brick
1 marble slab
1 coal
1 rubber cap

24D3-278H (IAS 11-Ax-382, DBS-93H)

Site Type: small open site
Component: Late Nineteenth–Midtwentieth Century Historic
Size: 10 m N-S x 60 m E-W (600 m^2)
Landform: slope of small, low, northwest-southeast trending floodplain ridge
Soil Type: Dupo silt loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (drilled soybeans 7.5 cm high, sparse soybean stubble), dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site is a very sparse scatter of historic period artifacts within a relatively small, linear-trending area (10 m x 60 m). The site occurs on the slope of a small ridge between swales and higher ridges on the north and south. It is one of four historic scatters found along the slopes of adjacent ridges. The area is vulnerable to habitual flooding. Given the location, the site's integrity is somewhat questionable. It may have served as a dispersed "out back" dump area. The site areas was covered by bottomland forest in the late 1930s, as indicated in U.S. Department of Agriculture 1938 aerial photographs.

Material Collected: (CAI Accession No. 93.74) n=15

2 thin whiteware
12 container glass
1 metal hardware

24D3-283 (IAS 11-Ax-383, DBS-33)

Site Type: small open habitation
Component: Late Archaic, Middle Woodland, Early-Midtwentieth Century Historic
Size: L-shaped, maximum 41 m N-S x 85 m E-W (3065 m^2)
Landform: south slope of prominent east-west trending ridge (terrace remnant) at the north end of Dogtooth Bend
Soil Type: Alvin fine sandy loam
Elevation: >325' AMSL
Survey Conditions: cultivated field (soybeans 12.5 cm high, sparse soybean stubble), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: the site consists of a sparse scatter of prehistoric artifacts and a few historic period items found in a plowed field on the prominent ridge that dominates the north end of the bend. Diagnostic artifacts indicate that the site sustained light occupation during the Late Archaic (Saratoga Straight Stemmed [Plate 2C] and Ledbetter points) and Middle Woodland (Baumer/Crab Orchard sherds) periods. The site faces south toward the bend and is located near larger sites 24D3-65 to the west and 24D3-288 to the east on the main ridge. It forms part of a nearly continuous distribution of sites along that landform. The site's northern and eastern boundaries end arbitrarily around the edge of house and yard. The structure is visible on 1938 U.S. Department of Agriculture aerial photographs, and the selective historic artifact collection relates to it.
Material Collected: (CAI Accession No. 93.80) n=62
Prehistoric:

12 reduction flakes
6 thinning flakes
12 shatter/angular fragments
2 primary forms
6 debitage fragments
1 Saratoga Straight Stemmed point
1 Ledbetter point
1 finished biface
1 thick biface
9 retouched flakes
3 utilized flakes
1 groundstone fragment
2 nonchert rock
2 Baumer/Crab Orchard Fabric Marked sherds

Historic:
- 1 thick whiteware
- 1 container glass
- 1 bakelite

24D3-284 (IAS 11-Ax-384, DBS-98)

Site Type: small open site
Component: Emergent Mississippian
Size: extended triangle, 23 m NW-SE x 12 m E-W, and 60 m long (130 m^2)
Landform: portion of broad, flat terrace on southwest side of the survey area in Dogtooth Bend
Soil Type: Millbrook silt loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (soybeans 10 cm high), hard dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 9-person crew
Description: site 24D3-284 is defined as a very sparse scatter of artifacts at two separate locations (Areas A and B) on a broad expanse of flat terrain. Area A, a small triangular area yielded three pieces of chert. Area B, located 60 m south of Area A, had a Cobden thinning flake and a Dillinger sherd. The two areas were grouped as a single site because they occur on a continuous, uniform landform and are spatially separated from other sites in the general area.
Material Collected: (CAI Accession No. 93.130) n=5
- 2 thinning flakes
- 1 debitage fragment
- 1 utilized flake
- 1 Dillinger sherd

24D3-285 (IAS 11-Ax-385, DBS-35) Charles Bonifield Site

Site Type: large open habitation
Component: Middle Archaic, Late Woodland, Emergent Mississippian, Mississippian
Size: 96 m N-S x 70 m E-W (6720 m^2)
Landform: top and south slope of low, east-west trending ridge (terrace remnant)
Soil Type: Lamont fine sandy loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (soybeans 15 cm high, slight soybean stubble), dry soil, 95–100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: the Charles Bonifield site contains a moderate-heavy artifact scatter distributed over an oval-shaped area on a low ridge immediately east of Central Bend

(gravel) road which runs southward into the bend. The densest artifact scatter occurs along the northeast side of the site, facing toward a shallow swale and prominent landform beyond it to the north. The site was occupied repeatedly in prehistory. It has a late Middle Archaic component (Matanzas point [Plate 2A]), which is one of the earliest occupations recorded in the survey. Its main occupations were during the Emergent Mississippian and Mississippian periods, however, when it was clustered with three other sites in and around its immediate location. The presence of ceramics suggests that the site was a place of habitation, perhaps a farmstead or part of an extended hamlet, during late prehistoric times.

Site 24D3-285 and nearby 24D3-67 are reported by the landowner to have been disturbed by earthmoving activity some years ago. Topsoil was removed from the ridge top where the sites are located and used as fill to elevate a barn under construction. That activity, no doubt, disturbed the shallow archaeological deposits; however, the sites seem to still have some cultural integrity.

Material Collected: (CAI Accession No. 93.82) n=191

- 14 reduction flakes
- 23 thinning flakes
- 21 shatter/angular fragments
- 4 cores
- 53 debitage fragments
- 1 Matanzas point
- 4 finished bifaces (fragments)
- 2 thick bifaces
- 31 retouched flakes
- 10 utilized flakes
- 1 chert pitted grinding stone
- 1 grinding stone
- 1 pitted grinding stone
- 1 grinding slab
- 1 groundstone fragment
- 2 nonchert rocks
- 1 Barnes Cordmarked sherd
- 13 Dillinger sherds
- 2 Baytown shreds
- 4 Mississippi Plain sherds
- 1 Mississippian cordmarked sherd

24D3-286 (IAS 11-Ax-386, DBS-36)

Site Type: small open site
Component: Late Archaic, Early Woodland, Middle Woodland, Emergent Mississippian, Mississippian
Size: 28 m N-S x 162 m E-W (4536 m^2)

Landform: swale and adjacent low slopes of two parallel (east-west) trending ridges. Ridge to north is the terrace remnant that dominates the north end of Dogtooth Bend.
Soil Type: Karnak silty clay
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 12.5 cm high), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site has a moderate-heavy artifact scatter including several culturally diagnostic lithics and ceramics that indicate repeated prehistoric utilization of the site area. In that sense, the site represents a fairly substantial occupation. However, the site as defined occurs on low ground between adjacent ridges, with arbitrary northern and southern boundaries on the lower ridge slopes. The site location is subject to retained moisture and would not appear to have been particularly suitable for habitation. Rather, the site may have functioned as a refuse area downslope between the more habitable adjacent ridges, where several well-occupied sites occur (24D3-65, 67, 283, and 285).
Material Collected: (CAI Accession No. 93.83) n=258

- 42 reduction flakes
- 41 thinning flakes
- 50 shatter/angular fragments
- 3 cores
- 1 primary forms
- 78 debitage fragments
- 1 Early Woodland hafted biface (fragment)
- 1 Bradshaw Stemmed point
- 5 finished bifaces
- 3 thick bifaces
- 1 drill
- 3 lamellar blades
- 11 retouched flakes
- 4 utilized flakes
- 1 chert grinding stone
- 1 grinding stone (fragment)
- 5 nonchert rocks
- 1 Baumer/Crab Orchard Fabric Marked sherd
- 1 Baumer/Crab Orchard Plain sherd
- 1 Middle Woodland sherd (eroded)
- 3 Dillinger sherds
- 1 Mississippi Plain sherd

24D3-287 (IAS 11-Ax-387, DBS-99)

Site Type: small open site
Component: Middle Woodland
Size: diamond-shaped, maximum 125 m N-S x 75 m E-W (4688 m^2)

Landform: portion of broad, flat terrace on southwest side of the survey area in Dogtooth Bend
Soil Type: Millbrook silt loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high), hard dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site consists of a dispersed scatter of a few (n=9) isolated artifacts located over a broad area of flat terrace terrain. The sparse but uniform distribution of the artifacts on the landform prompted their grouping together as a site, although its integrity must be considered somewhat questionable. Similar sparse, dispersed scatters (sites 24D3-284 and 333F) occur elsewhere on the landform. Site 24D3-287 has a Middle Woodland component which likely relates to that at the nodal Middle Woodland site, 24D3-50, located 200 m to the north.
Material Collected: (CAI Accession No. 93.131) n=9

1 thinning flake
2 debitage fragments
1 retouched flake
1 groundstone fragment
1 nonchert rock
2 Baumer/Crab Orchard Fabric Marked sherd
1 Middle Woodland sherd (eroded)

24D3-288 (IAS 11-Ax-388, DBS-38)

Site Type: large open habitation
Component: Early Woodland, Emergent Mississippian
Size: subrectangular, maximum 39 m N-S x 182 m E-W (6882 m^2)
Landform: south slope of prominent east-west trending ridge (terrace remnant) at north end of Dogtooth Bend
Soil Type: Karnak silty clay
Elevation: 325' AMSL
Survey Conditions: cultivated field (soybeans 12.5 cm high, sparse soybean stubble), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site is a long, relatively narrow area located on the slope of prominent ridge, facing south into the bend. The site was divided into three contiguous sections (Areas A, B, and C) for surface collection. Areas A, the eastern one-third of the site, had a very sparse scatter of chert debitage. Areas B (site center) and C (western one-third) had, respectively, sparse and moderate chert scatters, including tools as well as debitage, and each had a Dillinger sherd. An Early Woodland Adena point (Plate 2E) was also found in Area C. The site sustained light-to-moderate prehistoric occupations.

During both the Early Woodland and Emergent Mississippian periods, it was situated among clusters of several similar sites within a few hundred-meter area.
Material Collected: (CAI Accession No. 93.85) n=70

- 9 retouched flakes
- 8 thinning flakes
- 22 shatter/angular fragments
- 4 primary forms
- 7 debitage fragments
- 1 Adena point
- 3 thick bifaces
- 1 Cypress Constricting Stem scraper
- 1 gouge
- 1 hammerstone
- 9 retouched flakes
- 1 pitted grinding stone
- 1 nonchert rock
- 2 Dillinger sherds

24D3-289 (IAS 11-Ax-389, DBS-39)

Site Type: small open habitation
Component: Late Woodland
Size: 62 m N-S x 66 m E-W (4092 m^2)
Landform: top of prominent east-west trending ridge (terrace remnant) at north end of Dogtooth Bend
Soil Type: Alvin fine sandy loam
Elevation: >325' AMSL
Survey Conditions: cultivated field (soybeans 12.5 cm high, sparse soybean stubble), hard dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: the site consists of a sparse scatter of chert artifacts on the flat top of the bend's prominent ridge. The Lowe Flared Base point (Plate 2H) that was recovered in the survey indicates a Late Woodland site occupation. The site's north and east boundaries are set arbitrarily at the edges of the survey quadrat, and its west edge ends arbitrarily at the edge of the plowed field.
Material Collected: (CAI Accession No. 93.86) n=19

- 4 reduction flakes
- 3 thinning flakes
- 7 shatter/angular fragments
- 1 primary form
- 1 Lowe Flared Base point
- 2 thick bifaces
- 1 retouched flake

24D3-290 (IAS 11-Ax-390, DBS-40)

Site Type: small open habitation
Component: Mississippian
Size: 30 m N-S x 60 m E-W (1800 m^2)
Landform: relatively level terrain (portion of terrace remnant) between low ridges to north, west, and southeast. Ridge to north is prominent landform feature that dominates north end of Dogtooth Bend
Soil Type: Cape and Karnak silty clay loams
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 15 cm high), dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: site 24D3-290 is represented by a very sparse lithic scatter over an oval-shaped portion of level terrain between several ridges. The presence of a Mill Creek hoe fragment suggests that the site had a Mississippian occupation, although an Emergent Mississippian component could also be indicated. The site occurs among a cluster of several Mississippian sites on and near the bend's prominent ridge feature.
Material Collected: (CAI Accession No. 93.87) n=19

1 reduction flake
2 thinning flakes
6 shatter/angular fragments
4 debitage fragments
1 thick biface
1 hoe (Mill Creek) (fragment)
1 retouched flake
1 utilized flake
1 pitted grinding stone
1 nonchert rock

24D3-291 (IAS 11-Ax-391, DBS-41)

Site Type: small open habitation
Component: Mississippian,
Size: 50 m N-S x 65 m E-W (3250 m^2)
Landform: top of low, flat east-west trending floodplain ridge
Soil Type: Darwin silty clay
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 15 cm high), dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site consists of a very sparse chert scatter within an oval-shaped area on a low floodplain ridge. It is designated as a Mississippian site based on the presence

of a Mill Creek hoe (Plate 3B) and hoe flake. It is very similar in size and character to site 24D3-290, which is located 50 m to the north. The two sites represent small, farmstead-sized Mississippian occupations.
Material Collected: (CAI Accession No. 93.88) n=19
1 reduction flake
6 shatter/angular fragments
1 hoe flake (Mill Creek)
1 debitage fragment
2 thick bifaces
1 hoe (Mill Creek)
6 retouched flakes
1 chert grinding stone

24D3-292H (IAS 11-Ax-392, DBS-42H)

Site Type: large open habitation
Component: Early Woodland, Mississippian, Late Nineteenth–Midtwentieth Century Historic
Size: L-shaped, maximum 103 N-S x 135 m E-W (10,295 m^2)
Landform: top of narrow east-test trending ridge and adjacent level floodplain terrain
Soil Type: Darwin silty clay
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 15 cm high), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: the site consists of a moderate artifact scatter distributed in three separate locations (Areas A, B, and C) within a roughly L-shaped site area. Both prehistoric and historic occupations occur within the subareas. Area A (65 m N-S x 135 m E-W along the site's north side) yielded 43 lithic artifacts, including 19 tools. An Adena point reworked into a scraper indicates the presence of an Early Woodland occupation, and a polished hoe flake of "Other" chert suggests a Mississippian (or Emergent Mississippian) presence. The diversity of lithic material indicates a fairly broad range of cultural activity at the site during portions of prehistory, although no ceramics were found among the pottery-bearing components present. In addition to the lithics found in Area A, one large angular fragment of "Other" chert occurred in Area C, a narrow strip 17 m north-south x 75 m east-west on the site's southwest side.

Historic-period materials occur in Areas A, B, and C. A sample of culturally diagnostic artifacts was collected from those locations. Area A contained 44 items related mainly to the late nineteenth–midtwentieth centuries, including fragments of whiteware with a backmark, molded whiteware, canning jars, white glass jar lids, porcelain insulators, concrete, and asbestos. The fairly wide range of activities are suggested by the diversity of the collected artifacts. Area B, located within a 5 m x 5 m area south of Area A, yielded three items of clear container glass. Area C along the site's south side had 11 items including a piece of hand-painted polychrome whiteware and a clear bottle

fragment with a seam mark that extended to the lip (late nineteenth century characteristics), and a clear bottle with a screw top (a twentieth century manufacturing technique). The combined historic artifact scatters suggest a homestead location at Area A, with less heavily utilized, "outback" portions of the property at Areas B and C. The 1938 Department of Agriculture aerial photographs of the site area show it to have been in bottomland forest at that time, but the 1955 photos show a structure present at the site location.

Material Collected: (CAI Accession No. 93.89) n=102

Prehistoric:

- 2 reduction flakes
- 4 thinning flakes
- 9 shatter/angular fragments
- 1 hoe flake (Other chert)
- 7 debitage fragments
- 4 finished bifaces (fragments)
- 2 thick bifaces
- 1 Adena scraper
- 9 retouched flakes
- 2 utilized flakes
- 1 chert grinding stone
- 1 nonchert tool
- 2 nonchert rocks

Historic:

- 1 pearlware
- 8 whiteware
- 1 hand painted polychrome
- 1 molded whiteware
- 1 whiteware with backmark
- 5 stoneware
- 30 container glass
- 1 metal bullet
- 3 metal hardware
- 2 concrete
- 2 ceramic tile
- 2 porcelain insulators
- 1 asbestos

24D3-293 (IAS 11-Ax-393, DBS-43)

Site Type: small open habitation
Component: Unknown Prehistoric
Size: 17 m N-S x 50 m E-W (850 m^2)
Landform: broad, flat portion of northwest-southeast trending terrace remnant in the floodplain
Soil Type: Harvard silt loam

Elevation: 325′ AMSL
Survey Conditions: cultivated field (soybeans 20 cm high, sparse corn stubble), dry soil 80–85% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site consists of a very sparse lithic scatter distributed over a narrow stretch of flat terrain. The site's southern boundary is arbitrary, however, at the edge of the survey quadrat. The site represents a light occupation of unknown prehistoric affiliation which exhibits a relatively fair number of tools (n=7) for the size of the collected artifact assemblage (n=14 items).
Material Collected: (CAI Accession No. 93.90) n=14

- 4 shatter/angular fragments
- 3 debitage fragments
- 1 finished biface (fragment)
- 2 retouched flakes
- 3 utilized flakes
- 1 hammerstone

24D3-294 (IAS 11-Ax-394, DBS-44)

Site Type: small open habitation
Component: Mississippian
Size: 35 m N-S x 39 m E-W (1365 m^2)
Landform: level terrain of broad northwest-southeast trending terrace remnant in the floodplain
Soil Type: Millbrook silt loam
Elevation: >325′ AMSL
Survey Conditions: cultivated field (soybeans 20 cm high, sparse corn stubble), dry soil, 80–85% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: site 24D3-294 contains a sparse artifact scatter within a relatively small (.14 ha) site area. It represents a small Mississippian occupation situated among a cluster of similar sites on the broad, flat terrain some 1.5 km northwest of the Dogtooth Bend Mound Center (24D3-13). It may well have served as an outlying farmstead within the local Mississippian settlement system. The light scatter and compact site size are fairly representative of such settlements, which although they appear ephemeral in surface characteristics, represent essential building-block elements of the Mississippian settlement system.
Material Collected: (CAI Accession No. 93.91) n=19

- 1 reduction flake
- 1 thinning flake
- 2 debitage fragments
- 11 nonchert rocks
- 1 Mississippi Plain sherd
- 3 eroded sherds

24D3-295 (IAS 11-Ax-395, DBS-45)

Site Type: small open habitation
Component: Mississippian
Size: 30 m N-S x 37 m E-W (1110 m^2)
Landform: level terrain of broad northwest-southeast trending terrace remnant in the floodplain
Soil Type: Millbrook silt loam
Elevation: >325' AMSL
Survey Conditions: cultivated field (soybeans 17.5 cm high, sparse soybean stubble), dry soil 95–100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site contains a sparse artifact scatter of lithics and one sherd distributed over a small circular area on flat terrain. The ceramics indicate a Mississippian occupation, and the site structure is consistent with that of a small farmstead. This site is very similar in form to nearby sites 24D3-294 and 24D3-295, and may well have been part of a series of small farmstead-sized Mississippian sites in that vicinity.
Material Collected: (CAI Accession No. 93.92) n=11

1 thinning flake
3 shatter/angular fragments
1 thick biface
3 retouched flakes
2 nonchert rocks
1 Mississippi Plain sherd

24D3-296 (IAS 11-Ax-396, DBS-46)

Site Type: small open habitation
Component: Mississippian
Size: trapezoidal, 41 m N-S x 40 m E-W (1525 m^2)
Landform: low north-south trending ridge on broad northwest-southeast trending terrace remnant in the floodplain
Soil Type: Millbrook silt loam
Elevation: >325' AMSL
Survey Conditions: cultivated field (soybeans 20 cm high, sparse corn stubble), 80–85% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site is characterized by a sparse scatter of lithics that occur over a small area on a slight ridge. The site is designated tentatively as a Mississippian occupation based on the presence of a Mill Creek hoe flake, although the possibility of other cultural affiliation is also acknowledged. Site 24D3-296 represents a small, light occupation that would not be inconsistent with that of a farmstead settlement. It is similar in size and structure to several other such sites in its vicinity.

Material Collected: (CAI Accession No. 93.93) n=5

1 thinning flake
1 hoe flake (Mill Creek)
1 debitage fragment
1 thick biface
1 nonchert rock

24D3-297 (IAS 11-Ax-397, DBS-97)

Site Type: small open habitation
Component: Emergent Mississippian
Size: 50 m N-S x 30 m E-W (1500 m^2)
Landform: top of broad, flat floodplain ridge
Soil Type: Darwin silty clay loam
Elevation: 321–324′ AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high), hard dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site contains a very sparse artifact scatter over a small (.15 ha) area on a broad floodplain ridge. Diagnostic ceramics indicate that it was an Emergent Mississippian occupation. The Mill Creek hoe flake is also interpreted as relating to that component. The nature of the site suggests that it may have functioned as a farmstead within the Emergent Mississippian settlement system. Site 24D3-297 is located 250 m southeast of the large Emergent Mississippian occupation at the Elizabeth Youch site (24D3-50) and is within 150–200 m of additional sites to the south and east.
Material Collected: (CAI Accession No. 93.94) n=6

1 hoe flake (Mill Creek)
1 debitage fragment
2 retouched flakes
1 Dillinger sherd
1 Emergent Mississippian sherd (eroded)

24D3-298 (IAS 11-Ax-398, DBS-48)

Site Type: small open habitation
Component: Mississippian
Size: oval-shaped, maximum 60 m N-S x 77 m E-W (2695 m^2)
Landform: flat, gently sloping terrain of broad northwest-southeast trending terrace remnant in the floodplain
Soil Type: Disco fine sandy loam
Elevation: >325′ AMSL
Survey Conditions: cultivated field (soybeans 17.5 cm high), 95% surface visibility

Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site is defined by a sparse artifact scatter distributed in three spatially separated subareas (Areas A, B, and C) on a gently sloping portion of broad terrace terrain. Area A (approximately 35 m N-S x 32 m E-W) contained 21 lithics, including 11 chert tools. Area B, a linear scatter to the west of Area A, had six chert artifacts and one Mississippi Plain sherd. Area C, a small locus to the south of Area B, contained a piece of chert shatter and a retouched flake. The site represents another of the series of small Mississippian occupations that cluster in the west-central portion of the survey area, approximately 1–1.5 km northwest of the Dogtooth Bend Mound Center (24D3-13), the nodal site for the Mississippian component. Site 24D3-298 exhibits spatial and artifactual characteristics consistent with those of farmstead settlements of that cultural period.
Material Collected: (CAI Accession No. 93.95) n=30

1 reduction flake
3 thinning flakes
3 shatter/angular fragments
1 primary form
5 debitage fragments
3 finished biface (fragments)
2 thick bifaces
7 retouched flakes
2 utilized flakes
2 groundstone fragments
1 Mississippi Plain sherd

24D3-299F (IAS 11-Ax-399, DBS-49F)

Site Type: isolated find
Component: Mississippian
Size: 1 m x 1 m (1 m^2)
Landform: flat, northwest-southeast trending terrace remnant adjacent to a swale
Soil Type: Millbrook silt loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (soybeans 20 cm high, sparse corn stubble), 80–85% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site consists of the isolated occurrence of a narrow, triangular-shaped Madison point made of an unknown chert type. The site is thus of Mississippian cultural affiliation. The point was found near a swale on otherwise broad terrain. It occurs in the vicinity of seven other small Mississippian sites (farmsteads?) to the northwest of the focal mound center. It represents the location where an isolated artifact appears to have been lost or discarded.

Material Collected: (CAI Accession No. 93.96) n=1
1 Madison point

24D3-300F (IAS 11-Ax-400, DBS-50F)

Site Type: isolated find
Component: Unknown Prehistoric
Size: 3 m x 3 m (9 m^2)
Landform: flat, northwest-southeast trending terrace remnant in the floodplain
Soil Type: Disco fine sandy loam
Elevation: >325′ AMSL
Survey Conditions: cultivated field (soybeans 20 cm high, sparse corn stubble), 80–85% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site is represented by the occurrence of two chert flakes found within a few meters of each other on broad, flat terrain. The artifacts include a large (8 g) reduction flake of Kornthal chert and a thinning flake of Devonian chert. This sparse site occurs in the midst of several small Mississippian sites but is of unknown prehistoric cultural affiliation.
Material Collected: (CAI Accession No. 93.97) n=2
1 reduction flake
1 thinning flake

24D3-301H (IAS 11-Ax-401, DBS-51H)

Site Type: small open habitation
Component: Unknown Prehistoric, Early–Midtwentieth Century Historic
Size: trapezoidal, maximum 82 m N-S x 40 m E-W (2583 m^2)
Landform: shallow swale between low ridge to south and higher ridge to north on terrace remnant in the floodplain
Soil Type: Dupo silt loam
Elevation: 321–324′ AMSL
Survey Conditions: cultivated field (soybeans 10 cm high, corn stubble), hard dry soil, 80–85% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: the site consists a sparse artifact scatter distributed on low ground between shallow ridges. It is located 50 m north of an east-west trending gravel road that runs along land section boundaries. The site contains a small prehistoric component defined by the presence of three light-duty chert tools (retouched and utilized flakes). Its prehistoric cultural affiliation is unknown.

The site contains a more substantial early–midtwentieth century historic-period occupation. A selective collection of diagnostic artifacts was made in the survey. They indicate the presence of a probable homestead, with several kinds of ceramics and container glass that includes fragments of a "Vicks Vaporub" jar and a "Squirt" soda bottle. A single specimen of blue transfer-print pearlware was also present and may represent an heirloom. The 1938 Department of Agriculture aerial photographs indicate that the site area was a cultivated field at that time; however, the 1956 photographs show the faint presence of a structure (?).
Material Collected: (CAI Accession No. 93.98) n=44
Prehistoric:
- 1 retouched flake
- 2 utilized flake

Historic:
- 1 blue transfer-print pearlware
- 4 whiteware
- 1 molded decorated whiteware
- 1 plain porcelain
- 14 stoneware
- 13 container glass
- 1 cut nail
- 1 unglazed brick
- 1 plastic
- 4 limestone

24D3-302 (IAS 11-Ax-402, DBS-52)

Site Type: small open habitation
Component: Unknown Prehistoric
Size: 55 m N-S x 65 m E-W (3575 m^2)
Landform: top and gentle northwest slope of broad east-west trending floodplain ridge
Soil Type: Dupo silt loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (soybeans 15 cm high, sparse soybean stubble), dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site consists of a sparse lithic scatter distributed over an oval-shaped area on a gentle ridge slope. The artifact assemblage includes several kinds of chert debitage and tools but none is culturally diagnostic. The site represents an area of light prehistoric utilization.
Material Collected: (CAI Accession No. 93.99) n=25
- 1 reduction flake
- 3 thinning flakes
- 3 shatter/angular fragments
- 1 core

10 debitage fragments
1 finished biface (fragment)
2 thick bifaces
3 retouched flakes
1 nonchert rock

24D3-303 (IAS 11-Ax-403, DBS-53)

Site Type: small open habitation
Component: Early Woodland
Size: diamond-shaped, maximum 63 m N-S x 73 m E-W (2268 m^2)
Landform: level portion of floodplain in Dogtooth Bend
Soil Type: Dupo silt loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (soybeans 12.5 cm high, sparse corn and soybean stubble), hard, dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: site 24D3-303 has a sparse lithic scatter distributed over a broad stretch of level floodplain terrain. The artifact collection includes an Adena point made of Mounds Gravel that had been reworked into a scraper. The site is thus assigned an Early Woodland cultural affiliation. It is located near several other small lithic scatters of generally unknown prehistoric cultural affiliation.
Material Collected: (CAI Accession No. 93.100) n=24
3 reduction flakes
2 thinning flakes
2 shatter/angular flakes
4 debitage fragments
1 thick biface
1 Adena scraper
9 retouched flakes
2 utilized flakes

24D3-304 (IAS 11-Ax-404, DBS-54)

Site Type: small open habitation
Component: Mississippian
Size: L-shaped, maximum 85 m N-S x 115 m E-W (2800 m^2)
Landform: gently sloping north face of broad, northwest-southeast trending terrace remnant
Soil Type: Millbrook silt loam
Elevation: >325′ AMSL
Survey Conditions: cultivated field (soybeans 10 cm high), 95% surface visibility

Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: site 24D3-304 consists of four spatially separate artifact scatters (designated Areas A–D) located on the same gently sloping landform. Area A, the primary site area, contained 24 pieces of chert debitage, including a Mill Creek hoe flake, and two chert tools (a finished biface fragment and a retouched flake) within an area 25 m north-south x 40 m east-west. Areas B and C are situated northwest of Area A. Each is defined by the presence of an isolated retouch flake. Area D, to the east of Area A, had an isolated piece of chert shatter. The presence of the hoe flake in Area A suggests that the site is of Mississippian (or Emergent Mississippian) cultural affiliation. The site's structure, with a primary subarea and additional dispersed light artifact scatters, is similar to that observed at three other small Mississippian sites (24D3-298, 327, and 328) located within 400 m to the south or southeast of the site.
Material Collected: (CAI Accession No. 93.101) n=29

1 reduction flake
4 thinning flakes
9 shatter/angular fragments
1 hoe flake (Mill Creek)
10 debitage fragments
1 finished biface (fragment)
3 retouched flakes

24D3-305H (IAS 11-Ax-405, DBS-94H)

Site Type: small open site
Component: Late Nineteenth–Midtwentieth Century Historic
Size: 10 m NE-SW x 36 m NW-SE (360 m^2)
Landform: northeast-facing slope of broad, northwest-southeast trending ridge adjacent to a swale
Soil Type: Darwin silty clay loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (drilled soybeans 7.5 cm high), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site is defined by a sparse scatter of late nineteenth–midtwentieth century artifacts within a small, linear area on a ridge slope. The selected artifact sample includes several pieces of decorated whiteware and porcelain and twentieth century container glass. This site is one of four small historic period scatters located along the low aspects of a ridge in the northwest portion of the survey area. At times that area is subject to flooding. The integrity of site 24D3-305H as a habitation or primary activity area is thus questionable. U.S. Department of Agriculture aerial photographs from 1938 and 1956 show the site area in forest and cultivated field, respectively.
Material Collected: (CAI Accession No. 93.102) n=34

5 whiteware
1 molded whiteware

1 porcelain with backmark ("...HAVILAND LIMOGES...H&Co...2006-10...")
1 decorated porcelain
2 plain porcelain
14 stoneware
10 container glass

24D3-306 (IAS 11-Ax-406, DBS-95)

Site Type: small open habitation
Component: Late Woodland
Size: 20 m N-S x 50 m E-W (1000 m^2)
Landform: top of northwest-southeast trending floodplain ridge
Soil Type: Darwin silty clay loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (drilled soybeans 15 cm high), 85–90% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 3-person crew
Description: this site contains a very sparse scatter of five artifacts within a small (.1 km) area on the top of a sandy ridge in the floodplain. The collection includes one sand-tempered Barnes Cordmarked sherd, thus indicating a Late Woodland cultural affiliation. The site represents a small scale, limited, and apparently isolated, Late Woodland occupation. It is the only Late Woodland site defined in the northwest portion of the survey area; the nearest site of that component is 600 m to the northeast.
Material Collected: (CAI Accession No. 93.103) n=5
1 reduction flake
1 shatter/angular fragment
1 debitage fragment
1 nonchert rock
1 Barnes Cordmarked sherd

24D3-307 (IAS 11-Ax-407, DBS-57)

Site Type: small open habitation
Component: Unknown Prehistoric
Size: triangular, maximum 32 m N-S x 100 m E-W (1600 m^2)
Landform: relatively low, flat portion of floodplain
Soil Type: Dupo silt loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (soybeans 10 cm high, sparse bean stubble), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew

Description: 24D3-307 is characterized by a very sparse scatter of chert debitage and light-duty tools (retouched flakes) on level floodplain terrain. The site is located within one of three survey quadrats in the west-central portion of the survey area that collectively have 20 small sites with sparse artifact scatters. Eight of the sites are Mississippian occupations. The cultural affiliation of site 24D3-307 is unknown, however.
Material Collected: (CAI Accession No. 93.104) n=10

- 3 reduction flakes
- 2 thinning flakes
- 1 shatter/angular fragments
- 2 debitage fragments
- 2 retouched flakes

24D3-308F (IAS 11-Ax-408, DBS-96F)

Site Type: isolated find
Component: Unknown Prehistoric
Size: 1 m x 1 m (1 m^2)
Landform: head of large northwest-southeast trending slough at south edge of a broad terrace remnant, at southwest edge of survey area
Soil Type: Disco fine sandy loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high), 98% visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 9-person crew
Description: site 24D3-308F consists of the isolated find of a Cobden reduction flake. It was recovered from the edge of a plowed field at the head of a slough. The nearest recorded site is 24D3-330, which is on a distinctive ridge feature 50 m to the northeast. The chert flake does not appear to be associated with it or any other nearby sites.
Material Collected: (CAI Accession No. 93.105) n=1

- 1 reduction flake

24D3-309 (IAS 11-Ax-409, DBS-86)

Site Type: small open habitation
Component: Unknown Prehistoric
Size: triangular, maximum 28 m N-S x 96 m E-W (1344 m^2)
Landform: top of flat northwest-southeast trending ridge (part of terrace remnant) adjacent to swale on the south
Soil Type: Millbrook silt loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (soybeans 45 cm high), 70% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew

Description: this site consists of a very sparse lithic scatter (5 artifacts) distributed loosely along a low ridge top adjacent to a swale. The site's prehistoric cultural affiliation is unknown. The site is located in the west-central portion of the survey area where numerous other small occupations occur. The dispersed, sparse nature of the assemblage draws into question the integrity of the site as a meaningful functional unit, however.
Material Collected: (CAI Accession No. 93.106) n=5

- 2 reduction flakes
- 1 primary form
- 1 grinding stone
- 1 nonchert rock

24D3-310 (IAS 11-Ax-410, DBS-60)

Site Type: small open habitation
Component: Mississippian
Size: triangular, maximum 48 m N-S x 44 m E-W (1056 m^2)
Landform: base of slight east-west trending ridge in the floodplain
Soil Type: Gorham silty clay loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 15 cm high), hard dry soil, 90–95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: the site has a very sparse artifact scatter within a triangular area along the base of a low ridge in the eastern portion of the survey area. The artifact collection includes an adze made of Mill Creek chert, which suggests a Mississippian (or Emergent Mississippian) occupation for the site. The site occurs in a portion of Dogtooth Bend that exhibits very sparse prehistoric utilization, due at least in part to its subjection to periodic flooding. Site 24D3-310 does appear to maintain its integrity as a cultural entity, however.
Material Collected: (CAI Accession No. 93.107) n=6

- 3 thinning flakes
- 1 shatter/angular fragments
- 1 adze
- 1 retouched flake

24D3-311 (IAS 11-Ax-411, DBS-61)

Site Type: large open site
Component: Late Archaic
Size: triangular, maximum 200 m NE-SW x 200 m NW-SE (26,000 m^2)
Landform: broad, flat portion of floodplain
Soil Type: Gorham silty clay loam

Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 15 cm high, sparse corn stubble), hard dry soil, 90–95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: site 24D3-311 is defined as a very dispersed scatter of five individual chert artifacts on broad floodplain terrain in the eastern portion of the survey area. That area is known to flood periodically, thus potentially displacing artifacts or substantially affecting archaeological site integrity. Site 24D3-311's boundary was defined by connecting lines from one artifact to another among the five lithic items (i.e., "dot-to-dot" fashion), thus forming one unit rather than five isolated finds. The integrity of the site as a functional unit is recognized as questionable.
Material Collected: (CAI Accession No. 93.108) n=5

1 reduction flake
1 finished biface
3 retouched flakes

24D3-312H (IAS 11-Ax-412, DBS-62H)

Site Type: small open habitation
Component: Unknown Prehistoric; Midnineteenth Century, Late Nineteenth Century, Early-Midtwentieth Century Historic
Size: rhomboidal, maximum 50 m N-S x 100 m E-W (2500 m^2)
Landform: broad, flat portion of floodplain
Soil Type: Riley silty clay loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 12.5 cm high), hard dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site contains a moderate-heavy scatter of historic-period artifacts trending northwest-southwest immediately north of a gravel road that runs along a section line of land. A selective sample of historic artifacts was collected in the survey. Items pertain primarily to the late nineteenth and early–midtwentieth centuries. They include fragments of molded whiteware and porcelain ceramics, pressed decorator glass, canning jars, a glass insulator, and a "Mentholatum" jar of white glass. The artifact assemblage suggests household-related functions, and the site is interpreted as a homestead. That interpretation is confirmed in the 1938 Department of Agriculture aerial photographs, which show a two structures (house and garage?) at the site location. The homestead was replaced by a cultivated field by the time of the 1956 aerial photographs. In addition to the historic occupation, prehistoric use of the area is indicated by presence of a utilized flake of Bailey chert.
Material Collected: (CAI Accession No. 93.109) n=49
Prehistoric:

1 utilized flake

Historic:

- 6 whiteware
- 1 flow-blue whiteware
- 3 molded whiteware
- 1 porcelain with backmark ("...D CHINA...N.J...")
- 11 stoneware
- 1 yellow ware
- 22 container glass
- 1 metal tool
- 1 metal hardware
- 1 pearl button

24D3-313 (IAS 11-Ax-413, DBS-87)

Site Type: small open site
Component: Unknown Prehistoric
Size: 45 m N-S x 10 m E-W (450 m^2)
Landform: top of broad east-west trending terrace remnant in the floodplain
Soil Type: Millbrook silt loam
Elevation: >325′ AMSL
Survey Conditions: cultivated field (soybeans 45 cm high), moist soil, 70% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site consists of a very sparse lithic scatter within a small (450 m^2) area on a broad, flat portion of the floodplain terrace in the west-central part of the survey area. Six similar scatters or isolated chert finds occur in its vicinity. That area is near the location of several small Mississippian sites, but the cultural affiliations of site 24D3-313 and the other lithic scatters are unknown. The site and immediate vicinity appear to have had quite limited, ephemeral prehistoric occupation.
Material Collected: (CAI Accession No. 93.110) n=3

- 1 primary form
- 1 debitage fragment
- 1 pitted grinding stone

24D3-314F (IAS 11-Ax-414, DBS-88F)

Site Type: isolated find
Component: Unknown Prehistoric
Size: 1 m x 1 m (1 m^2)
Landform: level portion of floodplain terrace remnant adjacent to a swale
Soil Type: Millbrook silt loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (soybeans 35 cm high), moist soil, 90–95% surface visibility

Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: this site is defined by the presence of a small isolated chert flake on flat terrain on the edge of a swale. It occurs among several other small isolated lithic scatters in the west-central portion of the survey area. The site's cultural affiliation is unknown.
Material Collected: (CAI Accession No. 93.111) n=1

1 debitage fragment

24D3-315 (IAS 11-Ax-415, DBS-89)

Site Type: small open habitation
Component: Middle Woodland, Emergent Mississippian, Mississippian
Size: minimum 40 m NE-SW x 120 m NW-SE (4800 m^2)
Landform: top of narrow northwest-southeast trending ridge
Soil Type: Dupo silt loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (newly planted soybeans), hard dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 9-person crew
Description: this site has a moderately dense artifact scatter that trends along the top of a narrow but pronounced ridge in the northwest portion of the survey area. The site was occupied repeatedly in prehistory. The surface collection contains Middle Woodland, Emergent Mississippian, and Mississippian ceramics, indicating that the site was a habitation site during those times. It also yielded a Middle Woodland-style flake scraper made of Cobden chert. The northwest edge of the site ends arbitrarily at the edge of the surveyed quadrat and the site appears to continue beyond that line.
Material Collected: (CAI Accession No. 93.112) n=39

3 reduction flakes
5 thinning flakes
6 shatter/angular fragments
7 debitage fragments
1 Middle Woodland scraper
2 retouched flakes
2 utilized flakes
1 Baumer/Crab Orchard Fabric Marked sherd
1 Middle Woodland sherd (eroded)
2 Dillinger sherds
1 Baytown sherd
2 Mississippi Plain sherds
1 Mississippian cordmarked sherd
5 daub

24D3-316 (IAS 11-Ax-416, DBS-90)

Site Type: small open habitation
Component: Unknown Prehistoric, Early Twentieth Century Historic
Size: minimum 25 m NE-SW x 75 m NW-SE (1875 m^2)
Landform: southwest-facing slope of narrow northwest-southeast trending ridge
Soil Type: Dupo silt loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (drilled soybeans 45 cm high), dry soil, 50% visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: site 24D3-316 has a very sparse prehistoric and historic period artifact scatters on a floodplain ridge top. The site's southeast edge is defined arbitrarily at the eastern edge of the survey quadrat. The small lithic scatter at the site contains no culturally diagnostic material and indicates only very light prehistoric utilization of the area. The historic material suggests a very limited early twentieth century presence. Site 24D3-316 is situated 75 m southeast of the more substantial multicomponent site 24D3-315 on the same ridge.
Material Collected: (CAI Accession No. 93.113) n=12
Prehistoric:

1 reduction flake
4 thinning flakes
2 shatter/angular fragments
1 nonchert rock

Historic:

2 porcelain
1 stoneware
1 container glass

24D3-317F (IAS 11-Ax-417, DBS-67F)

Site Type: isolated find
Component: Unknown Prehistoric
Size: 1 m x 1 m (1 m^2)
Landform: base of northwest-southeast trending ridge
Soil Type: Gorham silty clay loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 10 cm high), 80% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 2-person crew
Description: this site is defined as an isolated find based on the presence of three lithics within a 1m^2 area at the base of a ridge slope on an otherwise broad, flat portion of the floodplain. The lithics include light-duty tools (retouched and utilized flakes) and a small piece of debitage. The site's low setting on the landscape and tight artifact cluster-

ing in the absence of surrounding material suggest that it is a specialized distribution or one that lacks integrity as a functional habitation site.
Material Collected: (CAI Accession No. 93.114) n=3

1 debitage fragment
1 retouched flake
1 utilized flake

24D3-318 (IAS 11-Ax-418, DBS-68)

Site Type: small open habitation
Component: Middle Woodland
Size: triangular, maximum 50 m N-S x 90 m E-W (2250 m^2)
Landform: southwest-facing crest of northwest-southeast trending floodplain ridge (terrace remnant)
Soil Type: Disco fine sandy loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (corn 60 cm high, slight corn stubble), 85% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 2-person crew
Description: this site consists of a sparse lithic assemblage distributed along the crest of a ridge in the north-central portion of the survey area, south of the prominent ridge that dominates that part of Dogtooth Bend. The presence of a Kaolin lamellar blade among the assemblage indicates a Middle Woodland cultural affiliation for the site. A similar small Middle Woodland site (24D3-323 Area A) occurs 150 m to the south of the site and may be related to it.
Material Collected: (CAI Accession No. 93.115) n=29

2 reduction flakes
2 thinning flakes
5 shatter/angular fragments
1 core
5 debitage fragments
3 finished bifaces (fragments)
1 thick biface
1 lamellar blade
4 retouched flakes
5 nonchert rocks

24D3-319 (IAS 11-Ax-419, DBS-69)

Site Type: small open habitation
Component: Unknown Prehistoric
Size: 95 m NE-SW x 30 m NW-SE (2850 m^2)
Landform: southwest-facing slope of northwest-southeast trending ridge

Soil Type: Gorham silty clay loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (corn 60 cm high), moist soil, 85% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 2-person crew
Description: site 24D3-319 contains a very sparse artifact scatter on the slope of a ridge. The assemblage consists of nondiagnostic chert and other lithic tools and debitage. The site represents a small, light prehistoric occupation of unknown cultural affiliation.
Material Collected: (CAI Accession No. 93.116) n=13

- 1 reduction flake
- 6 shatter/angular fragments
- 1 core
- 1 finished biface
- 1 retouched flake
- 1 groundstone fragment
- 2 nonchert rocks

24D3-320 (IAS 11-Ax-420, DBS-70)

Site Type: small open site
Component: Unknown Prehistoric
Size: linear, 5 m NE-SW x 100 m NW-SE (500 m^2)
Landform: top of flat floodplain ridge
Soil Type: Riley silty clay loam
Elevation: 321–324′ AMSL
Survey Conditions: cultivated field (corn 45 cm high, soybeans 10 cm high), moist soil, 90–95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 5-person crew
Description: the site consists of very sparse, linear artifact scatters distributed in two subareas (Areas A and B) along a ridge top. The areas are separated from each other by 30 m. Area A yielded three pieces of chert debitage and a retouched flake, while Area B had a thinning flake, two debitage, and a retouched flake. The light lithic assemblage and narrow, extended site area suggest that at most the site had a very limited occupation. The site's integrity is only generally established.
Material Collected: (CAI Accession No. 93.117) n=7

- 1 reduction flake
- 1 thinning flake
- 3 debitage fragments
- 2 retouched flakes

24D3-321 (IAS 11-Ax-421, DBS-108)

Site Type: small open habitation
Component: Mississippian
Size: triangular, maximum 30 m N-S x 35 m E-W (525 m^2)

Landform: top of broad, northwest-southeast trending floodplain ridge (terrace remnant)
Soil Type: Harvard silt loam
Elevation: >325′ AMSL
Survey Conditions: cultivated field (drilled soybeans 7.5 cm high), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 5-person crew
Description: site 24D3-321 is a small Mississippian habitation site. It was defined in the survey by the presence of only three artifacts: Mill Creek reduction and large (7 g) thinning flakes, and a shell-and-grog tempered Mississippi Plain potsherd. The very sparse, but distinctive, surface distribution is not uncommon for small, farmstead-sized Mississippian sites. The site is located on flat terrain 550 m north of the Dogtooth Bend Mound Center. It would have served as an outlying settlement to that nodal site.
Material Collected: (CAI Accession No. 93.118) n=3

1 reduction flake
1 thinning flake
1 Mississippi Plain sherd

24D3-322F (IAS 11-Ax-422, DBS-72F)

Site Type: isolated find
Component: Unknown Prehistoric
Size: 1 m x 1 m (1 m^2)
Landform: slope of northwest-southeast trending floodplain ridge
Soil Type: Darwin silty clay loam
Elevation: 321–324′ AMSL
Survey Conditions: cultivated field (soybeans 10 cm high), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site consists of a single isolated retouched flake located on the low slope of a ridge. The 16-ha survey quad in which it was found had four other very sparse and dispersed lithic scatters and was only lightly occupied in prehistory. That area is also subject to occasional flooding, which may drastically impact the nature and interpretation of the small sites there.
Material Collected: (CAI Accession No. 93.119) n=1

1 retouched flake

24D3-323 (IAS 11-Ax-423, DBS-73)

Site Type: small open habitation
Component: Late Archaic, Middle Woodland, Mississippian
Size: L-shaped, maximum 105 m NE-SW x 78 m NW-SE (3150 m^2)
Landform: lower slope and base of northwest-southeast trending floodplain ridge

Soil Type: Riley silty clay loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (corn 45 cm high, soybeans 12.5 cm high), moist soil, 80–95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site is characterized by two linear artifact distributions (Areas A and B) that occur at right angles to each other on the lower slope and base of a ridge. The areas are separated from each other by 20 m. Area A trends with the direction of the ridge and covers 78 m NW-SE x 25 m NE-SW. It yielded 14 lithic artifacts, including an Etley point indicating a Late Archaic site utilization, and three lamellar blades and an expanding-stem point indicating a Middle Woodland occupation. The point and one of the lamellar blades are of Cobden chert, a material most commonly associated with the Middle Woodland component in the survey area. Area A is situated 150 m south of another small Middle Woodland site (24D3-318) that also yielded lamellar blades. Area B extends 52 m NE-SW x 15 m NW-SE, perpendicular to the trend of the ridge. It contained nine lithics including a Mill Creek hoe (Plate 3A) and is assigned a Mississippian cultural affiliation. The site was a location of light but repeated prehistoric occupation.
Material Collected: (CAI Accession No. 93.120) n=23

1 reduction flake
2 thinning flakes
6 shatter/angular fragments
1 debitage fragment
1 Etley point
1 Middle Woodland expanding stem point
3 thick bifaces
1 hoe (Mill Creek)
3 lamellar blades
3 retouched flake
1 grinding stone

24D3-324F (IAS 11-Ax-424, DBS-109F)

Site Type: isolated find
Component: Unknown Prehistoric
Size: 1 m x 1 m (1 m^2)
Landform: northwest-southeast trending swale cut through floodplain terrace remnant
Soil Type: Harvard silt loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high), 90% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: this site is characterized as the isolated find of a single retouched flake made of Bailey chert. The item was found on the slope of a swale in the southeast

portion of the survey area. The closest recorded site, 24D3-321 a farmstead-sized Mississippian site, was located 75 m east of the retouched flake.
Material Collected: (CAI Accession No. 93.121) n=1

1 retouched flake

24D3-325 (IAS 11-Ax-425, DBS-75)

Site Type: small open site
Component: Unknown Prehistoric
Size: 5 m NE-SW x 46 m NW-SE (230 m^2)
Landform: broad, flat portion of floodplain
Soil Type: Darwin silty clay loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (corn 20 cm high), moist soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: site 24D3-325 is a very sparse linear scatter of three chert artifacts that occur along a 40 m-long stretch of the broad floodplain in the central portion of the survey area. The associated cultural affiliation is unknown. Several sites with similar light, dispersed scatters occur in its vicinity. That portion of the floodplain is subject to periodic flooding, which may well negatively affect the site's structural integrity.
Material Collected: (CAI Accession No. 93.122) n=3

2 thinning flakes
1 retouched flake

24D3-326 (IAS 11-Ax-426, DBS-76)

Site Type: small open site
Component: Unknown Prehistoric
Size: 67 m NE-SW x 20 m (1340 m^2)
Landform: broad, flat portion of floodplain
Soil Type: Dupo silt loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (soybeans 15 cm high), 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: the site contains a very sparse, linear artifact scatter on the broad floodplain in the central portion of the survey area. The artifact assemblage consists of six pieces of chert, including a thick biface and a retouched flake, both made of Mill Creek chert; but the site's prehistoric cultural affiliation is unknown. The site is one of several ephemeral lithic scatters in the vicinity.
Material Collected: (CAI Accession No. 93.123) n=6

2 reduction flake
1 thinning flake

1 debitage fragment
1 thick biface
1 retouched flake

24D3-327 (IAS 11-Ax-427, DBS-77)

Site Type: large open habitation
Component: Emergent Mississippian, Mississippian, Late Nineteenth Century Historic
Size: oval-shaped, maximum 70 m N-S x 125 m E-W (7400 m^2)
Landform: top of low, flat floodplain ridge (terrace remnant) adjacent to a swale on south
Soil Type: Millbrook silt loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (soybeans 25 cm high), 80% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 9-person crew
Description: site 24D3-327 consists of three spatially separated artifact scatters (Areas A, B, and C) located on a low ridge adjacent to a swale in the west-central portion of the survey area. Area A, the southeastern part of the site, encompasses an oval area 30 m N-S x 50 m E-W. It yielded six pieces of chert debitage; an adze made of Devonian chert; three Dillinger, one Baytown, and one Mississippi Plain potsherds, and one piece of daub. Area B, 30 m north of Area A, contained three pieces of chert debitage within an area 10 m N-S x 35 m E-W. Area C, on the site's west side, contained two chert debitage, three retouched and two utilized chert flakes, and a thick biface of Mill Creek chert distributed within an area 60 m NE-SW x NW-SE. The site's structure and artifactual contents are consistent with those of a large Emergent Mississippian or Mississippian farmstead or cluster of separate farmsteads at the individual subareas. The site is located in the vicinity of three similar sites (24D3-298, 304, and 328).

The site also has a very sparse late-nineteenth century historic occupation. The selective surface collection includes thick whiteware ceramics and the base of an olive green bottle with an embossed "L" on it. The site is located just south of an east-west trending road along the land-section line. U.S. Department of Agriculture aerial photographs from 1938 indicate that the site was in a cultivated field by that time.
Material Collected: (CAI Accession No. 93.124) n=32
Prehistoric:
1 reduction flake
3 thinning flakes
4 shatter/angular fragments
1 core
1 primary form
1 debitage fragment
1 thick biface
1 adze
3 retouched flakes

2 utilized flakes
3 Dillinger sherds
1 Baytown sherd
1 Mississippi Plain sherd
1 daub

Historic:
4 whiteware
1 stoneware
3 container glass

24D3-328 (IAS 11-Ax-428, DBS-78)

Site Type: large open habitation
Component: Late Archaic, Emergent Mississippian, Mississippian, Late Nineteenth Century Historic
Size: oval-shaped, maximum 77 m N-S x 120 m E-W (7740 m^2)
Landform: top of low, flat, east-west trending terrace remnant
Soil Type: Harvard silt loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (soybeans 30 cm high), dry soil, 80% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 9-person crew
Description: this site has three separate artifact scatters (Areas A, B, and C) that form an oval-shaped site area on the top of a broad, flat ridge in the west-central portion of the survey area. Area A on the site's southwest edge, encompasses an area 52 m N-S x 53 m E-W. It contained a varied artifact assemblage of 15 chert debitage items, seven retouched and two utilized flakes, two thick biface fragments of Mill Creek chert, one nonchert tool, seven rocks, and two Mississippi Plain and two Mississippian cord-marked sherds. Area B, on the site's southeast side is a triangular area with maximum dimensions of 45 m N-S x 55 m E-W. It yielded nine pieces of chert debitage, a Late Archaic finished biface, two nonchert tools, two rocks, and single potsherds of Baytown and Mississippian cordmarked materials. Area C incorporates an area 17 m N-S x 50 m E-W on the northeast side of the site and yielded five pieces of chert debitage. The site is interpreted as an Emergent Mississippian/Mississippian farmstead or cluster of such units. It is consistent in form and contents with other such sites defined in the survey area. Site 24D3-327, located 125 m to the west on the same landform, has a very similar site structure and cultural profile.

The site also has a very sparse late-nineteenth century historic occupation. The sample artifact collection consisted of a piece of salt-glazed stoneware and the molded base of an aqua-colored glass container. The site is located at the corner of the land section, at the intersection of Center Bend road which extends north-south into Dogtooth Bend and an east-west gravel road. U.S. Department of Agriculture aerial photographs from 1938 and 1956 show the site in a cultivated field at those times.

Material Collected: (CAI Accession No. 93.125) n=62
Prehistoric:

- 2 reduction flakes
- 5 thinning flakes
- 15 shatter/angular fragments
- 1 core
- 2 primary forms
- 4 debitage fragments
- 1 Late Archaic finished biface
- 2 thick bifaces
- 7 retouched flakes
- 2 utilized flakes
- 1 grinding stone
- 1 grinding slab
- 1 groundstone fragment
- 1 hammerstone
- 9 nonchert rocks
- 1 Baytown rim sherd
- 2 Mississippi Plain sherds
- 3 Mississippian cordmarked sherds

Historic:

- 1 stoneware
- 1 container glass

24D3-329F (IAS 11-Ax-429, DBS-79F)

Site Type: isolated find
Component: Unknown Prehistoric
Size: 1 m x 1 m (1 m^2)
Landform: top of low, flat, east-west trending terrace remnant
Soil Type: Millbrook silt loam
Elevation: >325' AMSL
Survey Conditions: cultivated field (soybeans 30 cm high), 80% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 9-person crew
Description: this site consists of the singular occurrence of a large (25 g) flake of Kornthal chert that has been retouched along its lateral margin. The artifact's prehistoric cultural affiliation is unknown. It was found on level terrain in the west-central portion of the survey area and was situated between Emergent Mississippian/Mississippian sites 24D3-327 located 30 m to the west, and 24D3-328 100 m to the east.
Material Collected: (CAI Accession No. 93.126) n=1

- 1 retouched flake

24D3-330 (IAS 11-Ax-330 , DBS-100)

Site Type: small open habitation
Component: Emergent Mississippian
Size: 30 m N-S x 60 m E-W (1800 m^2)
Landform: top of low, narrow, east-west trending ridge on floodplain terrace remnant
Soil Type: Millbrook silt loam
Elevation: 325′ AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high), hard dry soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 3-person crew
Description: this site has a very sparse artifact scatter distributed on the top of a small but pronounced ridge at the southwestern edge of the survey area. The ridge is situated near a slough that leads to the embankment dropoff into the lower portion of Dogtooth Bend. The site's artifact assemblage includes an Emergent Mississippian Dillinger sherd and two hoe flakes (one also retouched) that are interpreted to relate to the Emergent Mississippian cultural component. The site is of the size and character of an Emergent Mississippian farmstead and may well have functioned as such during that time.
Material Collected: (CAI Accession No. 93.132) n=7

- 2 thinning flakes
- 1 hoe flake (Kaolin)
- 1 core
- 1 retouched flake with hoe polish (Other chert)
- 1 groundstone fragment
- 1 Dillinger sherd

24D3-331 (IAS 11-Ax-431, DBS-81)

Site Type: large open habitation
Component: Emergent Mississippian; Midnineteenth Century, Early–Midtwentieth Century Historic
Size: 68 m N-S x 76 m E-W (5168 m^2)
Landform: crest of northwest-southeast trending ridge (terrace remnant) in the floodplain
Soil Type: Harvard silt loam
Elevation: 321–324′ AMSL
Survey Conditions: freshly cultivated field with sparse soybean stubble, dry soil, 85% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 9-person crew
Description: this site contains a sparse artifact scatter distributed over an oval-shaped area on a ridge crest. The site faces toward the west, onto lower ground on the west side of the survey area. Artifacts include an Emergent Mississippian Dillinger sherd and a thick biface and hoe fragment of Mill Creek chert, which are interpreted as pertaining to

the Emergent Mississippian component. The site represents a relatively large farmstead-sized settlement oriented toward the western exposure of the Mississippi River. The large Emergent Mississippian sites 24D3-261 and 24D3-50 occur to its south along the western margin of the bend.

The site also has a minor historic period occupation. The selective artifact collection includes three midnineteenth century pearlware sherds, which may indicate actual occupation during that period or may be heirloom items of a more recent occupation. The recovered porcelain sherd, and probably the petrified wood, suggest early-midtwentieth century site occupation. U.S. Department of Agriculture aerial photographs from 1938 indicate the presence of a farmstead or cluster of outbuildings at the site location at that time

Material Collected: (CAI Accession No. 93.128) n=25

Prehistoric:

- 1 reduction flake
- 3 thinning flakes
- 2 shatter/angular fragments
- 1 thick biface (Mill Creek)
- 1 hoe (Mill Creek) (fragment)
- 5 retouched flakes
- 1 utilized flake
- 1 grinding slab
- 4 Dillinger sherds

Historic:

- 2 pearlware
- 1 blue shell-edge pearlware
- 1 porcelain
- 1 stoneware
- 1 petrified wood

24D3-332 (IAS 11-Ax-432, DBS-82)

Site Type: large open habitation
Component: Middle Woodland, Emergent Mississippian, Mississippian
Size: L-shaped, maximum 105 m N-S x 125 m E-W (5912 m^2)
Landform: top and north slope of northwest-southeast trending ridge (terrace remnant) in the floodplain
Soil Type: Harvard silt loam
Elevation: 325′ AMSL
Survey Conditions: freshly plowed and planted field (soybeans), dry soil, 85% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 9-person crew
Description: 24D3-332 is and L-shaped site composed of three spatially separate artifact scatters (Areas A, B, and C) on the top and slope of a ridge. Area A in the center of the

"L", covers 52 m N-S x 62 m E-W and contained a few chert items (n=9), a piece of sandstone, and ceramics indicative of Middle Woodland (one Baumer/Crab Orchard Fabric Marked) and Emergent Mississippian (three Dillinger) occupations. Area B, to the east of Area A, is 27 m long and contained two pieces of chert debitage. Area C, north of Area A, yielded three chert debitage, a finished biface fragment of Mill Creek chert, and one Mississippi Plain sherd The site represents a small habitation site or cluster of localities. The Emergent Mississippian and Mississippian occupations are consistent with farmstead-sized settlements. The site occurs on the west side of the survey area and is oriented toward access to the western expanse of the Mississippi River. During the Middle Woodland and Emergent Mississippian periods several prominent sites occurred along that western edge. Area A is located only 25 m east, but upslope, from the Emergent Mississippian site 24D3-331. The two sites may represent an extended series of farmsteads on the ridge during that cultural period. The Mississippian occupation in Area C is located on the ridge slope and faces toward a swale to the north.

Material Collected: (CAI Accession No. 93.129) n=22

- 2 reduction flakes
- 2 thinning flake
- 5 shatter/angular fragments
- 2 debitage fragments
- 1 finished biface (fragment)
- 1 thick biface
- 1 retouched flake
- 1 utilized flake
- 2 nonchert rocks
- 1 Baumer/Crab Orchard Fabric Marked sherd
- 3 Dillinger sherds
- 1 Mississippi Plain sherd

24D3-333F (IAS 11-Ax-433, DBS-101F)

Site Type: isolated find
Component: Unknown Prehistoric
Size: 1 m x 1 m (1 m^2)
Landform: top of low, east-west trending ridge on broad, flat terrace remnant on southwest side of survey area in Dogtooth Bend
Soil Type: Millbrook silt loam
Elevation: >325' AMSL
Survey Conditions: cultivated field (soybeans 7.5 cm high), dry hard soil, 95% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 9-person crew
Description: this site consists of the isolated occurrence of a large (9 g) retouched flake made of an unknown chert material found on a low ridge in the southwest portion of

the survey area. Other light, dispersed artifact scatters occur in the general area but the flake is isolated from them.
Material Collected: (CAI Accession No. 93.133) n=1
1 retouched flake

24D3-334F (IAS 11-Ax-434, DBS-102F)

Site Type: isolated find
Component: Late Woodland
Size: 1 m x 1 m (1 m^2)
Landform: base of northwest-southeast trending floodplain ridge
Soil Type: Darwin silty clay loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (drilled soybeans 30 cm high), dry soil, 80% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: the site is defined by the presence of a single sand-tempered Barnes sherd found at the base of a prominent ridge in the southwest portion of the survey area. It faces south toward lower terrain within the survey area and beyond to the embankment leading to the lower bend. The site indicates a Late Woodland utilization of that environmental location.
Material Collected: (CAI Accession No. 93.134) n=1
1 Barnes sherd

24D3-335 (IAS 11-Ax-435, DBS-103)

Site Type: small open habitation
Component: Emergent Mississippian, Mississippian
Size: triangular, maximum 22 m N-S x 22 m E-W (121 m^2)
Landform: slope of northwest-east trending floodplain ridge
Soil Type: Darwin silty clay loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (drilled soybeans 30 cm high), dry soil, 80% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 8-person crew
Description: 24D3-335 is a small triangular-shaped site defined by the presence of three culturally diagnostic artifacts on the south-facing slope of a ridge at the southwestern side of the survey area. The Dillinger sherd indicates an Emergent Mississippian occupation, while the Mississippi Plain sherd relates to a later Mississippian component. The Madison point (Plate 2J) is categorized as Mississippian although it can also be of Emergent Mississippian affiliation. The items suggest the presence of a small late prehistoric farmstead. It overlooks low ground leading to the embankment that drops

into the lower bend to the south. The site is 750 m southwest of the focal Dogtooth Bend Mound Center.
Material Collected: (CAI Accession No. 93.135) n=3

1 Madison point
1 Dillinger sherd
1 Mississippi Plain sherd

24D3-336 (IAS 11-Ax-436, DBS-105)

Site Type: small open habitation
Component: Unknown Prehistoric
Size: 50 m N-S x 85 m E-W (4250 m^2)
Landform: top of east-west trending floodplain ridge on southeast side of survey area
Soil Type: Gorham silty clay loam
Elevation: 321–324' AMSL
Survey Conditions: cultivated field (drilled soybeans 35 cm high), 50% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within each of 3 50-m square blocks (DBS-104 Areas PP, RR, CCC); 3-person crew
Description: this site consists of a very sparse lithic scatter located on a ridge 150 m north of the Dogtooth Bend Mound Center. The assemblage is nondiagnostic and the site's cultural affiliation is unknown. Given its proximity to the mound center, however, on the same general landform, it may well represent an outlying activity area associated with the main site.
Material Collected: (CAI Accession No. 93.137) n=9

2 thinning flakes
1 shatter/angular fragment
4 debitage fragments
1 retouched flake
1 worked quartzite

24D3-337H (IAS 11-Ax-437, DBS-12H) Lake Milligan Cemetery Site

Site Type: historic period cemetery
Component: Late Nineteenth-Early Twentieth Century Historic
Size: 50 m N-S x 95 m E-W (4750 m^2)
Landform: broad, level floodplain on east side of survey area
Soil Type: Gorham silty clay loam
Elevation: 321–324' AMSL
Survey Conditions: tall weeds and brush, 0% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; 2-person crew
Description: site 24D3-337H is a late nineteenth-early twentieth century cemetery, identified by an informant as Lake Milligan Cemetery. It is identified locally as an

African-American cemetery which served the former African-American community of Dogtooth Bend. Some Euroamerican individuals are also reported to be interred there. The cemetery is marked on several earlier plat and topographic maps, but it is always unlabeled.

At the time of the 1993 archaeological survey, the site was preserved as a rectangular area in weeds and brush at the west edge of a cultivated field, adjacent to a gravel road. No gravestones remained standing within the site, but two markers were found lying in the weeds during the brief site inspection. One of the stones was inscribed with the names and personal dates of three individuals: "Obedience Eliott, Nov. 14 1896, Aged 60; May Eliott, March 2, 1898, Aged 62; Wives of Daniel Eliott, Born May 1, 1822." The marker also had the image of an open bible, the inscription "Enter into Joy" and the image of the pearly gates. The site is an important religious and social facility for the African-American community that lived in Dogtooth Bend from the midnineteenth to midtwentieth centuries. No artifacts were collected from the site.
Material Collected: none

24D3-338 (IAS 11-Ax-438, DBS-110)

Site Type: small open site
Component: Unknown Prehistoric
Size: 15 m N-S x 15 m E-W (225 m^2)
Landform: level portion of floodplain terrace remnant
Soil Type: Disco fine sandy loam
Elevation: >325' AMSL
Survey Conditions: cultivated field (newly planted soybeans), dry soil, 100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within site; 4-person crew
Description: the location defined as site 24D3-338 occurred on level terrain 500 m west of the Dogtooth Bend Mound Center. Two chert flakes were observed within a small (225 m^2) area that represented the minimum aspect of an archaeological site. Time and logistical constraints of fieldwork precluded the collection of those artifacts or the investigation of surrounding areas. The chert material did indicate the presence of a site, however.
Material Collected: none

24D3-339H (IAS 11-Ax-439, DBS-111H)

Site Type: small open site
Component: Late Nineteenth–Early Twentieth Century Historic
Size: triangular, maximum 105 m N-S x 65 m E-W (3465 m^2)
Landform: north-facing slope of low east-west trending ridge on floodplain terrace remnant

Soil Type: Millbrook silt loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (newly planted soybeans), dry soil, 100% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within each of 4 50-m square blocks (DBS-106 Areas PP, RR, SS, TT); 4-person crew
Description: site 24D3-339H consists of a very sparse historic period artifact scatter located on the slope of a low ridge 200 m north of the Dogtooth Bend Mound Center. Site material was recovered in the systematic 50 m x 50 m block survey collection units used to collect artifacts within the portion of the mound center referred to as DBS-106. Site 24D3-339H was later designated as a separate site due to its spatial separation from the main site and its solely historic period occupation. The artifacts indicate a light late nineteenth–early twentieth century occupation that appears to have been a limited activity area rather than a habitation site. It may well be related to the more substantial historic-period farmstead that occurs at DBS-106.
Material Collected: (CAI Accession No. 93.147) n=7

- 2 whiteware
- 1 porcelain
- 1 stoneware
- 3 container glass

24D3-346H (IAS 11-Ax-440, DBS-112H)

Site Type: small open habitation
Component: Midnineteenth, Late Nineteenth–Midtwentieth Century Historic
Size: 45 m N-S x 80 m E-W (3600 m^2)
Landform: level top of broad east-west trending terrace remnant in the floodplain
Soil Type: Millbrook silt loam
Elevation: 325' AMSL
Survey Conditions: cultivated field (drilled soybeans 30 cm high), dry hard soil, 60% surface visibility
Survey Methods: site defined by pedestrian survey, transects at 10 m intervals; artifacts collected on 5 m transects within each of 4 50-m square blocks (DBS-80 Areas ZZ, AAA, III, HHH); 8-person crew
Description: this site consists of a midnineteenth and late nineteenth–midtwentieth century historic period occupation. It is located immediately south of a gravel section-line road. The site's artifacts were collected within the 50 m x 50 m blocks used for the survey of site 24D3-50. The site was later distinguished as a historic-period occupation separate from prehistoric materials found to its south and west. A small midnineteenth century occupation is indicated by the presence of pearlware and hand-painted white-ware. The major occupation relates to the late nineteenth–midtwentieth centuries, how-ever. The density and diversity of material suggests that it was a homestead.
Department of Agriculture aerial photographs from 1938 and 1956 indicate the presence of a farmstead at the site location.

Material Collected: (CAI Accession No. 93.148) n=32

1 pearlware
5 whiteware
1 cranberry hand-painted whiteware
1 molded whiteware
1 decaled whiteware
3 porcelain
2 decorated porcelain
5 stoneware
6 container glass
1 glass insulator
1 unglazed brick
1 ceramic doorknob
1 porcelain marble
2 coal
1 slate

5 Survey Results: Summary Data

Survey Coverage

The survey universe, defined as the relatively high ground in the northern one-third of Dogtooth Bend, encompassed an area of 1600 ha (3,955 acres) in portions of 13 sections of land. A total of 23 quadrats in six of the sections (Sections 4, 5, 27, 32, 33, 34) were surveyed in the fieldwork (Figure 5-1, Table 5-1). The pedestrian coverage was 90–100% in each quad as they were spatially defined in the field. Thirteen of the quadrats were the standard 16 ha (40 a), square-shaped units initially designed for the research program. In the other cases, the shape and size of the quadrat varied due to field conditions, problems of property access, or the need to follow sites beyond the 16 ha-boundary. A total of 344 ha (848 a) were surveyed, representing a 21.4% coverage of the survey universe. Excluding some 200 ha of poorly habitable floodplain on the southwest edge of the area, the coverage was 24.6% of the effective survey area. The latter percentage represents a reasonably large and diverse sample of the defined research area and allows the projection of site patterning to other unsurveyed portions of the area. The coverage included portions of several potentially significant landforms—the terrace ridge system on the north, ridges on the west and south, and more level surfaces on the east.

The amount of land surveyed within any of the six sections depended on the number of quadrats investigated within it and the percentage of the section within the research universe (Table 5-1). The survey covered substantial amounts of Sections 5 and 33 (37.5% and 46.1%, respectively). Site patterning within those units should be considered to be fairly representative of their entirety. Sections 4 and 32 had similar moderate coverage (18.6% and 18.8%, respectively) which allows comparisons of site variation between them. Sections 27 and 34 each had only one surveyed quadrat representing 5.5% and 6.3%, respectively, of their areas. Their site patterning thus has more limited predictive value for the rest of their sections. Within any surveyed section, predictions of site patterning to the unsurveyed portions depends largely on the consistency or variation in physiographic characteristics within it, since the latter strongly influence the nature and extent of past human occupation there.

Site Density

A total of 93 archaeological sites were recorded within the 23 Dogtooth Bend Survey quadrats. That represents a site density for the surveyed area as a whole of 9.2 sites per

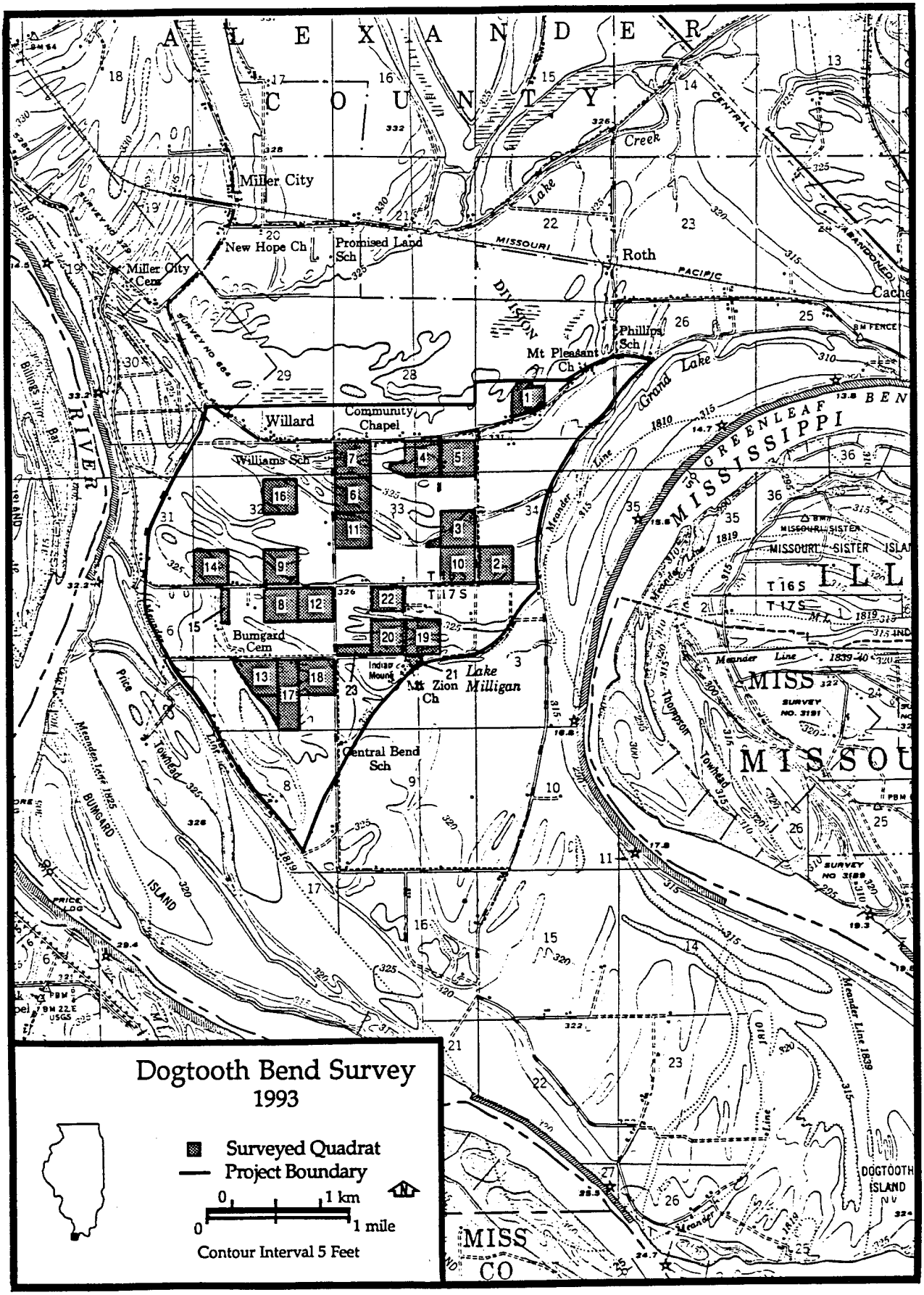


Figure 5-1. Dogtooth Bend Survey area and surveyed quadrats.

Table 5-1. Dogtooth Bend Survey Coverage

Section No.	Quad No.	Quad Size (acres)	Quad Size (ha)	% Section Surveyed	Legal Section Data				Quadrat Data				
					% Section Surveyed	No. Surveyed Sites/ Section	Site Areas as % of Section	Estim. No. Sites/ Section	No. Sites/ Surveyed Quad	Sites Total Area/ Quad (m^2)	Site Areas/ Quad (ha)	Site Areas as % of Quad	Site Total Areas % of Section
4	19	40	16	6.3%	18.6%	8*	5.2%	30	2*	72,250	7.23	44.6%	2.8%
4	20	40	16	6.3%					2*	33,465	3.35	20.7%	1.3%
4	21	9	4	1.4%					1*	28,000	2.80	76.9%	1.1%
4	22	20	8	3.1%					2	526	0.05	0.6%	0.0%
4	23	10	4	1.6%					1	225	0.02	0.6%	0.0%
5	8	40	16	6.3%	37.5%	27*	7.1%	50	7	7,555	0.76	4.7%	0.3%
5	12	40	16	6.3%					8	17,537	1.75	10.8%	0.7%
5	13	50	20	7.8%					1	74,400	7.44	36.8%	2.9%
5	15	15	6	2.3%					1	44,000	4.40	72.5%	1.7%
5	17	50	20	7.8%					8*	40,420	4.04	20.0%	1.6%
5	18	45	18	7.0%					2	122	0.01	0.0%	0.0%
27	1	35	14	5.5%	5.5%	8	2.7%	109	8	70,577	7.06	49.8%	2.7%
32	9	40	16	6.3%	18.8%	14	1.3%	74	5	12,826	1.28	7.9%	0.5%
32	14	40	16	6.3%					2	11,080	1.11	6.8%	0.4%
32	16	40	16	6.3%					7	9,766	0.98	6.0%	0.4%
33	3	45	18	7.0%	46.1%	38*	9.0%	82	2	36,640	3.66	20.1%	1.4%
33	4	50	20	7.8%					4*	45,277	4.53	22.4%	1.7%
33	5	40	16	6.3%					4*	25,776	2.58	15.9%	1.0%
33	6	40	16	6.3%					7*	27,782	2.78	17.2%	1.1%
33	7	40	16	6.3%					12	62,912	6.29	38.9%	2.4%
33	10	40	16	6.3%					4*	31,956	3.20	19.7%	1.2%
33	11	40	16	6.3%					5*	2,971	0.30	1.8%	0.1%
34	2	40	16	6.3%	6.3%	4	0.5%	35	4	12,405	1.24	7.7%	0.5%
Total Hectares =		849	344										

* Includes sites also partially in another quadrat.

hectare. The actual density varies considerably among the quadrats (Table 5-1). The number of sites per quadrat ranges from one to 12 depending largely on site size and local landform. For example, eight sites occur in Quadrat 1 which is located on the prominent terrace ridge in the northeast corner of the survey area. Those sites collectively occupy 49.8% of the quad's land surface. In contrast, the eight sites in Quadrat 12 occupy only 10.8% of that low terrace land. Large sites, such as sites 24D3-261, 24D3-50, and 24D3-13 (subarea DBS-104) may singularly dominate the land mass within particular quadrats.

The number of sites found within the surveyed portions of individual sections range from 38 sites wholly or partially within Section 33 to four sites in Section 34. With 46.1% of Section 33 surveyed, the number of sites (n=38) can be used to predict site density within the section as a whole. The data suggest that 82 sites may occur in the section and incorporate 19.4% of its land surface. Section 5 had 37.5% survey coverage and 27 recorded sites, but approximately 30% of the section is poorly habitable land. Taking such topographic conditions into account, Section 5 is estimated to have a total of 50 archaeological sites.

The entire defined survey area of 1600 ha has an estimated total of 380 sites, based on site densities in the surveyed quadrats (and sections). That figure includes adjustments for major topographic variations within the sections (i.e., habitable versus poorly habitable areas) but not minor variations within individual quadrats (e.g., ridge versus flat floodplain). The survey coverage, as a whole, is considered to be fairly representative of the latter variation, however, since the survey covered a good cross-section of terrain forms.

Cultural Components

The 93 surveyed sites contained 171 cultural components including 143 prehistoric and 28 historic occupations (Table 5-2). Prehistoric components range from the late Middle Archaic (ca. 3700 B.C.) through the Mississippian period (A.D. 1500). They include 3 Middle Archaic, 12 Late Archaic, 14 Early Woodland, 15 Middle Woodland, 13 Late Woodland, 23 Emergent Mississippian, 31 Mississippian, and 32 "Unknown" components. The latter could not be assigned a temporal/cultural affiliation because they lack diagnostic artifacts. The culturally affiliated components occur variously at 65 sites. Many (n=25) of the prehistoric sites are multicomponent. Their artifact assemblages are not separable into cultural individual components except for individual diagnostic artifacts. Even with culturally mixed assemblages, however, the sites provide important information on use of the landscape through time. The repeated selection of particular site locations by temporally/culturally distinct groups indicates their significance as places suitable for habitation.

Table 5-2. Cultural Components at Dogtooth Bend Survey Sites

SIUC (24D3-)	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown Prehist.	Historic	No. Components
13		X	X		X	X	X		X	6
50			X	X	X	X	X		X	6
65				X						1
67			X			X	X			3
74		X	X		X		X		X	5
249			X	X	X	X				4
250			X	X	X	X	X			5
251		X		X	X	X	X		X	6
252								X		1
253							X			1
254								X		1
255						X				1
256F								X		1
257H									X	1
258H									X	1
259H									X	1
260								X		1
261				X	X	X	X		X	5
262F								X		1
263								X		1
264			X							1
265		X	X	X	X	X	X			6
266							X			1
267H	X			X	X				X	4
268		X	X			X			X	4
269	X					X			X	3
270		X								1
271H							X		X	2
272		X	X				X		X	4
273								X		1
274F								X		1
275								X		1
276								X		1
277H									X	1
278H									X	1
283		X		X					X	3

Table 5-2. Cultural Components at Dogtooth Bend Survey Sites

SIUC (24D3-)	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown Prehist.	Historic	No. Components
284						X				1
285	X				X	X	X			4
286		X	X	X		X	X			5
287				X						1
288			X			X				2
289					X					1
290							X			1
291							X			1
292H			X				X		X	3
293								X		1
294							X			1
295							X			1
296							X			1
297						X				1
298							X			1
299F							X			1
300F								X		1
301H								X	X	2
302								X		1
303			X							1
304							X		X	2
305H									X	1
306					X					1
307								X		1
308F								X		1
309								X		1
310							X			1
311		X								1
312H								X	X	2
313								X		1
314F								X		1
315				X		X	X			3
316								X	X	2
317F								X		1
318				X						1
319								X		1

Table 5-2. Cultural Components at Dogtooth Bend Survey Sites

SIUC (24D3-)	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown Prehist.	Historic	No. Components
320								X		1
321							X			1
322F								X		1
323		X		X			X			3
324F								X		1
325								X		1
326								X		1
327						X	X		X	3
328		X				X	X		X	4
329F								X		1
330						X				1
331						X			X	2
332				X		X	X			3
333F								X		1
334F					X					1
335						X	X			2
336								X		1
337H									X	1
338								X		1
339H									X	1
346H									X	1
Total	3	12	14	15	13	23	31	32	28	171

Note: Emergent Miss.=Emergent Mississippian, Unknown Prehist.=Unknown Prehistoric

Prehistoric Artifact Density

Artifact density, that is, the number of items that occur within a given site, reflects the nature of cultural activities at a site and the length and intensity of its occupation. A total of 10,321 prehistoric artifacts (and 997 historic artifacts) were recovered from the 93 surveyed sites. The prehistoric totals for individual sites are listed in the Chapter 4 site descriptions. The artifact assemblages may be compared among the sites, but in order to do so among sites of different size, the totals must be converted to density ratios of the amount of material per hectare of site area. Table 5-3 presents those comparative data for the surveyed sites excluding isolated artifact finds. The sites are ranked in order from those with most to least dense artifact distribution. Site artifact densities range from 1.9 items/ha at a sparse and widely scattered Late Archaic site (24D3-311), to a ratio of 489.3 artifacts/ha at a large multicomponent site (24D3-261). Two other sites (24D3-268 and 24D3-286) have larger density ratios, per se, than site 24D3-261, but encompass smaller areas.

The artifact density data indicate that some relationship exists between artifact density and the number and kinds of prehistoric cultural components present at individual sites. Those with several cultural components (three or more) and relatively large areas (e.g., greater than 2 ha in size) tend to have the most dense artifact distributions than smaller, single component sites. That pattern reflects the accretion of artifact debris on more heavily occupied sites, where materials from later occupations are added successively to earlier deposits. Densely occupied sites tend to include Middle Woodland, Emergent Mississippian, and Mississippian components, although those occupations are by no means found exclusively at such sites. More densely occupied sites also occur most commonly on the tops and crests of floodplain ridges, whereas less dense occupations are often found on level floodplain expanses.

Artifact Assemblage

A total of 11,298 artifacts were recovered from sites investigated in the survey. The large collection size resulted from the use of tightly controlled survey methods, excellent ground visibility in the field, and the relative densities of artifacts at many of the sites. Table 5-4 presents the artifact totals from the sites. Lithics comprise the majority (n=6333, 56%) of the prehistoric artifacts, although ceramics are unusually common in the collection (n=3984, 35%). Most lithics are chert debris or tools. A wide range of prehistoric artifacts are present within the lithic and ceramic categories which reflect diverse cultural activities at the sites through time. A total of 977 historic artifacts were also collected, reflecting midnineteenth to midtwentieth century rural homesteads, farmsteads, and related sites.

Table 5-3. Prehistoric Artifact Density Per Hectare of Site Area

SIUC# (24D3-)	Cultural Components	Landform	Prehistoric Artifact Total	Site Area (hectares)	Prehistoric Artifact Density/ Hectare
268	LA, EW, EM, H	ridge top	533	0.91	583.7
286	LA, EW, MW, EM, M	ridge base	258	0.45	568.8
261	MW, LW, EM, M, H	ridge top	2153	4.40	489.3
284	EM	level floodplain	5	0.01	384.6
67	EW, EM, M	ridge top	319	0.84	379.8
265	LA, EW, MW, LW, EM, M	ridge crest	810	2.30	352.1
285	MA, LW, EM, M	ridge slope	191	0.67	284.2
65	MW	ridge slope	83	0.32	262.9
264	EW	ridge slope	302	1.20	250.8
335	EM, M	ridge slope	3	0.01	247.9
13	LA, EW, LW, EM, M, H	ridge crest	2771	12.60	219.9
275	U	ridge crest	8	0.04	213.3
283	LA, MW, H	ridge slope	59	0.31	192.5
293	U	level floodplain	14	0.09	164.7
250	EW, MW, LW, EM, M	ridge top	272	1.74	156.0
249	EW, MW, LW, EM	ridge top	52	0.34	152.4
269	MA, EM, H	ridge top	139	0.95	145.7
320	U	ridge top	7	0.05	140.0
294	M	level floodplain	19	0.14	139.2
325	U	level floodplain	3	0.02	130.4
318	MW	ridge crest	29	0.23	128.9
50	EW, MW, LW, EM, M, H	ridge crest	1264	10.30	122.7
323	LA, MW, M	ridge base	23	0.20	117.9
298	M	ridge slope	30	0.27	111.3
303	EW	level floodplain	24	0.23	105.8
290	M	ridge crest	19	0.18	105.6
304	M, H	ridge slope	29	0.28	103.6
288	EW, EM	ridge crest	70	0.69	101.7
295	M	level floodplain	11	0.11	99.1
263	U	level floodplain	5	0.06	83.3
315	MW, EM, M	ridge top	39	0.48	81.3
74	LA, EW, LW, M, H	ridge top	130	1.60	81.2
328	LA, EM, M, H	ridge top	60	0.77	77.5
270	LA	level floodplain	22	0.30	72.8
251	LA, MW, LW, EM, M, H	ridge top	71	1.00	71.2
302	U	ridge top	25	0.36	69.9
276	U	ridge crest	13	0.19	68.2
313	U	ridge top	3	0.05	66.7
307	U	level floodplain	10	0.16	62.5
266	M	ridge top	13	0.21	60.8
291	M, H	ridge top	19	0.33	58.5
321	M	ridge top	3	0.05	57.1
310	M	ridge base	6	0.11	56.8

Table 5-3.—Continued

SIUC# (24D3-)	Cultural Components	Landform	Prehistoric Artifact Total	Site Area (hectares)	Prehistoric Artifact Density/ Hectare
306	LW	ridge top	5	0.10	50.0
289	LW	ridge slope	19	0.41	46.4
319	U	ridge slope	13	0.29	45.6
326	U	level floodplain	6	0.13	44.8
292H	EW, M, H	ridge top	44	1.03	42.7
316	U, H	ridge slope	8	0.19	42.7
272	LA, EW, M, H	ridge top	43	1.03	41.6
297	EM	ridge top	6	0.15	40.0
330	EM	ridge top	7	0.18	38.9
332	MW, EM, M	ridge top	22	0.59	37.2
309	U	ridge top	5	0.13	37.2
331	EM, H	ridge crest	19	0.52	36.8
296	M	ridge top	5	0.15	32.8
271H	M, H	ridge top	45	1.38	32.6
327	EM, M, H	ridge top	24	0.74	32.4
267H	MA, MW, LW, H	ridge top	26	0.82	31.7
273	U	ridge top	13	0.47	27.5
336	U	ridge top	9	0.43	21.2
287	MW	ridge top	9	0.47	19.2
255	EM	ridge top	22	1.18	18.6
301H	U, H	swale	3	0.26	11.6
254	U	ridge base	5	0.63	7.9
252	U	ridge slope	8	1.12	7.1
253	M	ridge top	5	1.04	4.8
260	U	level floodplain	6	2.70	2.2
311	LA	level floodplain	5	2.60	1.9

Note: table excludes Isolated Finds.
Cultural Components: MA=Middle Archaic, LA=Late Archaic, EW=Early Woodland, MW=Middle Woodland, LW=Late Woodland, EM=Emergent Mississippian, M=Mississippian, U=Unknown Prehistoric, H=Historic.

Table 5-4. Dogtooth Bend Survey Total Artifacts

SIUC No. (24D3-)	Lithics	Ceramics	Other	Prehistoric Total	Historic	Artifact Total
13	1130	1637	4	2771	187	2958
50	746	518		1264	31	1295
65	83			83		83
67	316	3		319		319
74	118	12		130	1	131
249	46	6		52		52
250	207	65		272		272
251	55	16		71	8	79
252	8			8		8
253	4	1		5		5
254	5			5		5
255	21	1		22		22
256F	4			4		4
257H	0			0	126	126
258H	0			0	19	19
259H	0			0	46	46
260	6			6		6
261	598	1555		2153	37	2190
262F	1			1		1
263	5			5		5
264	302			302		302
265	727	83		810		810
266	12	1		13		13
267H	24	2		26	94	120
268	533			533	29	562
269	139			139	18	157
270	22			22		22
271H	45			45	101	146
272	43			43	4	47
273	13			13		13
274F	1			1		1
275	8			8		8
276	13			13		13
277H	0			0	18	18
278H	0			0	15	15
283	57	2		59	3	62
284	4	1		5		5

Table 5-4. Dogtooth Bend Survey Total Artifacts

SIUC No. (24D3-)	Lithics	Ceramics	Other	Prehistoric Total	Historic	Artifact Total
285	170	21		191		191
286	251	7		258		258
287	6	3		9		9
288	68	2		70		70
289	19			19		19
290	19			19		19
291	19			19		19
292H	44			44	58	102
293	14			14		14
294	15	4		19		19
295	10	1		11		11
296	5			5		5
297	4	2		6		6
298	29	1		30		30
299F	1			1		1
300F	2			2		2
301H	3			3	41	44
302	25			25		25
303	24			24		24
304	29			29		29
305H	0			0	34	34
306	4	1		5		5
307	10			10		10
308F	1			1		1
309	5			5		5
310	6			6		6
311	5			5		5
312H	1			1	48	49
313	3			3		3
314F	1			1		1
315	26	13		39		39
316	8			8	4	12
317F	3			3		3
318	29			29		29
319	13			13		13
320	7			7		7
321	2	1		3		3

Table 5-4. Dogtooth Bend Survey Total Artifacts

SIUC No. (24D3-)	Lithics	Ceramics	Other	Prehistoric Total	Historic	Artifact Total
322F	1			1		1
323	23			23		23
324F	1			1		1
325	3			3		3
326	6			6		6
327	18	6		24	8	32
328	54	6		60	2	62
329F	1			1		1
330	6	1		7		7
331	15	4		19	6	25
332	17	5		22		22
333F	1			1		1
334F	0	1		1		1
335	1	2		3		3
336	9			9		9
337	0			0		0
338	0			0		0
339H	0			0	7	7
346H	0			0	32	32
Total	6333	3984	4	10321	977	11298
% Prehistoric Total	61.4%	38.6%	0.0%	100.0%		
% Artifact Total	56.1%	35.3%	0.0%	91.4%	8.6%	100.0%

Lithic Assemblage

Chert Assemblage

The lithic assemblage of 6333 artifacts includes 4451 pieces of chert debitage, and 1447 chert tools (Table 5-5). Chert debitage occurs at nearly all the prehistoric sites, where it represents the byproducts of chipped stone tool production, utilization, and maintenance. Nine varieties of chert are recognized among the debitage: Bailey, Cobden, Devonian, Elco, Kaolin, Kornthal, Mill Creek, Mounds Gravel, and Other (other types or unidentifiable specimens). Other chert makes up 22.9% (n=622 specimens) of the debitage total. The large number of undefinable chert types largely reflects the gradational morphology among Bailey, Devonian, Kornthal, and Mounds Gravel cherts. Some debitage specimens are difficult to distinguish among them. The assemblage also contains 1739 debitage fragments that are <1.25 cm (<.5 in) square. Those items could not be assigned adequately to chert type categories because of their fragmentary nature. Among the definable chert types, Bailey, Devonian, Kornthal, and Mounds Gravel are local materials that are procurable in the hills or stream beds within 5–20 km of the survey area. Mill Creek, Cobden, Kaolin, and Elco chert occur 30–50 km north in the hills of southwestern Illinois (see discussion of chert types in Chapter 3) and are considered to be regional, or near-distant, sources rather than local ones.

The prehistoric inhabitants of Dogtooth Bend used primarily local cherts (Table 5-6). Collectively, the four types comprise 46.3% of the debitage, in descending abundance from Devonian (18.5%, n=501), to Kornthal (13.9%, n=377), Bailey (7.6%, n=205), and Mounds Gravel (6.3%, n=171). Those materials were the most readily accessible to the inhabitants, requiring less energy expenditure for their procurement. However, they are secondary quality raw materials for chipped stone tools. The emphasis on local chert resources, even though of secondary quality, is seen elsewhere in southern Illinois in prehistory (Butler and Hargrave 1993; Hargrave and McGimsey 1990; Parry 1992; Stephens 1994).

The importance of local chert raw materials is evident in the lithic assemblage; however, the single most common chert type is Mill Creek, the dense, blocky material that outcrops in the Shawnee Hills 30 km north of the survey area. Mill Creek material represents 21.9% (n=593 specimens) of the identifiable chert debitage and occurs at 45 sites. Elsewhere, and indeed in Dogtooth Bend, it is associated especially with the Emergent Mississippian and Mississippian components. Twenty-nine of the survey sites with Mill Creek chert have late prehistoric components. Those sites also account for 93.6% of the Mill Creek chert that was recovered from survey sites. Mill Creek chert is most abundant (n=314 items) at the Dogtooth Bend Mound Center (24D3-13), where it comprises 52.4% of the identifiable chert material, including numerous large reduction and thinning flakes. Excluding the mound center counts, Mill Creek chert comprises 13.2% of the identifiable debitage chert types among the other Dogtooth Bend sites. It

Table 5-5. Dogtooth Bend Survey Lithic Totals

SIUC (24D3-)	Reduction Flake	Thinning Flake	Shatter/Angular Frag.	Hoe Flake	Core	Primary Form	Debitage Frag.	TOTAL DEBITAGE	Hafted Biface	Finished Biface	Thick Biface	Scraper	Drill
13	138	133	310	11	4	3	132	731	6	4	34	1	2
50	6	61	84	14		1	375	541	3		1	1	
65	13	16	16		2	1	17	65	1	1	3		
67	27	41	70		1		130	269	2		5	1	
74	10	7	25			2	31	75	1	8	4		
249	4	2	18			1	8	33	1		4		
250	18	11	39		1	3	78	150	3	3		1	
251	4	1	6		1	1	12	25	1		2		
252	1		4					5					
253	1		1					2			1		
254	1		1					2		1			
255	1	5	11				3	20					
256F													
257H													
258H													
259H													
260					1		1	2					
261	38	37	118	27	1	1	199	421	1		3		
262F	1							1					
263			2			1		3					
264	21	31	56			2	130	240	1	6	6		
265	74	70	176	1	4	4	197	526	4	12	27	2	
266	1	1	2				3	7			1		
267H	3	5	5				2	15	1			1	
268	53	49	130		2	8	146	388	4	11	16	1	
269	19	12	31	1		3	27	93	2	2	9		
270	5	2	5				3	15		2			
271H	3	4	18				3	28			1		
272	3	4	12			6	6	31	2	1	1		
273			4				2	6			2		
274F			1					1					
275		2	2				2	6			1		
276	1	2	5				3	11					

Table 5-5. Dogtooth Bend Survey Lithic Totals

SIUC (24D3-)	Reduction Flake	Thinning Flake	Shatter/Angular Frag.	Hoe Flake	Core	Primary Form	Debitage Frag.	TOTAL DEBITAGE	Hafted Biface	Finished Biface	Thick Biface	Scraper	Drill
277H													
278H													
283	12	6	12			2	6	38	2	1	1		
284		2					1	3					
285	14	23	21		4		53	115	1	4	2		
286	42	41	50		3	1	78	215	2	5	3		1
287		1					2	3					
288	9	8	22			4	7	50	1		3	1	
289	4	3	7			1		15	1		2		
290	1	2	6				4	13			1		
291	1		6	1			1	9			2		
292H	2	4	9	1			7	23		4	2	1	
293			4				3	7		1			
294	1	1					2	4					
295		1	3					4			1		
296		1		1			1	3			1		
297				1			1	2					
298	1	3	3			1	5	13		3	2		
299F									1				
300F	1	1						2					
301H													
302	1	3	3		1		10	18		1	2		
303	3	2	2				4	11			1	1	
304	1	4	9	1			10	25		1			
305H													
306	1		1				1	3					
307	3	2	1				2	8					
308F	1							1					
309	2					1		3					
310		3	1					4					
311	1							1		1			
312H													
313						1	1	2					
314F							1	1					

Table 5-5. Dogtooth Bend Survey Lithic Totals

SIUC (24D3-)	Reduction Flake	Thinning Flake	Shatter/Angular Frag.	Hoe Flake	Core	Primary Form	Debitage Frag.	TOTAL DEBITAGE	Hafted Biface	Finished Biface	Thick Biface	Scraper	Drill
315	3	5	6				7	21				1	
316	1	4	2					7					
317F							1	1					
318	2	2	5		1		5	15		3	1		
319	1		6		1			8		1			
320	1	1					3	5					
321	1	1						2					
322F													
323	1	2	6				1	10	2		3		
324F													
325		2						2					
326	2	1					1	4			1		
327	1	3	4		1	1	1	11			1		
328	2	5	15		1	2	4	29		1	2		
329F													
330		2		1	1			4					
331	1	3	2					6			1		
332	2	2	5				2	11		1	1		
333F													
334F													
335									1				
336		2	1				4	7					
337H													
338													
339H													
346H													
Total	565	642	1364	60	30	51	1739	4451	44	78	154	12	3
% Category	12.7%	14.4%	30.6%	1.3%	0.7%	1.1%	39.1%	100.0%	03%	05%	11%	01%	00%
% Lithic Total								70.3%					

Table 5-5. Dogtooth Bend Survey Lithic Totals

SIUC (24D3-)	Hoe	Adze	Gouge	Hammerstone	Lamellar Blade	Retouched Flake	Utilized Flake	Other Chert Tool	TOTAL CHERT TOOLS	TOTAL CHERT	Groundstone Frag.	Grinding Stone	Pitted Grinding Stone
13	3		1	1		226	63	2	343	1074	11	2	
50	1				2	66	99		173	714	5	2	
65					1	6	5		17	82		1	
67				1		33	3	1	46	315			
74						11	7	2	33	108	3	2	3
249						3		1	9	42			
250	2					10	4	1	24	174	5		1
251						3		1	7	32	2		
252						1			1	6			
253									1	3			
254						1			2	4			
255										20			
256F						3			3	3			
257H													
258H													
259H													
260						3			3	5			1
261					2	31	59	3	99	520	7		1
262F										1			
263						1			1	4		1	
264						39	2		54	294		1	
265	2	4	1	3	1	72	14	1	143	669		2	3
266						1			2	9		1	
267H						6			8	23			
268				1		77	10		120	508		1	
269						25	2		40	133			
270						3			5	20		1	
271H	1			1		7			10	38			
272	1					5			10	41			
273							1		3	9		1	
274F										1			
275							1		2	8			
276						1	1		2	13			

Table 5-5. Dogtooth Bend Survey Lithic Totals

SIUC (24D3-)	Hoe	Adze	Gouge	Hammerstone	Lamellar Blade	Retouched Flake	Utilized Flake	Other Chert Tool	TOTAL CHERT TOOLS	TOTAL CHERT	Groundstone Frag.	Grinding Stone	Pitted Grinding Stone
277H													
278H													
283						9	3		16	54	1		
284							1		1	4			
285						31	10	1	49	164	1	1	1
286					3	11	4	1	30	245		1	
287						1			1	4	1		
288			1	1		9			16	66			1
289						1			4	19			
290	1					1	1		4	17			1
291	1					6		1	10	19			
292H						9	2	1	19	42			
293						2	3		6	13			
294										4			
295						3			4	8			
296									1	4			
297						2			2	4			
298						7	2		14	27	2		
299F									1	1			
300F										2			
301H						1	2		3	3			
302						3			6	24			
303						9	2		13	24			
304						3			4	29			
305H													
306										3			
307						2			2	10			
308F										1			
309										3		1	
310		1				1			2	6			
311						3			4	5			
312H							1		1	1			
313										2			1
314F										1			

Table 5-5. Dogtooth Bend Survey Lithic Totals

SIUC (24D3-)	Hoe	Adze	Gouge	Hammerstone	Lamellar Blade	Retouched Flake	Utilized Flake	Other Chert Tool	TOTAL CHERT TOOLS	TOTAL CHERT	Groundstone Frag.	Grinding Stone	Pitted Grinding Stone
315						2	2		5	26			
316										7			
317F						1	1		2	3			
318					1	4			9	24			
319						1			2	10	1		
320						2			2	7			
321										2			
322F						1			1	1			
323	1				3	3			12	22		1	
324F						1			1	1			
325						1			1	3			
326						1			2	6			
327		1				3	2		7	18			
328						7	2		12	41	1	1	
329F						1			1	1			
330						1			1	5	1		
331	1					5	1		8	14			
332						1	1		4	15			
333F						1			1	1			
334F													
335									1	1			
336						1			1	8			
337H													
338													
339H													
346H													
Total	14	6	3	8	13	785	311	16	1447	5898	41	20	13
% Category	01%	00%	00%	01%	01%	54%	21%	01%	100.0%		41.8%	20.4%	13.3%
% Lithic Total									22.8%	93.1%			

Table 5-5. Dogtooth Bend Survey Lithic Totals

SIUC (24D3-)	Grinding Slab	Hammerstone	Abrader	Other Nonchert Tool	TOTAL NONCHERT TOOLS	TOTAL NONCHERT ROCK	TOTAL NONCHERT	TOTAL LITHICS
13	5		1	1	20	36	56	1130
50	1				8	24	32	746
65					1		1	83
67						1	1	316
74					8	2	10	118
249						4	4	46
250	1				7	26	33	207
251					2	21	23	55
252						2	2	8
253						1	1	4
254	1				1		1	5
255						1	1	21
256F						1	1	4
257H								
258H								
259H								
260					1		1	6
261					8	70	78	598
262F								1
263					1		1	5
264		1			2	6	8	302
265		1		1	7	51	58	727
266		1		1	3		3	12
267H						1	1	24
268				1	2	23	25	533
269						6	6	139
270				1	2		2	22
271H	1				1	6	7	45
272						2	2	43
273					1	3	4	13
274F								1
275								8
276								13

Table 5-5. Dogtooth Bend Survey Lithic Totals

SIUC (24D3-)	Grinding Slab	Hammerstone	Abrader	Other Nonchert Tool	TOTAL NONCHERT TOOLS	TOTAL NONCHERT ROCK	TOTAL NONCHERT	TOTAL LITHICS
277H								
278H								
283					1	2	3	57
284								4
285	1				4	2	6	170
286					1	5	6	251
287					1	1	2	6
288					1	1	2	68
289								19
290					1	1	2	19
291								19
292H						2	2	44
293		1			1		1	14
294						11	11	15
295						2	2	10
296						1	1	5
297								4
298					2		2	29
299F								1
300F								2
301H								3
302						1	1	25
303								24
304								29
305H								
306						1	1	4
307								10
308F								1
309					1	1	2	5
310								6
311								5
312H								1
313					1		1	3
314F								1

Table 5-5. Dogtooth Bend Survey Lithic Totals

SIUC (24D3-)	Grinding Slab	Hammerstone	Abrader	Other Nonchert Tool	TOTAL NONCHERT TOOLS	TOTAL NONCHERT ROCK	TOTAL NONCHERT	TOTAL LITHICS
314F								1
315								26
316						1	1	8
317F								3
318						5	5	29
319					1	2	3	13
320								7
321								2
322F								1
323					1		1	23
324F								1
325								3
326								6
327								18
328	1	1			4	9	13	54
329F								1
330					1		1	6
331	1				1		1	15
332						2	2	17
333F								1
334F								
335								1
336				1	1		1	9
337H								
338								
339H								
346H								
Total	12	5	1	6	98	337	435	6333
% Category	12.2%	5.1%	1.0%	6.1%	100.0%			
% Lithic Total					1.5%	5.3%	6.9%	100.0%

Table 5-6. Chert Debitage Raw Materials

	Cultural Component									Chert Type										Totals		
SIUC (24D3-)	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown	Historic	Bailey	Devonian	Kornthal	Mounds	Mill Creek	Cobden	Kaolin	Elco	Other	Total >.5 In	Fragments <.5 In	Debitage Total
13		X	X		X	X	X		X	4	52	30	20	314	8	39	7	125	599	132	731
50			X	X	X	X	X		X	1	1	1	4	29	114			16	166	375	541
65				X						6	7	3	4	1				27	48	17	65
67			X			X	X			4	33	50	3	6				43	139	130	269
74		X	X		X		X		X	4	11	10	7	3	2			7	44	31	75
249			X	X	X	X				2	4	5	5	3	2			4	25	8	33
250			X	X	X	X	X			15	9	11	9	13	4			11	72	78	150
251		X		X	X	X	X		X		1	2	1	1	3			5	13	12	25
252								X				3						2	5		5
253							X				1							1	2		2
254								X		1		1							2		2
255						X				1	2	2	1	8	1			2	17	3	20
256F								X											0		0
257H									X										0		0
258H									X										0		0
259H									X										0		0
260								X			1								1	1	2
261				X	X	X	X		X	24	25	8	10	82	8	1		64	222	199	421
262F								X						1					1		1
263								X			1		2						3		3
264			X							14	44	23	5	10	2			12	110	130	240
265		X	X	X	X	X	X			48	68	75	23	35	17			63	329	197	526
266							X			1	1	1						1	4	3	7
267H	X			X	X				X	4	2	3	2	1		1			13	2	15
268		X	X			X			X	23	69	40	19	20	7		1	63	242	146	388
269	X					X			X	1	15	19	4	4	3			20	66	27	93
270		X								1	4	5		1				1	12	3	15
271H							X		X	5	4	1	6					9	25	3	28
272		X	X				X		X	3	8	2	6	2	1			3	25	6	31
273								X			1							2	4	2	6
274F								X										1	1		1
275								X						2				2	4	2	6
276								X		1	2			2	2			1	8	3	11
277H									X										0		0
278H									X										0		0
283		X		X					X	5	4	9	5	5	1			3	32	6	38
284						X								1	1				2	1	3
285	X				X	X	X			4	27	5	6	4				16	62	53	115

Table 5-6. Chert Debitage Raw Materials

SIUC (24D3-)	Cultural Component								Chert Type									Totals		
	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown	Historic	Bailey	Devonian	Kornthal	Mounds	Mill Creek	Cobden	Kaolin	Elco	Other	Total >.5 In	Fragments <.5 In	Debitage Total
286		X	X	X		X	X			9	22	27	4	11	2	1		61	137	78	215
287				X							1								1	2	3
288			X			X				4	15	8	1	4				11	43	7	50
289					X					1	4	8	1		1				15		15
290							X			3	2	2		1	1				9	4	13
291							X			1	4	1		1				1	8	1	9
292H			X				X		X		3	5	3	2				3	16	7	23
293								X		2	1	1							4	3	7
294							X				1		1						2	2	4
295							X			2								2	4		4
296							X				1			1					2	1	3
297						X								1					1	1	2
298							X				3	1		2				2	8	5	13
299F							X												0		0
300F								X			1	1							2		2
301H								X	X										0		0
302								X		1	4			1	1			1	8	10	18
303			X								4							3	7	4	11
304							X		X		4		1	3				7	15	10	25
305H									X										0		0
306					X					1				1					2	1	3
307								X		1	1	1	2					1	6	2	8
308F								X							1				1		1
309								X			2		1						3		3
310							X				1			1	1			1	4		4
311		X											1						1		1
312H								X	X										0		0
313								X					1						1	1	2
314F								X											0	1	1
315				X		X	X				3	1	3		1			6	14	7	21
316								X	X		1		1	4				1	7		7
317F								X											0	1	1
318				X						1	3	1		2				3	10	5	15
319								X			3		1	2	1			1	8		8
320								X						1				1	2	3	5
321							X							2					2		2
322F								X											0		0
323		X		X			X			1	2	3	1					2	9	1	10

Table 5-6. Chert Debitage Raw Materials

SIUC (24D3-)	Cultural Component								Chert Type										Totals		
	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown	Historic	Bailey	Devonian	Kornthal	Mounds	Mill Creek	Cobden	Kaolin	Elco	Other	Total >.5 In	Fragments <.5 In	Debitage Total
324F								X											0		0
325								X			1							1	2		2
326								X			1	1	1						3	1	4
327						X	X		X	1	3		2	1	1			2	10	1	11
328		X				X	X		X	2	9	6	4		2			2	25	4	29
329F								X											0		0
330						X					1			1	1	1			4		4
331						X			X	1	2			1				2	6		6
332				X		X	X			1	1	1		1	2			3	9	2	11
333F								X											0		0
334F					X														0		0
335						X	X												0		0
336								X		1				1				1	3	4	7
337H									X										0		0
338								X											0		0
339H									X										0		0
346H									X										0		0
Debitage Total										205	501	377	171	593	191	43	8	622	2711	1739	4451
Debitage % (>.5 In)										7.6%	18.5%	13.9%	6.3%	21.9%	7.0%	1.6%	0.3%	22.9%	100.0%		

was a significant resource at those locations, as well, and played an important role in prehistoric technological and other economic activity.

In particular, Mill Creek chert was an important exchange item in the late prehistoric (Emergent Mississippian/Mississippian periods) (Carr and Koldehoff 1988; Cobb 1988, 1989). Its abundance at the Dogtooth Bend Mound Center, especially in the form of some early and more middle-stage production debris, suggests that local Dogtooth Bend groups may have procured the material directly from the source area and processed it partially at the center. Conversely, it may have been an element of down-the-line exchange between the Linn site (mound center) or other strategic sites (e.g., Hale or Dillow's Ridge) located near the Mill Creek quarries. The outlying Dogtooth Bend sites have fewer large reduction and thinning flakes than does the mound center. Mill Creek chert appears to have been concentrated at the mound center and may have been distributed from there to other sites in the form of more finished tools.

The dynamics of Mill Creek chert procurement and distribution has direct implications for late prehistoric interregional exchange, as well. For example, the material represents 16% of the chert in the Middle Wickliffe component from Mound A at the Wickliffe Mounds site in Ballard County, Kentucky (Carr and Koldehoff 1994). It occurs there as middle to late-stage production debris, suggesting less direct access to the source area and further down-the-line exchange than at Dogtooth Bend. The latter site may have been a more intermediary point in the interregional distribution of Mill Creek during that period.

Cobden/St. Louis chert, the high/moderate quality microcrystalline, nodular material from the western Shawnee Hills, occurs as a minor type among the survey lithic assemblage. A total of 191 specimens were identified from 28 sites. Most of the material (114 pieces) was found at the large Elizabeth Youch site (24D3-50) on the southwestern side of the survey area. Cobden/St. Louis material comprises 68.7% of the chert debitage obtained from that site. Most of the specimen are relatively small pieces of shatter or thinning flakes, suggestive of later stage tool production and tool maintenance activities. The abundance of Cobden/St. Louis material at that site is in stark contrast to its presence at other Dogtooth Bend sites. where it generally occurs as single items or a few specimens. Elsewhere in southern Illinois, Cobden/St. Louis chert utilization has been associated particularly with the Middle Woodland cultural period (Koldehoff 1985; McNerney 1975). Its abundance at the Elizabeth Youch site may well relate to the sizable Middle Woodland component there. Ten of the 25 other Dogtooth Bend sites with Cobden/St. Louis chert also have Middle Woodland components. While that condition does not preclude the association of the Cobden/St. Louis material with other cultural components, it does suggest some association between the use of that chert resource and Middle Woodland cultural activities. That relationship, in tern, suggests patterns of interaction, exchange, or resource procurement that emphasized (or included) areas to the north in Union County, Illinois.

Kaolin and Elco cherts were anticipated in the artifact analysis to be well represented in the survey lithic assemblage. However, they proved to be very limited in number and

distribution. Only 43 Kaolin items were identified, 39 of which occur at the Dogtooth Bend Mound Center. The remaining specimens occur as single items at four other sites. Three of the latter have Emergent Mississippian or Mississippian occupations. Local Kaolin chert utilization appears to be associated with those components.

Likewise, Elco chert is very restricted in the assemblage; seven of the eight specimens were found at the mound center. The other item occurred at a site (24D3-268) that had an Emergent Mississippian occupation, among others. Elco chert looks macroscopically like Dover chert, a material from the lower Tennessee and Cumberland Rivers in Kentucky and Tennessee. Dover chert was exchanged widely during the Mississippian period (Carr and Koldehoff 1994; Muller 1986). While the material found in the survey is considered to be the more local Elco chert rather than the distant Dover material (by reasons of proximity and ease of procurement), its almost exclusive presence at the mound center, a location where items of long-distance exchange might be expected, does not rule out its actual affiliation with a more distant Dover source rather than a more readily accessible Elco one.

The chert assemblage represents various aspects of the chert production and utilization process (Table 5-5). Reduction flakes, which are part of the early stage production process, comprise 12.7% (n=565 items) of the total debitage. Thinning flakes, which relate to midstage production, are 14.4% (n=642 items) of that assemblage. Shatter/angular fragments of chert account for 30.6% (n=1364) of the debitage and may relate to early through late production stages. The largest single debitage category (n=1739) is that of the debitage fragments (i.e., <1.25 cm in size), which reflects in large part the intensive survey methods and excellent survey field conditions rather than prehistoric cultural patterns. Few cores (n=30) or unaltered primary forms (n=51) were found in the survey. The specialized debitage category of hoe flakes (n=60) indicates that activities associated with chert hoe utilization and maintenance occurred at 11 sites.

The lithic assemblage includes a large number of chert tools (n=1447), which represent (24.5%) of recovered chert artifacts. The tool categories are summarized in Table 5-5. Formal tools (i.e., those purposely modified to produce specific functional forms) comprise 24.3% (n=351) of the tool assemblage, and they occur at 47 sites. The formal tools include the culturally diagnostic items listed in Table 5-7 as well as numerous nondiagnostic thick bifaces, finished bifaces, and other items. The diagnostic artifacts relate to the Middle Archaic through Mississippian components. The most common diagnostic tools are hafted bifaces (n=44), which include three Middle Archaic Matanzas points; nine Late Archaic and 14 Early Woodland stemmed varieties; five Middle Woodland points; one Late Woodland point; two Emergent Mississippian stemmed specimens; and 10 Emergent Mississippian or Mississippian triangular forms (arrow points).

Additional culturally diagnostic chert tools include 13 lamellar blades, 14 hoes, six hafted bifaces, six scrapers, two drills, and four other items (Table 5-7). The lamellar blades are a generalized light-cutting tool related distinctively to the Middle Woodland period. Some of the specimens in the survey collection are less well made (e.g., less

Table 5-7. Diagnostic Chert Tools from Surveyed Sites

Site No. (24D3-)	Sub-area	Artifact Morphofunction	Cultural Component	Chert Type
267H		Matanzas point (frag.)	Middle Archaic	Other
269		Matanzas point (frag.)	Middle Archaic	Kornthal
285		Matanzas point	Middle Archaic	Kornthal
13	104D	Drill	Late Archaic	Devonian
74	A	Late Archaic biface	Late Archaic	Kornthal
251		Etley point	Late Archaic	Mounds
265	A	Etley point (frag.)	Late Archaic	Mounds
268	A	Late Archaic biface	Late Archaic	Mounds
272		Etley point	Late Archaic	Cobden/St. Louis
283		Ledbetter point	Late Archaic	Kornthal
286		Drill	Late Archaic	Mounds
311	B	Late Archaic biface	Late Archaic	Devonian
323	A	Etley point	Late Archaic	Bailey
328	B	Late Archaic biface	Late Archaic	Kornthal
74	B	Saratoga Straight Stemmed point	L. Archaic/E. Wood.	Cobden/St. Louis
265	B	Saratoga Straight Stemmed point	L. Archaic/E. Wood.	Mounds
268	A	Saratoga Straight Stemmed point	L. Archaic/E. Wood.	Kornthal
283		Saratoga Straight Stemmed point	L. Archaic/E. Wood.	Devonian
13	104Z	Cypress Straight Stem point (frag.)	Early Woodland	Kornthal
50	F	Cypress Constricting Stem point	Early Woodland	Devonian
50	L	Cypress Constricting Stem point	Early Woodland	Cobden/St. Louis
67		Cypress Constricting Stem point	Early Woodland	Other
249		Cypress Constrict. Stem perforator	Early Woodland	Other
250	C	Motley point	Early Woodland	Devonian
264	D	Kramer Point	Early Woodland	Other
265	A	Motley point	Early Woodland	Cobden/St. Louis
265	D	Cypress Constricting Stem point	Early Woodland	Cobden/St. Louis
265	D	Cypress Constrict. Stem scraper	Early Woodland	Cobden/St. Louis
268	A	Cypress Constricting Stem point	Early Woodland	Mounds
268	B	Cypress Straight Stemmed point	Early Woodland	Mounds
272		Motley point	Early Woodland	Mounds
286		Hafted biface (frag.)	Early Woodland	Devonian
286		Bradshaw Stemmed point	Early Woodland	Mounds
288	C	Adena point	Early Woodland	Cobden/St. Louis
288	C	Cypress Constrict. Stem scraper	Early Woodland	Bailey
292H	A	Adena scraper	Early Woodland	Mounds
303		Adena scraper	Early Woodland	Mounds
50	G	Snyders point	Middle Woodland	Cobden/St. Louis
50	K	Hafted biface (frag.)	MIddle Woodland	Cobden/St. Louis

Table 5-7.—Continued

Site No. (24D3-)	Sub-area	Artifact Morphofunction	Cultural Component	Chert Type
50	G	Lamellar blade	Middle Woodland	Cobden/St. Louis
50	G	Lamellar blade	Middle Woodland	Cobden/St. Louis
50	V	Flake scraper	Middle Woodland	Cobden/St. Louis
65		Lamellar blade	Middle Woodland	Cobden/St. Louis
249		Steuben point	Middle Woodland	Kornthal
261	F	Snyders point (frag.)	Middle Woodland	Cobden/St. Louis
261	G	Lamellar blade	Middle Woodland	Cobden/St. Louis
261	G	Lamellar blade	Middle Woodland	Other
265	B	Lamellar blade	Middle Woodland	Other
286		Lamellar blade	Middle Woodland	Other
286		Lamellar blade	Middle Woodland	Devonian
286		Lamellar blade	Middle Woodland	Mounds
286		Finished biface	Middle Woodland	Devonian
315		Scraper	Middle Woodland	Cobden/St. Louis
318		Lamellar blade	Middle Woodland	Kaolin
323	A	Expanding Stem point (frag.)	Middle Woodland	Cobden/St. Louis
323	A	Lamellar blade	Middle Woodland	Cobden/St. Louis
323	A	Lamellar blade	Middle Woodland	Other
323	A	Lamellar blade	Middle Woodland	Other
289		Lowe Flared Base point	Late Woodland	Elco
268	B	Scallorn point	Emergernt Mississippian	Bailey
269		Scallorn point	Emergernt Mississippian	Bailey
13	104A	Madison point (frag.)	Emergent Miss./Miss.	Mill Creek
13	104 D	Hoe	Emergent Miss./Miss.	Mill Creek
13	104E	Hoe	Emergent Miss./Miss.	Mill Creek
13	104F	Madison point	Emergent Miss./Miss.	Mill Creek
13	104H	Madison point	Emergent Miss./Miss.	Kaolin
13	104H	Madison point	Emergent Miss./Miss.	Mill Creek
13	106A	Madison point (frag.)	Emergent Miss./Miss.	Mill Creek
13	107A	Gouge	Emergent Miss./Miss.	Mill Creek
13	107G	Hoe (frag.)	Emergent Miss./Miss.	Mill Creek
50	V	Hoe (frag.)	Emergent Miss./Miss.	Mill Creek
67		Madison point	Emergent Miss./Miss.	Cobden/St. Louis
250	B	Madison point	Emergent Miss./Miss.	Devonian
250	E	Madison point	Emergent Miss./Miss.	Kornthal
250	B	Hoe (frag.)	Emergent Miss./Miss.	Mill Creek
250	E	Hoe (frag.)	Emergent Miss./Miss.	Mill Creek
265	A	Hoe (frag.)	Emergent Miss./Miss.	Mounds
265	C	Hoe (frag.)	Emergent Miss./Miss.	Mill Creek

Table 5-7.—Continued

Site No. (24D3-)	Sub-area	Artifact Morphofunction	Cultural Component	Chert Type
271H	A	Hoe (frag.)	Emergent Miss./Miss.	Mill Creek
272		Hoe	Emergent Miss./Miss.	Devonian
290		Hoe	Emergent Miss./Miss.	Mill Creek
291		Hoe	Emergent Miss./Miss.	Mill Creek
299F		Madison point	Emergent Miss./Miss.	Other
310		Adze	Emergent Miss./Miss.	Mill Creek
323	B	Hoe	Emergent Miss./Miss.	Mill Creek
327	A	Adze	Emergent Miss./Miss.	Devonian
331		Hoe (frag.)	Emergent Miss./Miss.	Mill Creek
335		Madison point	Emergent Miss./Miss.	Cobden/St. Louis

Note: L.Archaic/E.Wood.=Late Archaic/Early Woodland, Emergent Miss./Miss.= Emergent Mississippian/Mississippian

formally parallel-sided, or have a length twice that of the width) than classic lamellar blades seen at some Middle Woodlands sites elsewhere in the Mississippi River valley (e.g., the Twenhafel site in Jackson County, Illinois [Morrow 1988]). The specimens are more commonly like those referred to elsewhere as "bladelets" (Stephens 1994). Hoes occur as whole specimens (n=6) or broken fragments (n=8) which usually exhibit the high glossy polish characteristic of the tool's utilization as a digging implement. They are classified as Emergent Mississippian or Mississippian tools, although some hoes predate those components (Cobb 1988; Parry 1992), and they appear to become more prevalent in Mississippian than earlier periods.

The raw materials of diagnostic chert tools are listed in Table 5-7. Local cherts (Bailey, Devonian, Kornthal, and Mounds Gravel), and those from the western Shawnee Hills and Ozarks (Cobden/St. Louis, Elco, Kaolin, and Mill Creek) within 20–50 km of Dogtooth Bend, were selected repeatedly through time for tool manufacture. Some more specific temporal trends in material selection can be seen, however. The three Middle Archaic points are of local Kornthal (n=2) or unidentifiable (n=1) chert types. Late Archaic tools are made almost exclusively of local chert, as well. Mounds Gravel is the most common material (33.3% of diagnostics), and Kornthal and Devonian are also well represented. Early Woodland tools are also most commonly made of Mounds Gravel (31.6% of diagnostics), but Cobden/St. Louis varieties become more prevalent (26.3% of tools). The trend continues into Middle Woodland, where 52.4% of the diagnostics are of Cobden/St. Louis chert. Another 23.8% of the Middle Woodland items are of Other chert, which includes other nonlocal material. Late Woodland is represented by a single specimen of near-distant Elco chert. The two Emergent Mississippian Scallorn points are both of local Bailey material. Emergent Mississippian/Mississippian diagnostics are dominated by the use of Mill Creek chert (66.7% of the items). Nonlocal

Cobden/St. Louis and Kaolin cherts account for another 7.4% and 3.7%, respectively. The differential use of various chert materials through time is influenced, in part, by kinds of tools represented in the sample. For example, Cobden/St. Louis chert utilization in Middle Woodland is commonly associated with lamellar blades (n=5 cases), while Mill Creek is associated with hoes (n=12 cases) in Emergent Mississippian/ Mississippian. Temporal trends in the use of chert raw materials suggest changing patterns of resource acquisition and utilization through time.

Informal chert tools are the most common, although ephemeral, lithic tools recovered in the survey. Retouched flakes dominate the tools in terms of their number (n=785). They occur at 62 sites. They represent informal, light-duty cutting and scraping tools made by modest flake modification. Utilized flakes, the next most common tool category (n= 311, 21%), are similar, if more expedient, cutting and scraping tools. Because of the slight nature of the modification involved, flake tools may be difficult to distinguish with certainty. As a result, they are often underestimated in lithic analyses, although they are important aspects of the prehistoric tool kit.

Nonchert Lithics

A modest amount of nonchert lithics (n=435) were recovered in the survey, although they were generally not common at the sites. A total of 337 pieces of nonchert rock were retrieved from 38 sites. The nonchert rock consists of whole or partial glacial cobbles made of igneous/metamorphic rock (n=113), pieces of sandstone (n=182), limestone, quartzite, ocher, and other miscellaneous materials. The items in the nonchert rock category lack formal modification or wear patterns as tools. Many of the items may well have been utilized in cooking or other activities, however. Some pieces of sandstone, especially those from site 24D3-261 (Jerry Pecord site), exhibit fracture patterns suggestive of association with fire (i.e., fire-cracked rock). The nonchert rock assemblage includes six pieces of ocher, and one large piece of galena from site 24D3-265.

Nonchert tools occur sparingly (n=98) in the artifact collections from a total of 33 sites. Nonchert tools are lithics, including sandstone, igneous/metamorphic cobbles, or other rocks, that have been shaped into tools or exhibit use-wear patterns. Only one culturally diagnostic nonchert tool was recovered in the survey. A hematite plummet, indicative of the Middle (?) or Late Archaic, was found at site 24D3-270. The distal (bit) end of a groundstone celt (?) was found at 24D3-266 and appears to relate to the Mississippian component there. Forty-two percent of the nonchert tools are groundstone fragments. They consist of broken pieces of rock with one or more smooth surface that results from grinding activities associated with food preparation or other endeavors. The assemblage also has 20 grinding stones and 13 pitted grinding stones of sandstone or igneous/metamorphic rock. Six of the former and three of the latter grinding stones also exhibit battering along their margins. Twelve grinding slabs occur in the artifact collection. They tend to be rather small, rectangular pieces of sandstone with one or more smoothed facet. The slabs were found at eight sites, including five specimens at the Dogtooth Bend Mound Center. Seven of the sites with slabs have

Emergent Mississippian and/or Mississippian components. The grinding slabs may be associated with those components, although that association is not conclusive.

Ceramic Assemblage

The survey artifact assemblage includes an unusually large number of prehistoric ceramics (n=3984 sherds) for a surface collection (Table 5-8). Ceramics were found at 33 sites, most of which had only a few specimens each. However, large numbers of sherds were recovered from the systematic block surveys of the Dogtooth Bend Mound Center (24D3-13) which yielded 1637 sherds, the Jerry Pecord site (24D3-50) (1555 sherds), and Elizabeth Youch site (24D3-50) (518 specimens). The large ceramic collections from those sites reflects, in part, site conditions (e.g., deep plowing or land-leveling activities) and excellent field conditions at the time of the survey. But, the sites are also extensive prehistoric settlements, as well. Sizable, though not extraordinary, collections, were also obtained from two other large sites, 24D3-250 and 24D3-265, which produced 65 and 83 sherds, respectively.

Middle Woodland ceramics are the earliest materials defined in the survey collection. No Early Woodland pottery was distinguished, although 13 sites have Early Woodland projectile points. Middle Woodland ceramics occur at 11 sites and consist of 179 sherds, including 146 Baumer/Crab Orchard Fabric Marked or smoothed-over fabricmarked varieties. Those sherds exhibit the distinctive plain-plaited fabric (matting?) impressions on their exterior surfaces typical of Baumer and Crab Orchard ceramics (Muller 1986; Stephens 1975). Twelve Baumer/Crab Orchard sherds are plain (heavily smoothed-over?) and one is cordmarked. There are also 19 eroded Middle Woodland sherds in the assemblage. The Baumer/Crab Orchard sherds typically have poorly mixed, crumbly paste, and grit and grog temper with occasional limestone (leached) or red ocher particles. They are also relatively thick (.6–.8 cm), although generally less so than Crab Orchard varieties to the north.

Late Woodland ceramics consist of 15 Raymond Cordmarked sherds, 49 Barnes sherds, and six eroded specimens. The Raymond sherds are thin, grit-tempered, and cordmarked on their exteriors. They occur at only six survey sites, including large, reoccupied settlements (24D3-13; 24D3-50; 24D3-250; 24D3-265). Barnes sherds have distinctive sand tempering, relatively thick walls, and cordmarked or plain exterior surfaces. They tend to be light orange to buff in color. Barnes ceramics occur at nine survey sites, but the vast majority of which (69.4%, n=34 items) were found at the Jerry Pecord site (24D3-251).

Emergent Mississippian ceramics are the most abundant pottery wares (1962 sherds) in the survey assemblage. Most of the specimens (70.3%, n=1380) come from site 24D3-261 (Jerry Pecord) which had been deeply plowed, thus producing more surface material than usual. Even so, the site has an extensive Emergent Mississippian ceramic collection. Abundant collections were also obtained from the Dogtooth Bend Mound

Table 5-8. Dogtooth Bend Survey Ceramic Totals

	Middle Woodland		Late Woodland			Emergent Mississippian			Mississippian				Other		
SIUC No. (24D3-)	Baumer/Crab Orchard	Other/Eroded	Raymond	Barnes	Other/Eroded	Dillinger	Baytown	Other/ Eroded	Plain	Cordmarked	Decorated	Other/Eroded	Unknown/Eroded	Daub	Total
13			1	2		196	40	22	1202	10	68	38		58	1637
50	121	1	3	5	2	214	20	7	48	3			86	8	518
67						2			1						3
74					1				2	1		4	1	3	12
249			1			5									6
250	4	4	4	3	2	7	10	3	13	4		4	6	1	65
251	1	1	5			4			2	2		1			16
253									1						1
255							1								1
261	21	5		33	1	1227	23	130	20	15	2		30	48	1555
265	4	5	1	2		5	4	2	7	3		7	17	26	83
266												1			1
267	1			1											2
283	2														2
284						1									1
285				1		13	2		4	1					21
286	2	1				3			1						7
287	2	1													3
288						2									2
294									1				3		4
295									1						1
297						1		1							2
298									1						1
306				1											1
315	1	1				2	1		2	1				5	13
321									1						1
327						3	1		1					1	6
328							1		2	3					6
330						1									1
331						4									4
332	1					3			1						5
334F				1											1
335						1			1						2
Total	160	19	15	49	6	1694	103	165	1312	43	70	55	143	150	3984

Center (24D3-13), and the Elizabeth Youch site (24D3-50), which had 258 and 241 sherds, respectively. Small quantities of Emergent Mississippian pottery also occur at 18 other survey sites.

The Emergent Mississippian pottery consists primarily of cordmarked or smoothed-over cordmarked Dillinger sherds (n=1694). They are found at 19 of the 21 sites with Emergent Mississippian ceramics. A much smaller number (n=103) of plain-surfaced Baytown sherds occur at 10 sites. In addition, 165 eroded/fragmentary sherds were found, particularly at site 24D3-261. The Dillinger and Baytown materials are very similar; they are distinguished only on the basis of cordmarked versus plain exterior surface treatment and the presence of the distinctively folded rim on some Dillinger vessels. The distinction between Dillinger and Baytown is often difficult to make on individual sherds, as Dillinger vessel surfaces may be heavily smoothed. Both Dillinger and Baytown sherds are generally buff -colored, and they have poorly mixed, platey paste, and grog temper. Occasionally, finely crushed limestone is added to the grog. Dillinger and Baytown sherds can vary greatly in thickness from .3 cm to >1.0 cm. The Dillinger (and Baytown) sherds conform well to the characteristics established for such ceramics at the Petitt site 17 km upriver on the Mississippi; although at the latter, plain-surfaced sherds were referred to as Dillinger plain rather than Baytown (Hargrave 1992).

Mississippian ceramics are also abundant in the survey artifact assemblage (n=1480) and are found at 21 sites. The ceramics cluster heavily at the Dogtooth Bend Mound Center (24D3-13), where 1318 (89%) of the defined Mississippian specimens were found. Sizable sherd assemblages also occur at sites 24D3-50 (n=51), 24D3-261 (n=37), 24D3-250 (n=21), and 24D3-265 (n=17). The remaining sherds occur in low frequencies at 16 other sites.

Mississippian sherds are characterized by coarse or fine shell-temper mixed within a platey paste. Among the survey specimens, grog temper occurs commonly with the shell. Small amounts of sand temper are occasionally present, as well. Coarsely shell-tempered Mississippi Plain sherds comprise the vast majority (n=1273) of the Mississippian pottery. Additional plainware, fine-tempered Bell Plain (n=39), is also found at the mound center.

The Mississippian assemblage includes 43 cordmarked sherds from 10 of the sites. The cordmarking is applied to the exterior surface of jars (?), and specimens often have grog temper along with the shell. Cordmarked Mississippian specimens are uncommon in the Ohio-Mississippi confluence region but occur more often to the north in the American Bottom, particularly during the Moorehead and Sand Prairie phases (A.D. 155–1400) there (Milner et al. 1984).

Only two decorated sherds were found at any of the outlying Mississippian sites, in stark contrast to the numerous examples found at the Dogtooth Bend Mound Center. The two specimens are Varney Red Filmed sherds. They occur at site 24D3-261, the

hamlet-sized occupation west of the main site. The presence of the Varney ware at that site suggests an early Mississippian occupation there.

The Mississippian assemblage at the Dogtooth Bend Mound Center is substantially different from that found at the outlying sites in that it is so much larger and includes a variety of vessel forms and decorative elements. The mound center assemblage includes 165 rim sherds and nine vessel appendages in addition to body sherds from several kinds of vessels. Most of the vessels appear to be jars, and several bowls occur, as well. Functionally diagnostic sherds also indicate the presence of plates (15 rims), water bottles (two short-neck rims, one long-neck rim, one human-effigy sherd, and one basal sherd), pans (1 rim and 4 body sherds), and funnels (2 sherds). The range of vessel forms exhibited in the collection indicates a variety of related functional activities within the surveyed portions of the site. Specialized ceremonial items, such as the human-effigy water bottle and several decorated specimens, occur in addition to a wide range of utilitarian vessels (jars, bowls, pans, and bottles).

The Dogtooth Bend Mound Center ceramics exhibit a range of stylistic variability which relates to symbolic aspects of Mississippian culture, vessel form and function, and temporal trends in ceramic design. The assemblage includes several varieties of incised decoration: O'Byam Incised (four sherds); Matthews Incised, *var. Manley* (two sherds); Matthews Incised, *var. Matthews* (two sherds); Matthews Incised, *var. Beckwith* (one sherd); and Barton Incised (one sherd). Sherds also exhibit slipped or painted surfaces: 16 Varney Red Filmed specimens, four negative painted, and four white or buff-color slipped. Human and animal effigy forms occur, as well, as major decorative elements on vessels (e.g., a human-head effigy on the side of a water bottle), or rim or vessel-body adornos. The styles indicate the Dogtooth Bend site's cultural affiliation with Mississippian sites elsewhere in the Ohio-Mississippi confluence region (i.e., southeastern Missouri, western Kentucky, and southeastern Illinois).

In sum, the Dogtooth Bend Survey ceramic assemblage is an unusually large and diverse collection. It relates to Middle Woodland through Mississippian components, and provides important data on technological, economic, and social patterns during those times. Further analyses of the assemblage, beyond the scope of this survey report, will contribute to additional understanding of such societal changes through time. The assemblage can also be compared to related ceramics from elsewhere in the Confluence area to better understand prehistoric cultural dynamics in that strategic region through time.

Settlement Patterns

The survey data lend well to the study of prehistoric settlement patterns in Dogtooth Bend. Such study allows researchers and managers to better understand changes in the physical and cultural landscape and variation in land use patterns through time. Settlement studies also provide information for the development of management plans for the Mississippi River floodplain environment. Settlement pattern studies address the

relationship between the cultural and locational characteristics of archaeological sites. Locational data about Dogtooth Bend Survey sites, separated into cultural components, is presented in Table 5-9. The characteristics of the individual components is presented below.

Middle Archaic (5000–3000 B.C.)

The late Middle Archaic period (3700–3000 B.C.) is the earliest cultural component identified in the Dogtooth Bend Survey collections. It is defined by the presence of single fragmentary Matanzas points at three multicomponent sites (Table 5-6, Figure 5-2). It is unclear how much of the artifact assemblages at the sites relate to the Middle Archaic component. The presence of hafted bifaces suggests at least marginally that hunting activities were conducted in the northern part of the bend at that time.

The three late Middle Archaic sites are clustered along the prominent ridge system (terrace remnant) at the north end of the survey area (Table 5-9). They occur on the top or slope of smaller ridges within that landform. They are oriented parallel to the trend of the ridges (i.e., northeast-southwest), are within 200 m of water sources (sloughs), and between 1.3 and 2.5 km from Mississippi River to the southeast. Since only three possibly isolated finds from the time period occur in the collections, discussion of Middle Archaic site locational patterning in the survey area is necessarily limited.

The clustering of the three sites along the most prominent landform in the bend and lack of diagnostic artifacts older than the late Middle Archaic (ca. 3700 B.C.) in the survey collection are notable. Those conditions reflect the dynamic geomorphology of the river bend on the floodplain. Only those sites located on prominent landforms may retain archaeological material today. Other sites may well have been obliterated or buried by channel meanders, large-scale flooding, or other geomorphological transformations of the landscape. Such events may well have occurred prior to 3700 B.C. in the survey area. The presence of Middle Archaic, but not older material, is consistent with the pattern of early occupation along Horseshoe Lake, 3 km north of the Dogtooth Bend Survey area.

Late Archaic (3000–600 B.C.)

Late Archaic components were identified at 12 sites in the survey (Table 5-2, Figure 5-2), based on the presence of hafted bifaces or other chert tools. The bifaces were typified by nine stemmed specimens that include Etley, Ledbetter, and Saratoga Straight Stemmed types (Table 4-4). Drills found at two sites are also classified as Late Archaic in association. All but two of the tools were made of local chert raw materials, suggesting a relative lack of emphasis on long-distance movement or exchange. The Late Archaic lithic assemblage also includes a hematite plummet from site 24D3-270.

Table 5-9. Locational Characteristics of Dogtooth Bend Cultural Components

SIUC No. (24D3-)	Quadrat No.	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown Prehist.	Historic	Site Size (ha)	Soils Landform	Landform	Elevation ('ASL)	Site Orientation	Soil Type	Miss. Distance (km)	Water Distance (km)
Middle Archaic Components (n=3):																		
267H	5	X			X	X				X	0.82	Terrace	ridge top	325'	NE-SW	Lamont	1.4 SE	0.2 N
269	5	X				X				X	0.95	Terrace	ridge top	321'-324'	NE-SW	Alvin	1.3 SE	0.15 N
285	7	X				X	X	X			0.67	Terrace	ridge slope	325'	N-S	Lamont	2.5 SE	0.1 N
Late Archaic Components (n=12):																		
13	19-21		X	X		X	X	X		X	12.60	Terrace	ridge & floodplain	321'->325'	E-W	Disco	1.8 E	0.3 SE
74	4		X	X		X		X		X	1.60	Terrace	ridge top	325'	NE-SW	Lamont	1.6 SE	0.15 N
251	1		X		X	X	X	X		X	1.00	Terrace	ridge top	>325'	NE-SW	Alvin (thick)	0.8 SE	0.1 S
265	4		X	X	X	X	X	X			2.30	Terrace	ridge crest	321'-324'	E-W	Lamont	1.75 SE	0.25 N
268	5		X	X		X	X			X	0.91	Bottomland	ridge top	321'-324'	NE-SW	Cairo	1.2 SE	0.1 N
270	5		X								0.30	Bottomland	level floodplain	321'-324'	None	Darwin	1.3 SE	0.1 N
272	7		X	X				X		X	1.03	Bottomland	ridge top	321'-324'	E-W	Darwin	2.5 SE	0.2 S
283	7		X		X					X	0.31	Terrace	ridge slope	>325'	E-W	Alvin	2.45 SE	0.1 S
286	7		X	X	X		X	X			0.45	Terrace	ridge base	321'-324'	E-W	Karnak	2.55 SE	0 E
311	10		X								2.60	Bottomland	level floodplain	321'-324'	None	Gorham	1 E	0.4 NW
323	6		X		X			X			0.20	Bottomland	ridge base	321'-324'	NE-SW	Riley	2.25 E	0.05 SW
328	12		X				X	X		X	0.77	Terrace	ridge top	325'	E-W	Harvard	2.05 SW	0.1 S
Early Woodland Components (n=14):																		
13	19-21		X	X		X	X	X		X	12.60	Terrace	ridge & floodplain	321'->325'	E-W	Disco	1.8 E	0.3 SE
50	17			X	X	X	X	X		X	10.30	Terrace	ridge crest	>325'	E-W	Millbrook	0.95 SW	0.3 W
67	7			X			X	X			0.84	Terrace	ridge slope	325'	N-S	Lamont	2.45 SE	0.05 NE
74	4		X	X		X		X		X	1.60	Terrace	ridge top	325'	NE-SW	Lamont	1.6 SE	0.15 N
249	1			X	X	X	X				0.34	Terrace	ridge top	>325'	None	Alvin (thick)	0.8 SE	0.1 S
250	1			X	X	X	X	X			1.74	Bottomland	ridge top	>325'	NE-SW	Landes	0.9 SE	0.2 S
264	3			X							1.20	Bottomland	ridge slope	320'	NE-SW	Riley	1.1 E	0 N
265	4		X	X	X	X	X	X			2.30	Terrace	ridge crest	321'-324'	E-W	Lamont	1.75 SE	0.25 N
268	5		X	X			X			X	0.91	Bottomland	ridge top	321'-324'	NE-SW	Cairo	1.2 SE	0.1 N
272	7		X	X				X		X	1.03	Bottomland	ridge top	321'-324'	E-W	Darwin	2.5 SE	0.2 S

Table 5-9. Locational Characteristics of Dogtooth Bend Cultural Components

SIUC No. (24D3-)	Quadrat No.	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown Prehist.	Historic	Site Size (ha)	Soils Landform	Landform	Elevation ('ASL)	Site Orientation	Soil Type	Miss. Distance (km)	Water Distance (km)
286	7		X	X	X		X	X			0.45	Terrace	ridge base	321'-324'	E-W	Karnak	2.55 SE	0 E
288	7			X			X				0.69	Terrace	ridge crest	325'	E-W	Karnak	2.35 SE	0.05 S
292H	7			X				X		X	1.03	Bottomland	ridge top	321'-324'	E-W	Darwin	2.25 SE	0.1 N
303	9			X							0.23	Bottomland	level floodplain	325'	E-W	Dupo	1.65 W	0.2 S
Middle Woodland Components (n=15):																		
50	17			X	X	X	X	X		X	10.30	Terrace	ridge crest	>325'	E-W	Millbrook	0.95 SW	0.3 W
65	7								X		0.32	Terrace	ridge slope	325'	E-W	Alvin	2.55 SE	0.05 S
249	1			X	X	X	X				0.34	Terrace	ridge top	>325'	None	Alvin (thick)	0.8 SE	0.1 S
250	1			X	X	X	X	X			1.74	Bottomland	ridge top	>325'	NE-SW	Landes	0.9 SE	0.2 S
251	1		X		X	X	X	X		X	1.00	Terrace	ridge top	>325'	NE-SW	Alvin (thick)	0.8 SE	0.1 S
261	15				X	X	X	X		X	4.40	Bottomland	ridge top	>325'	N-S	Ware	0.9 SW	0.1 W
265	4		X	X	X	X	X	X			2.30	Terrace	ridge crest	321'-324'	E-W	Lamont	1.75 SE	0.25 N
267H	5	X			X	X				X	0.82	Terrace	ridge top	325'	NE-SW	Lamont	1.4 SE	0.2 N
283	7		X		X					X	0.31	Terrace	ridge slope	>325'	E-W	Alvin	2.45 SE	0.1 S
286	7		X	X	X		X	X			0.45	Terrace	ridge base	321'-324'	E-W	Karnak	2.55 SE	0 E
287	17				X						0.47	Terrace	ridge top	325'	N-S	Millbrook	0.95 SW	0.2 S
315	16				X		X	X			0.48	Bottomland	ridge top	325'	NW-SE	Dupo	2.05 SW	0.15 NW
318	6				X						0.23	Terrace	ridge crest	325'	NE-SW	Disco	2.2 E	0.05 SW
323	6		X		X			X			0.20	Bottomland	ridge base	321'-324'	NE-SW	Riley	2.25 E	0.05 SW
332	14				X		X	X			0.59	Terrace	ridge top	325'	NW-SE	Harvard	0.9 W	0.15 SW
Late Woodland Components (n=13):																		
13	19-21			X	X		X	X	X	X	12.60	Terrace	ridge & floodplain	321'->325'	E-W	Disco	1.8 E	0.3 SE
50	17				X	X	X	X	X	X	10.30	Terrace	ridge crest	>325'	E-W	Millbrook	0.95 SW	0.3 W
74	4			X	X		X		X	X	1.60	Terrace	ridge top	325'	NE-SW	Lamont	1.6 SE	0.15 N
249	1				X	X	X	X			0.34	Terrace	ridge top	>325'	None	Alvin (thick)	0.8 SE	0.1 S
250	1				X	X	X	X	X		1.74	Bottomland	ridge top	>325'	NE-SW	Landes	0.9 SE	0.2 S
251	1		X		X	X	X	X		X	1.00	Terrace	ridge top	>325'	NE-SW	Alvin (thick)	0.8 SE	0.1 S

Table 5-9. Locational Characteristics of Dogtooth Bend Cultural Components

SIUC No. (24D3-)	Quadrat No.	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown Prehist.	Historic	Site Size (ha)	Soils Landform	Landform	Elevation ('ASL)	Site Orientation	Soil Type	Miss. Distance (km)	Water Distance (km)
261	15				X	X	X	X		X	4.40	Bottomland	ridge top	>325'	N-S	Ware	0.9 SW	0.1 W
265	4		X	X	X	X	X	X			2.30	Terrace	ridge crest	321'-324'	E-W	Lamont	1.75 SE	0.25 N
267H	5	X			X	X				X	0.82	Terrace	ridge top	325'	NE-SW	Lamont	1.4 SE	0.2 N
285	7	X				X	X	X			0.67	Terrace	ridge slope	325'	N-S	Lamont	2.5 SE	0.1 N
289	7					X					0.41	Terrace	ridge slope	>325'	E-W	Alvin	2.3 SE	0.1 S
306	16					X					0.10	Bottomland	ridge top	325'	E-W	Darwin	1.75 SW	0.4 NE
334F	18					X					0.00	Bottomland	ridge base	325'	None	Darwin	1.45 SW	0.2 E
Emergent Mississippian Components (n=23):																		
13	19-21		X	X		X	X	X		X	12.60	Terrace	ridge & floodplain	321'->325'	E-W	Disco	1.8 E	0.3 SE
50	17			X	X	X	X	X		X	10.30	Terrace	ridge crest	>325'	E-W	Millbrook	0.95 SW	0.3 W
67	7			X			X	X			0.84	Terrace	ridge slope	325'	N-S	Lamont	2.45 SE	0.05 NE
249	1			X	X	X	X				0.34	Terrace	ridge top	>325'	None	Alvin (thick)	0.8 SE	0.1 S
250	1			X	X	X	X	X			1.74	Bottomland	ridge top	>325'	NE-SW	Landes	0.9 SE	0.2 S
251	1		X		X	X	X	X		X	1.00	Terrace	ridge top	>325'	NE-SW	Alvin (thick)	0.8 SE	0.1 S
255	1						X				1.18	Terrace	ridge top	>325'	N-S	Hurst	1.05 SE	0.15 N
261	15				X	X	X	X		X	4.40	Bottomland	ridge top	>325'	N-S	Ware	0.9 SW	0.1 W
265	4		X	X	X	X	X	X			2.30	Terrace	ridge crest	321'-324'	E-W	Lamont	1.75 SE	0.25 N
268	5		X	X			X			X	0.91	Bottomland	ridge top	321'-324'	NE-SW	Cairo	1.2 SE	0.1 N
269	5	X					X			X	0.95	Terrace	ridge top	321'-324'	NE-SW	Alvin	1.3 SE	0.15 N
284	17						X				0.01	Terrace	level floodplain	325'	N-S	Millbrook	1 SW	0.3 S
285	7	X				X	X	X			0.67	Terrace	ridge slope	325'	N-S	Lamont	2.5 SE	0.1 N
286	7		X	X	X		X	X			0.45	Terrace	ridge base	321'-324'	E-W	Karnak	2.55 SE	0 E
288	7			X			X				0.69	Terrace	ridge crest	325'	E-W	Karnak	2.35 SE	0.05 S
297	17							X			0.15	Bottomland	ridge top	321'-324'	E-W	Darwin	1.1 SW	0.35 S
298	8						X	X			0.27	Terrace	ridge slope	>325'	E-W	Disco	1.6 SW	0.05 N
315	16					X		X	X		0.48	Bottomland	ridge top	325'	NW-SE	Dupo	2.05 SW	0.15 NW
327	12						X	X		X	0.74	Terrace	ridge top	325'	E-W	Millbrook	2 W	0.05 S

Table 5-9. Locational Characteristics of Dogtooth Bend Cultural Components

SIUC No. (24D3-)	Quadrat No.	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown Prehist.	Historic	Site Size (ha)	Soils Landform	Landform	Elevation ('ASL)	Site Orientation	Soil Type	Miss. Distance (km)	Water Distance (km)
328	12		X				X	X		X	0.77	Terrace	ridge top	325'	E-W	Harvard	2.05 SW	0.1 S
330	17						X				0.18	Terrace	ridge top	325'	E-W	Millbrook	0.95 W	0.05 S
331	14						X			X	0.52	Terrace	ridge crest	325'	None	Harvard	0.8 W	0.05 W
332	14				X		X	X			0.59	Terrace	ridge top	325'	NW-SE	Harvard	0.9 W	0.15 SW
335	18						X	X			0.01	Bottomland	ridge slope	325'	E-W	Darwin	1.45 SW	0.2 E
Mississippian Components (n=31):																		
13	19-21		X	X		X	X	X		X	12.60	Terrace	ridge & floodplain	321'->325'	E-W	Disco	1.8 E	0.3 SE
50	17			X	X	X	X	X		X	10.30	Terrace	ridge crest	>325'	E-W	Millbrook	0.95 SW	0.3 W
67	7			X			X	X			0.84	Terrace	ridge slope	325'	N-S	Lamont	2.45 SE	0.05 NE
74	4		X	X		X		X		X	1.60	Terrace	ridge top	325'	NE-SW	Lamont	1.6 SE	0.15 N
250	1			X	X	X	X	X			1.74	Bottomland	ridge top	>325'	NE-SW	Landes	0.9 SE	0.2 S
251	1		X		X	X	X	X		X	1.00	Terrace	ridge top	>325'	NE-SW	Alvin (thick)	0.8 SE	0.1 S
253	1							X			1.04	Bottomland	ridge top	>325'	N-S	Dupo	0.9 SE	0.1 N
261	15				X	X	X	X		X	4.40	Bottomland	ridge top	>325'	N-S	Ware	0.9 SW	0.1 W
265	4		X	X	X	X	X	X			2.30	Terrace	ridge crest	321'-324'	E-W	Lamont	1.75 SE	0.25 N
266	4							X			0.21	Bottomland	ridge top	321'-324'	E-W	Cairo	1.5 SE	0.05 N
271H	6							X		X	1.38	Bottomland	ridge top	325'	NW-SE	Gorham	2.45 SE	0.05 S
272	7		X	X				X		X	1.03	Bottomland	ridge top	321'-324'	E-W	Darwin	2.5 SE	0.2 S
285	7	X				X	X	X			0.67	Terrace	ridge slope	325'	N-S	Lamont	2.5 SE	0.1 N
286	7		X	X	X		X	X			0.45	Terrace	ridge base	321'-324'	E-W	Karnak	2.55 SE	0 E
290	7							X			0.18	Terrace	level floodplain	321'-324'	E-W	Cape&Karnak	2.4 SE	0 N
291	7							X			0.33	Bottomland	ridge top	321'-324'	E-W	Darwin	2.35 SE	0.1 N
292H	7			X				X		X	1.03	Bottomland	ridge top	321'-324'	E-W	Darwin	2.25 SE	0.1 N
294	8							X			0.14	Terrace	level floodplain	>325'	None	Millbrook	1.4 SW	0.15 S
295	8							X			0.11	Terrace	level floodplain	>325'	None	Millbrook	1.5 SW	0.2 N
296	8								X		0.15	Terrace	ridge top	>325'	E-W	Millbrook	1.35 SW	0.15 S
298	8						X	X			0.27	Terrace	ridge slope	>325'	E-W	Disco	1.6 SW	0.05 N
299F	8							X			0.00	Terrace	ridge slope	325'	None	Millbrook	1.9 SW	0 S

Table 5-9. Locational Characteristics of Dogtooth Bend Cultural Components

SIUC No. (24D3-)	Quadrat No.	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown Prehist.	Historic	Site Size (ha)	Soils Landform	Landform	Elevation ('ASL)	Site Orientation	Soil Type	Miss. Distance (km)	Water Distance (km)
304	9							X		X	0.28	Terrace	ridge slope	>325'	NW-SE	Millbrook	1.75 W	0.15 S
310	10							X			0.11	Bottomland	ridge base	321'-324'	NE-SW	Gorham	1.2 E	0.2 NW
315	16				X		X	X			0.48	Bottomland	ridge top	325'	NW-SE	Dupo	2.05 SW	0.15 NW
321	22							X			0.05	Terrace	ridge top	>325'	NE-SW	Harvard	1.95 E	0.1 S
323	6		X		X			X			0.20	Bottomland	ridge base	321'-324'	NE-SW	Riley	2.25 E	0.05 SW
327	12						X	X		X	0.74	Terrace	ridge top	325'	E-W	Millbrook	2 W	0.05 S
328	12		X				X	X		X	0.77	Terrace	ridge top	325'	E-W	Harvard	2.05 SW	0.1 S
332	14				X		X	X			0.59	Terrace	ridge top	325'	NW-SE	Harvard	0.9 W	0.15 SW
335	18						X	X			0.01	Bottomland	ridge slope	325'	E-W	Darwin	1.45 SW	0.2 E
Unknown Prehistoric Components (n=32):																		
252	1								X		1.12	Terrace	ridge slope	325'	NW-SE	Hurst	1.05 SE	0.05 NE
254	1								X		0.63	Terrace	ridge base	325'	NE-SW	Hurst	1.254 SE	0 NW
256F	1								X		0.01	Bottomland	ridge top	>325'	N-S	Landes	0.95 SE	0.2 S
260	3								X		2.70	Bottomland	level floodplain	321'-324'	None	Gorham	1.1 E	0.15 N
262F	12								X		0.00	Bottomland	level floodplain	>325'	None	Gorham	1.75 SW	0.1 S
263	12								X		0.06	Terrace	level floodplain	325'	NW-SE	Millbrook	1.9 SW	0.15 S
273	6								X		0.47	Bottomland	ridge top	325'	NW-SE	Gorham	2.25 SE	0.1 SW
274F	16								X		0.00	Bottomland	ridge top	325'	None	Dupo	2 SW	0.2 NE
275	7								X		0.04	Bottomland	ridge crest	321'-324'	E-W	Darwin	2.3 SE	0.2 SW
276	7								X		0.19	Bottomland	level floodplain	321'-324'	E-W	Darwin	2.2 SE	0.25 SW
293	8								X		0.09	Terrace	level floodplain	325'	E-W	Harvard	1.3 SW	0.05 S
300F	8								X		0.00	Terrace	level floodplain	>325'	None	Disco	1.65 SW	0.05 N
301H	9								X	X	0.26	Bottomland	swale	321'-324'	N-S	Dupo	1.5 SW	0.15 S
302	9								X		0.36	Bottomland	ridge top	325'	E-W	Dupo	1.55 SW	0.15 S
307	9								X		0.16	Bottomland	level floodplain	325'	E-W	Dupo	1.7 W	0.1 S
308F	17								X		0.00	Terrace	draw head	325'	None	Disco	0.9 W	0 E
309	12								X		0.13	Terrace	ridge top	325'	E-W	Millbrook	1.95 SW	0 S
312H	10								X	X	0.25	Bottomland	level floodplain	321'-324'	E-W	Riley	1 E	0.4 SW

Table 5-9. Locational Characteristics of Dogtooth Bend Cultural Components

SIUC No. (24D3-)	Quadrat No.	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown Prehist.	Historic	Site Size (ha)	Soils Landform	Landform	Elevation ('ASL)	Site Orientation	Soil Type	Miss. Distance (km)	Water Distance (km)
313	12								X		0.05	Terrace	ridge top	>325'	N-S	Millbrook	1.1 SW	0.1 N
314F	12								X		0.00	Terrace	level floodplain	325'	None	Millbrook	1.8 SW	0.15 N
316	16								X	X	0.19	Bottomland	ridge slope	321'-324'	NW-SE	Dupo	2.1 SW	0.1 SE
317F	6								X		0.00	Bottomland	ridge base	321'-324'	None	Gorham	2.2 E	0.05 NE
319	6								X		0.29	Bottomland	ridge slope	325'	NE-SW	Gorham	2.1 E	0.1 SW
320	11								X		0.05	Bottomland	ridge top	321'-324'	NW-SE	Riley	2.15 E	0.05 SW
322F	11								X		0.00	Bottomland	ridge slope	321'-324'	None	Darwin	2.3 E	0.05 N
324F	22								X		0.00	Terrace	swale	325'	None	Harvard	2.05 E	0.05 S
325	11								X		0.02	Bottomland	level floodplain	321'-324'	NW-SE	Darwin	2.4 E	0.2 N
326	11								X		0.13	Bottomland	level floodplain	321'-324'	NE-SW	Dupo	2.3 E	0.25 NE
329F	12								X		0.00	Terrace	ridge top	>325'	E-W	Millbrook	1.95 SW	0.1 S
333F	17								X		0.00	Terrace	ridge top	>325'	None	Millbrook	0.9 W	0.1 S
336	19								X		0.43	Bottomland	ridge top	321'-324'	E-W	Gorham	1.45 E	0.1 N
338	23								X		0.02	Terrace	level floodplain	>325'	None	Disco	2.1 W	0.25 SW
Historic Components (n=28):																		
13	19-21		X	X		X	X	X		X	12.60	Terrace	ridge & floodplain	321'->325'	E-W	Disco	1.8 E	0.3 SE
50	17			X	X	X	X	X		X	10.30	Terrace	ridge crest	>325'	E-W	Millbrook	0.95 SW	0.3 W
74	4		X	X		X		X		X	1.60	Terrace	ridge top	325'	NE-SW	Lamont	1.6 SE	0.15 N
251	1		X		X	X	X	X		X	1.00	Terrace	ridge top	>325'	NE-SW	Alvin (thick)	0.8 SE	0.1 S
257H	10									X	0.58	Bottomland	ridge top	321'-324'	E-W	Gorham	0.7 E	0.55 S
258H	10									X	0.08	Bottomland	level floodplain	321'-324'	E-W	Gorham	0.45 E	0.45 E
259H	10									X	0.11	Terrace	level floodplain	321'-324'	E-W	Millbrook	0.8 E	0.55 N
261	15				X	X	X	X		X	4.40	Bottomland	ridge top	>325'	N-S	Ware	0.9 SW	0.1 W
267H	5	X			X	X				X	0.82	Terrace	ridge top	325'	NE-SW	Lamont	1.4 SE	0.2 N
268	5		X	X			X			X	0.91	Bottomland	ridge top	321'-324'	NE-SW	Cairo	1.2 SE	0.1 N
269	5	X					X			X	0.95	Terrace	ridge top	321'-324'	NE-SW	Alvin	1.3 SE	0.15 N

Table 5-9. Locational Characteristics of Dogtooth Bend Cultural Components

SIUC No. (24D3-)	Quadrat No.	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Emergent Miss.	Mississippian	Unknown Prehist.	Historic	Site Size (ha)	Soils Landform	Landform	Elevation ('ASL)	Site Orientation	Soil Type	Miss. Distance (km)	Water Distance (km)
271H	6							X		X	1.38	Bottomland	ridge top	325'	NW-SE	Gorham	2.45 SE	0.05 S
272	7		X	X				X		X	1.03	Bottomland	ridge top	321'-324'	E-W	Darwin	2.5 SE	0.2 S
277H	16									X	0.11	Bottomland	ridge top	325'	NW-SE	Dupo	1.8 SW	0.25 NE
278H	16									X	0.06	Bottomland	ridge slope	321'-324'	E-W	Dupo	1.95 SW	0.2 N
283	7		X			X				X	0.31	Terrace	ridge slope	>325'	E-W	Alvin	2.45 SE	0.1 S
292H	7			X				X		X	1.03	Bottomland	ridge top	321'-324'	E-W	Darwin	2.25 SE	0.1 N
301H	9								X	X	0.26	Bottomland	swale	321'-324'	N-S	Dupo	1.5 SW	0.15 S
305H	16									X	0.04	Bottomland	ridge slope	321'-324'	NW-SE	Darwin	2.15 SW	0.1 E
312H	10								X	X	0.25	Bottomland	level floodplain	321'-324'	E-W	Riley	1 E	0.4 SW
316	16								X	X	0.19	Bottomland	ridge slope	321'-324'	NW-SE	Dupo	2.1 SW	0.1 SE
327	12						X	X		X	0.74	Terrace	ridge top	325'	E-W	Millbrook	2 W	0.05 S
328	12		X				X	X		X	0.77	Terrace	ridge top	325'	E-W	Harvard	2.05 SW	0.1 S
331	14						X			X	0.52	Terrace	ridge crest	325'	None	Harvard	0.8 W	0.05 W
337H	2									X	0.48	Bottomland	level floodplain	321'-324'	E-W	Gorham	0.75 E	0.4 NW
339H	20									X	0.35	Terrace	ridge slope	325'	N-S	Millbrook	2 E	0.1 N
346H									X	X	0.36	Terrace	ridge top	325'	E-W	Millbrook	2.5 W	0.2 NE

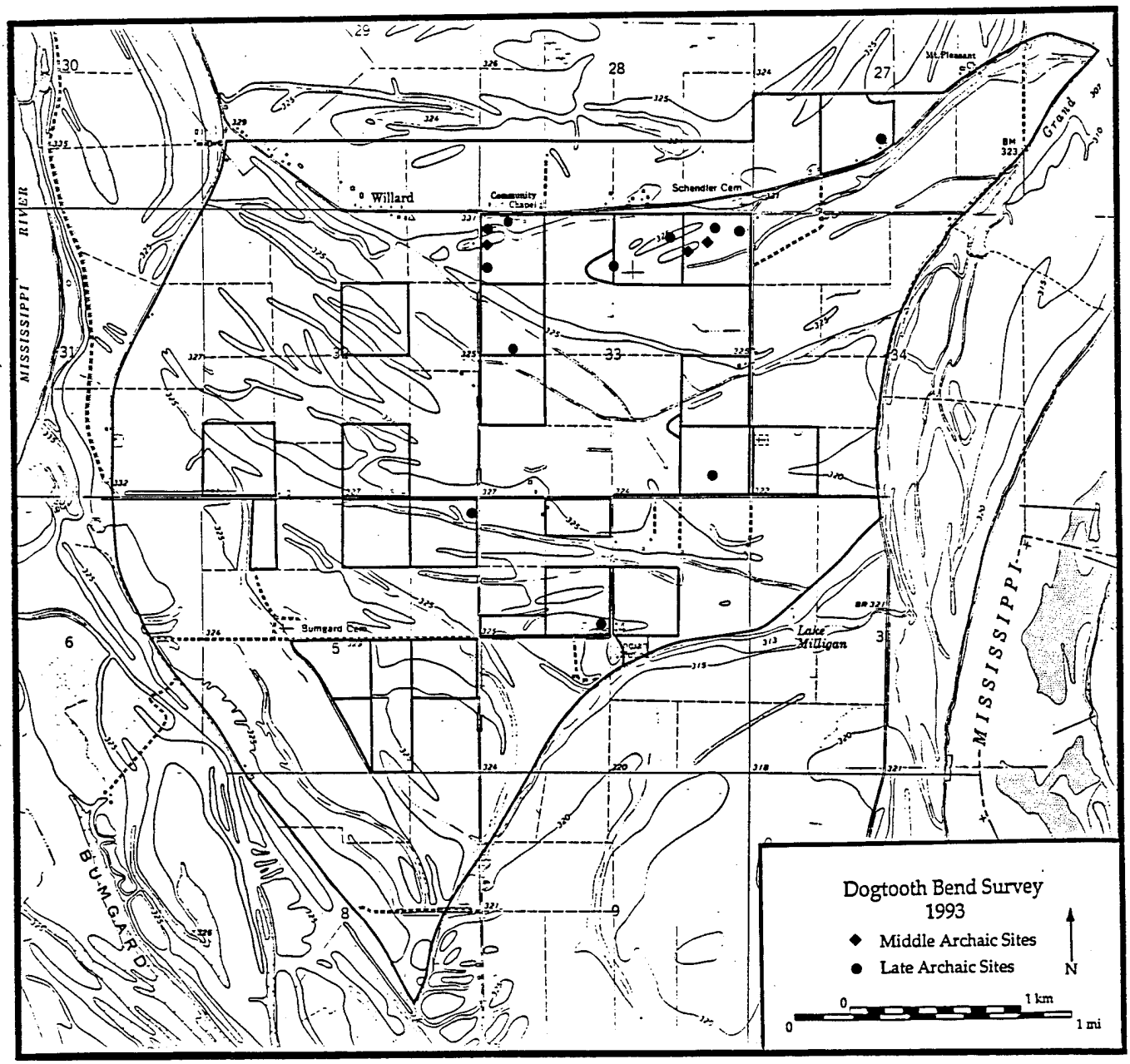


Figure 5-2. Distribution of Middle and Late Archaic sites.

Late Archaic occupations occur in all but two cases on multicomponent sites. The sites include five large, heavily occupied locations with five or more prehistoric components. Site 24D3-265, for example, contains Late Archaic through Mississippian materials. Site 24D3-270 is a solely Late Archaic site with a light artifact scatter (n=22 items). Site 24D3-311 has a very loosely defined artifact distribution that may not have much integrity as a site. While the Late Archaic occupations are not readily definable as separate cultural entities, it appears that they were more substantial occupations and involved a wider range of activities than the previous Middle Archaic occupations. They appear to be fairly dispersed scatters at the individual sites.

Late Archaic sites are situated primarily along the prominent terrace ridge at the north end of the survey area (Table 5-9). Eight sites occur along the series of subridges associated with that landform. The sites trend essentially east-west (or northeast-southwest) along the ridge tops and crests within that system, although three occur on the lower ridge margins. The sites are all within .25 km of local water sources in nearby swales. The distribution of sites along the prominent landform indicates its continued importance as a habitation location on the high ground within the area. Two sites (24D3-323 and 328) occur on less prominent ridge features located approximately .4 km and 1.4 km south of the main ridge system, respectively. Both have light artifact scatters of material (23 and 62 prehistoric items, respectively). A small Late Archaic component is also defined at site 24D3-13, the large Mississippian period mound center located at the southern margin of the survey area. The latter three sites represent a pattern of modest settlement expansion within Dogtooth Bend.

Early Woodland (600–200 B.C.)

A total of 14 Early Woodland sites are defined in the Dogtooth Bend survey (Table 5-2, Figure 5-3). They are more widely dispersed than Late Archaic occupations. Early Woodland components are defined by the presence of 19 diagnostic chert tools related to that period. Although Early Woodland is also generally defined on the basis of ceramics, that category was not discernible in the survey data. It is assumed that the ceramics were simply not found in the survey rather than that they were originally absent from the Early Woodland occupations. The diagnostic chert tools consist mainly of stemmed hafted bifaces (Cypress Straight Stemmed, Cypress Constricting Stem, Kramer, and Adena points) or those with expanded bases (Motley points) (Table 5-7). Other functional tool forms include scrapers reworked from two Cypress Constricting Stem points and one Adena specimen, a Cypress Constricting Stem perforator, and a narrow Bradshaw Stemmed knife (?). The relative abundance of hafted bifaces, and the various reworked tool forms indicate a more extensive, diverse Early Woodland occupation than in the Late Archaic.

Early Woodland occupations occur primarily on multicomponent sites (n=12), where they are generally the earliest component defined. Two single-component sites (24D3-264 and 24D3-303) occur as well. Sites are found nearly always on ridges adjacent

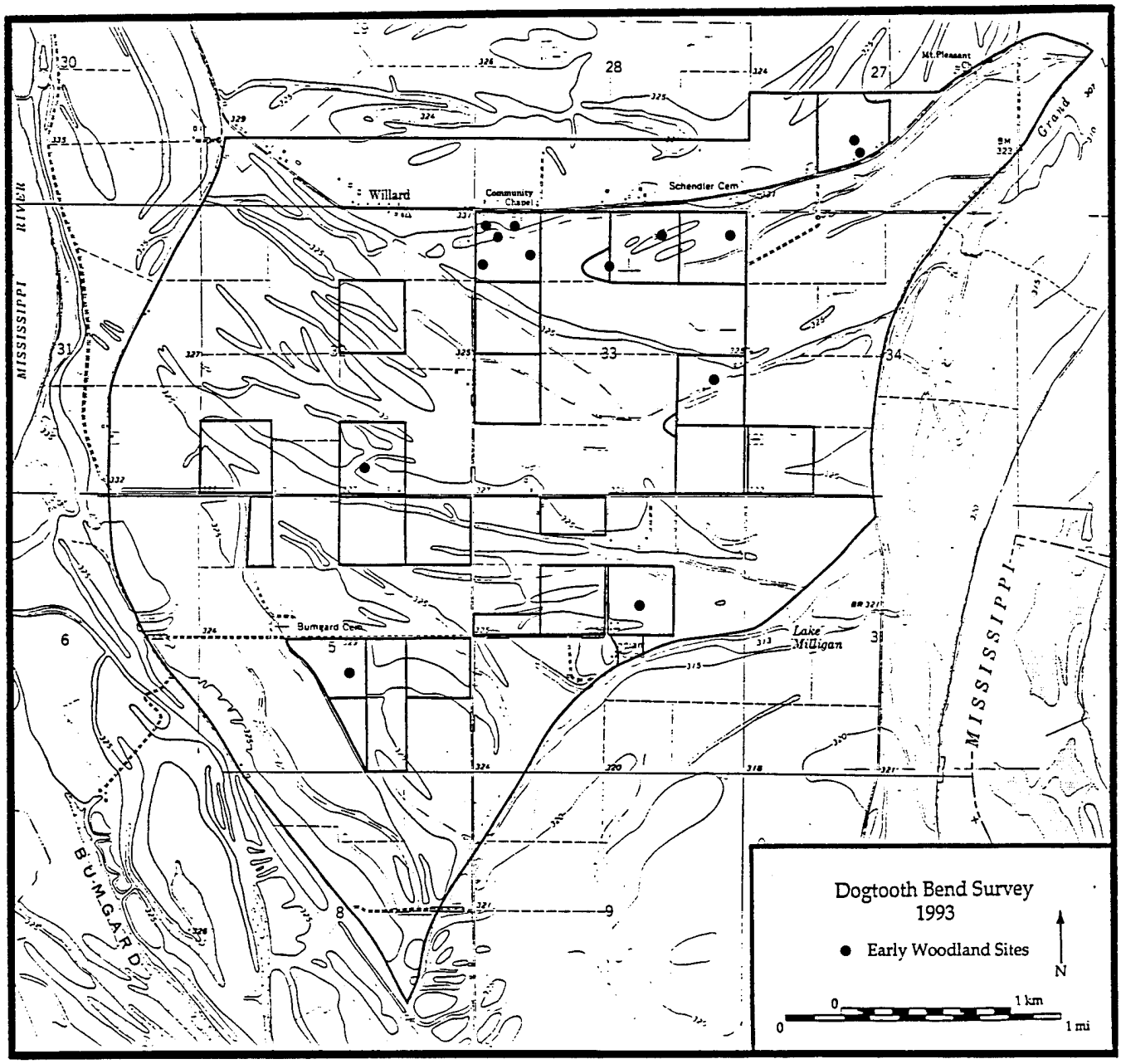


Figure 5-3. Distribution of Early Woodland sites.

to or near swales (Table 5-9), and they may be situated on the ridge slope or base as well as more commonly on the top or crest. Sites trend primarily east-west in direction, paralleling the prevailing trend of the ridge systems in the survey area.

Early Woodland site distribution is similar to that of the Late Archaic components. Ten sites are present on the prominent terrace ridge at north end of the survey area. They form a fairly evenly spaced distribution of sites located .5–.75 km apart along the length of the ridge. Five sites cluster within the 16 ha area of survey Quadrat 7 on the ridge and may represent portions of a fairly substantial, extended Early Woodland occupation there. Two other sites cluster in Quadrat 1 on the northeastern edge of the survey area. Four sites are dispersed well south of the prominent ridge, and are situated on ridge tops or margins. They are fairly limited occupations and appear to be oriented toward their local landforms rather than the prominent ridge to the north.

Middle Woodland (200 B.C.–A.D. 400)

Middle Woodland components occur at 15 of the surveyed sites (Figure 5-4) defined on the basis of diagnostic chert tools and/or ceramics. The diagnostic lithics consist of 21 specimens from nine sites (Table 5-7). They include four hafted bifaces (two Snyders points, a Steuben point, and an expanding stem fragment), 13 lamellar blades, two bifaces, and two scrapers. The tools represent a range of functions that suggests relatively diverse activity structures at the Middle Woodland sites. Eleven of the lithic tool specimens are made of nonlocal Cobden/St. Louis chert, as is a fair percentage of the chert debitage found at the sites. That pattern is in contrast to what is seen in the other Dogtooth Bend components, and is one that is fairly consistent with Middle Woodland sites found elsewhere in southern Illinois (Morrow 1988; Stephens 1994b). It suggests a pattern of interaction, and perhaps exchange, with sites to the north, perhaps the Twenhafel area in Jackson County, Illinois.

Middle Woodland ceramics, found at 11 Dogtooth Bend sites, are in many respects like those of subsequent components. In some cases, they are difficult to distinguish from the latter. The defining characteristics of the Middle Woodland material is the presence of fabric impressions on the vessel (sherd) exterior. That attribute was not present on all sherds attributed to the component, however. Other characteristics, although less definitive, are relatively thick walls (generally .6–.8 cm thick), sometimes rather uniformly crumbly paste, and grog/grit temper. Grog predominates in the temper, and occasionally small particles of crushed chert, limestone (leached in the specimens), or igneous rock may be added. A large sherd sample (122 specimens) was obtained from site 24D3-50; site 24D3-261 produced 21 sherds, and nine sites each had one-to-four sherds. The ceramic assemblage fits with a Baumer (or Crab Orchard to a lesser degree) affiliation for the component.

Middle Woodland components are prominent at two large sites (24D3-50, 261) and one of moderate size (24D3-286). It is the sole component at three small sites (24D3-65,

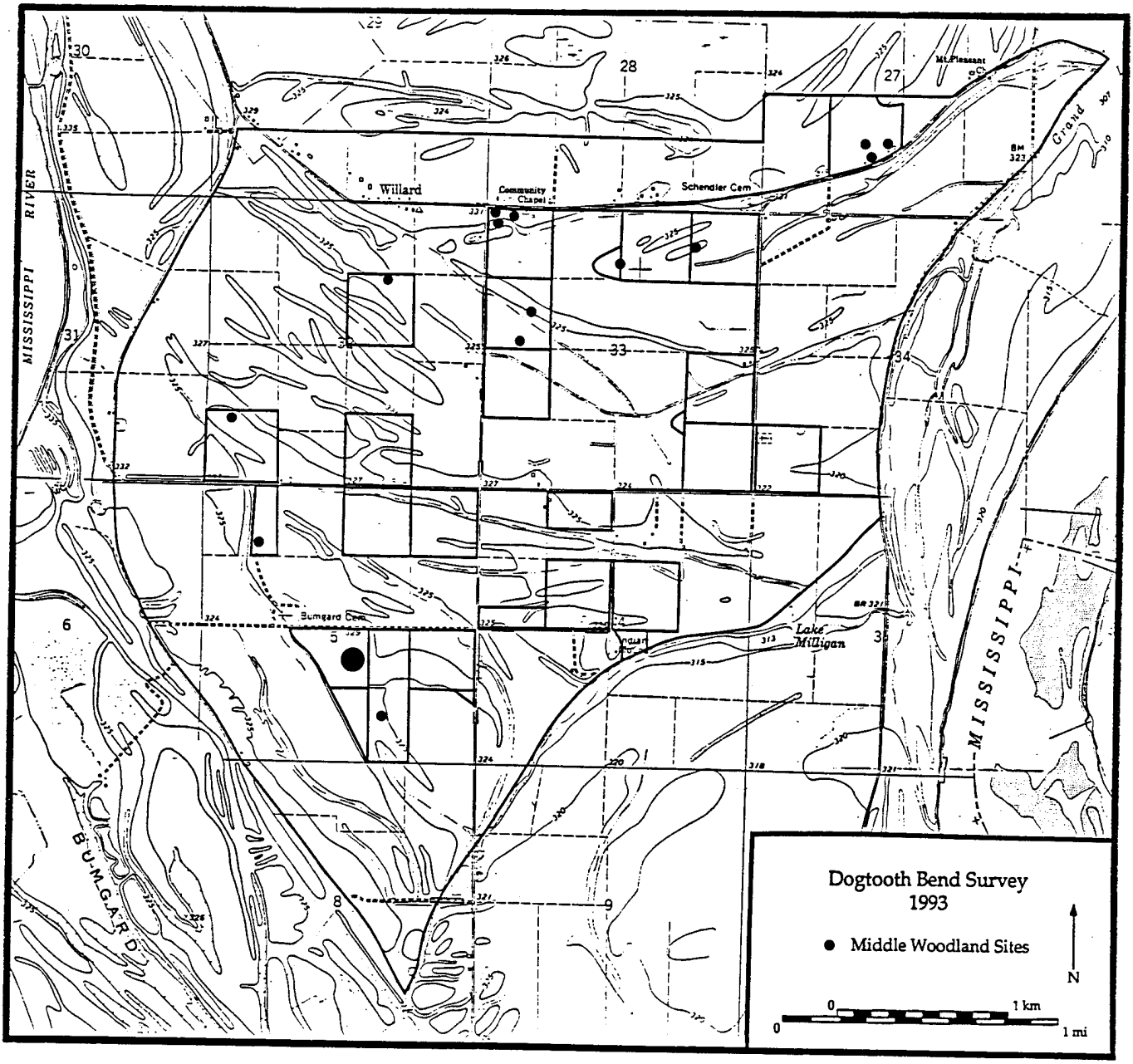


Figure 5-4. Distribution of Middle Woodland sites.

287, 323). Limited Middle Woodland occupations also occur at ten multicomponent sites. In particular, site 24D3-50 appears to have been a nodal settlement within the system. It encompasses some 10.3 ha and has a dense surface scatter on some portions. Middle Woodland sites are relatively dispersed over the northern and western portions of the surveyed landscape (Table 5-9). In most cases, they are located more than .4 km apart. Seven of the sites, including small groupings in Quadrats 1 and 7, occur on the prominent terrace ridge at the northern edge of the survey area. Four sites are situated on less prominent ridges south of that landform. Four others occur on the western portion of the habitable high ground in the survey area. They are focused toward the Mississippi River to the west, which may have been closer to them at the time. In particular, the large site 24D3-50, and to a lesser extent 24D3-261, appear to be focused toward the river channel.

Middle Woodland sites are thus situated on high ground, nearly always on the tops or crests of ridges which may be broad landforms. Sites are oriented toward local topographic conditions and often overlook lower ground to the south or west. They occur adjacent to or near swales or swamps (the latter sites are in Quadrat 1). The Middle Woodland settlement pattern is thus one of selective dispersal along the northern and western portions of the survey area and the occupation of a prominent site (24D3-50) and several less extensive ones. The aggregation of population at a nodal floodplain settlement is like the patterning seen elsewhere for Middle Woodland settlement systems (e.g., the Twenhafel area in Jackson County, Illinois, and the Baumer site in the Black Bottom on the lower Ohio River).

Late Woodland (400–800 A.D.)

Thirteen Late Woodland components were defined among the surveyed sites (Table 5-2, Figure 5-5). They were distinguished on the basis of diagnostic ceramics and/or chert tools. Ceramics regarded as definitive of Late Woodland in the survey assemblage are grit-tempered cordmarked Raymond and sand-tempered Barnes materials. They have a distinctive gritty texture from the sand tempering, fairly thin walls, and plain or cordmarked exterior surfaces (Barnes Plain and Barnes Cordmarked). They also often have orange or buff-colored paste. The largest Late Woodland (Barnes) ceramic assemblage (n=34 sherds) occurs at site 24D3-261. Late Woodland ceramics may also include plain, grog-tempered Baytown material; however, any Baytown sherds were classified with the later Emergent Mississippian assemblage as they are difficult to distinguish from the later versions of that ceramic type. Diagnostic Late Woodland lithics consist solely of one Lowe Flared Base hafted biface made of Elco chert derived from the western Shawnee Hills (Table 5-7).

Late Woodland sites occur as limited occupations at the 13 sites where they are present. Ten are on multicomponent sites, some of which are extensive distributions, but none of the Late Woodland components are dominant at them. Three sites (24D3-289, 306, 334F) are single component Late Woodland occupations. They have sparse

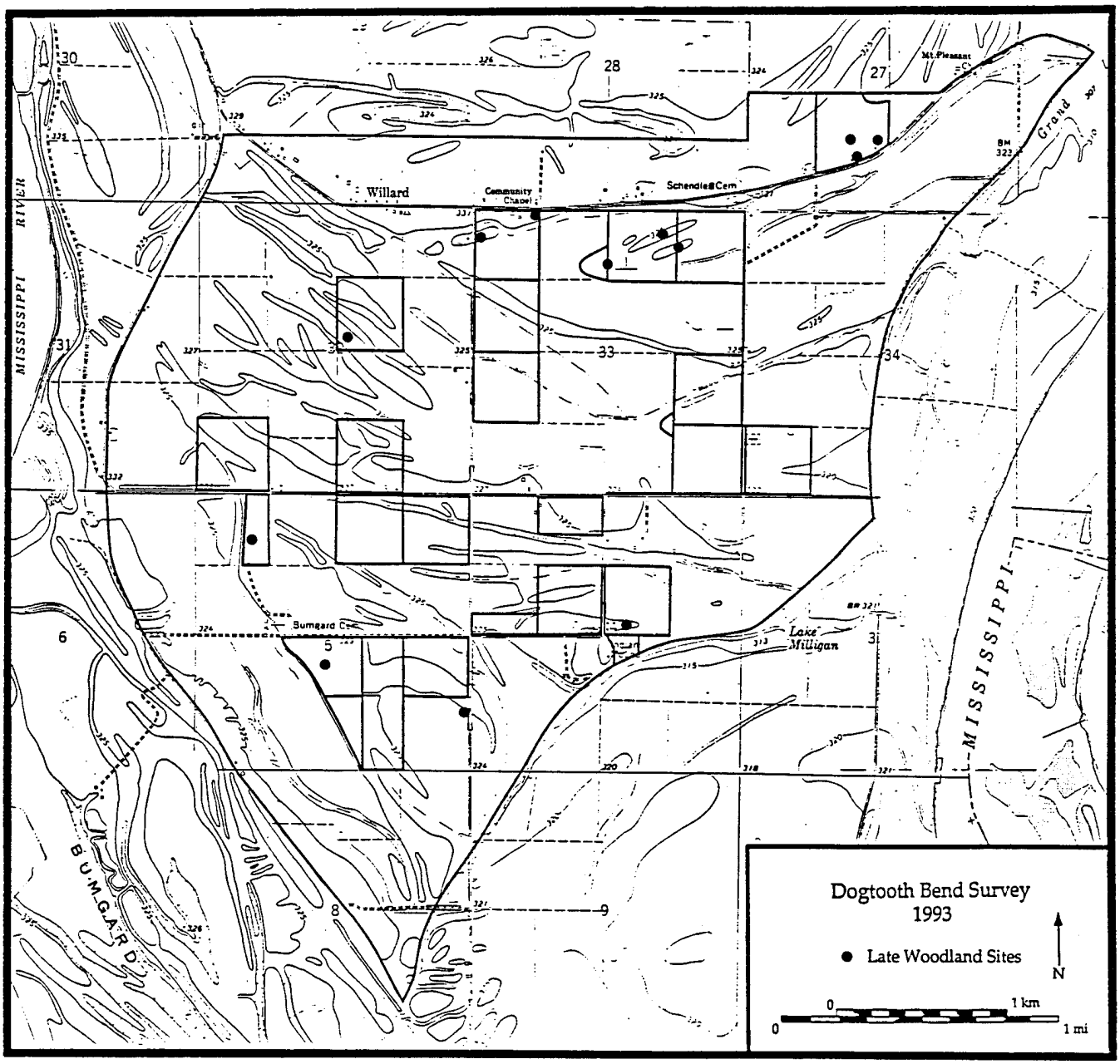


Figure 5-5. Distribution of Late Woodland sites.

artifact scatters over .41 ha and .10 ha, respectively, or exist as an isolated find (one eroded Barnes sherd).

The sites are associated with the more prominent landforms in survey area on its northern, western, and southern peripheries (Table 5-9). Most (n=8) sites occur at regular intervals along the main ridge system on the north. The five other sites, including the largest site (24D3-261) are at dispersed locations that afforded access to the lower floodplain to the west and south of the survey area. Those sites are focused away from the center of the survey area and are oriented more directly to local ridge formations. They are situated most commonly on the ridge tops and near adjacent swales. Late Woodland settlements occur over a broad area in upper Dogtooth Bend, but they are small, light occupations. With the possible exception of the occupation at 24D3-261, no major habitation site occurs, and occupations may have been of limited intensity or short duration. That pattern is consistent with general Late Woodland settlement patterning observed in other regions. The Dogtooth Bend sites were focused on the prominent feature of the local landscape (the northern terrace ridge system), or on selected, limited peripheral locations that overlooked the river and swampy low ground.

Emergent Mississippian (A.D. 800–1000)

Emergent Mississippian components were defined at 23 surveyed sites (Table 5-2, Figure 5-6). The number of sites is 23 if the Dogtooth Bend site is separated into the survey tracts DBS-104 and DBS-106,107. The component is widespread and found in 15 of the 23 surveyed quadrats. Emergent Mississippian sites were defined as such on the basis of ceramics, which are abundant in the survey collections, or by diagnostic projectile points. A total of 1962 sherds were recovered from 21 sites, although the vast majority (n=1380) came from one dominant location (site 24D3-261). Recovered Emergent Mississippian ceramics are defined as Dillinger and Baytown materials. Dillinger sherds are characterized as thin walled and well fired with hard paste, and usually a buff color. They have cordmarked exterior surfaces and grog tempering. Several recovered rim sherds have the definitive folded Dillinger rim. Baytown sherds are similar to Dillinger but have plain surfaces. The majority of sherds are Dillinger rather than Baytown and are similar to the material obtained at the Emergent Mississippian Petitt site which is located 17 km north of the survey area.

Two sites (24D3-268 and 269) each have a diagnostic Emergent Mississippian Scallorn point. Several other chert tools found in the survey could be classified as either Emergent Mississippian or Mississippian items. They include triangular Madison points and hoes (or hoe fragments) (Table 4-4). Those items were classified in the analysis as Mississippian, however, since they most definitely occur during that period and are considered to be present but less abundant in Emergent Mississippian.

Emergent Mississippian settlement patterns represent a distinct change in Dogtooth Bend land use from the preceding Late Woodland period. The artifact assemblages and

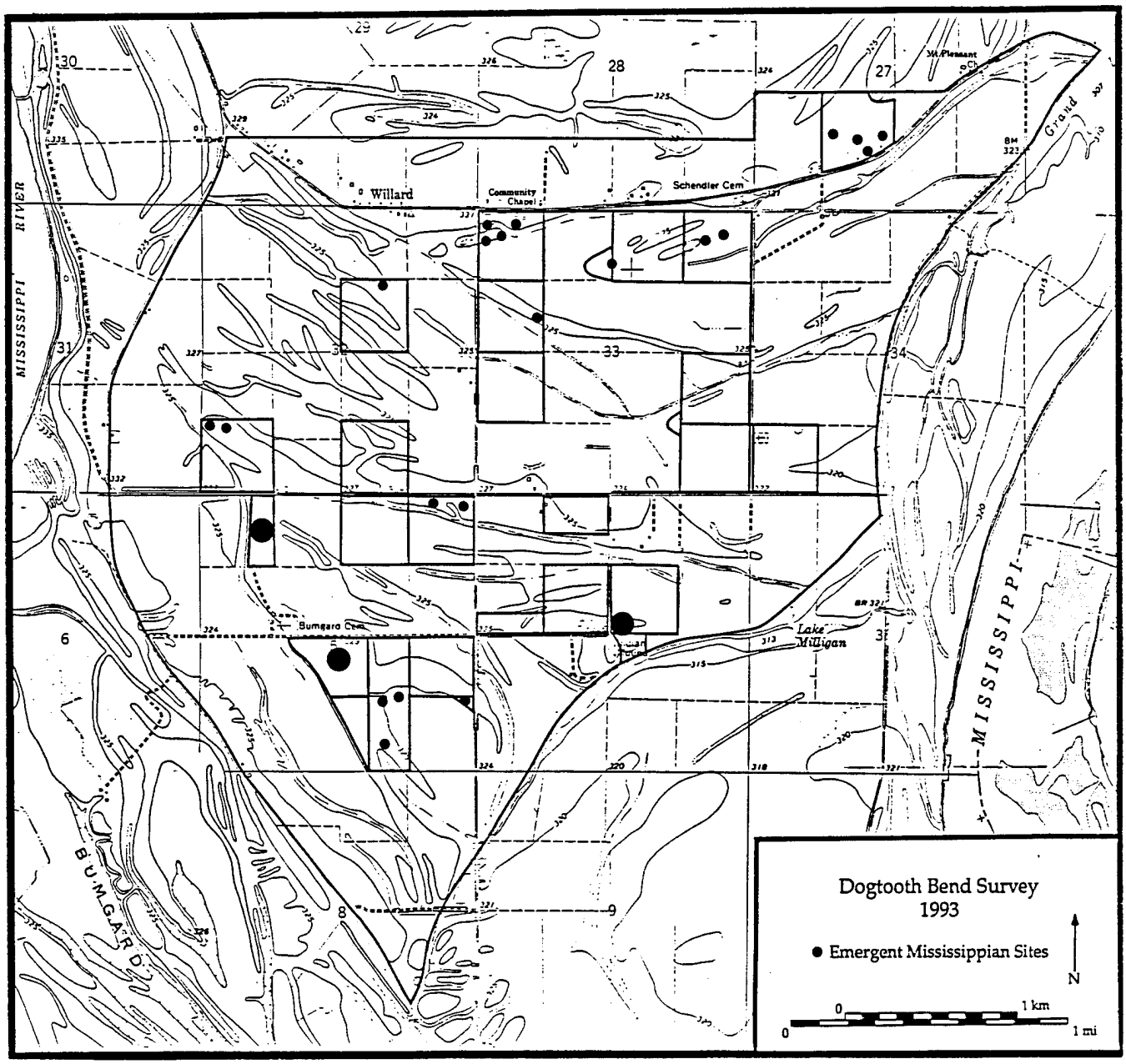


Figure 5-6. Distribution of Emergent Mississippian sites.

site patterning are more like that of the subsequent Mississippian, for which the Emergent period is formative. Emergent Mississippian sites are abundant. Most (18) of the Emergent Mississippian sites are multicomponent, indicating the selection of the same locations as groups in earlier periods. Nine of the sites have four or more components, however, the Emergent Mississippian ceramics often stand out as diagnostic materials in the sites' assemblages. A very large Emergent Mississippian occupation occurs at site 24D3-261 on the western edge of the survey area, as defined by the very large ceramic assemblage obtained in the 50 m-block collection units employed there. The large number of sherds found on the site surface may reflect recent agricultural practices (i.e., deeper plowing) as well as prehistoric settlement characteristics.

Emergent Mississippian settlement patterns in Dogtooth Bend indicate a shift in focus on several nodal settlements and a filling-in of the landscape with other smaller sites. This also suggests a population increase in the bend during that period. Site 24D3-261, on the western margin of the high ground, dominates the Emergent Mississippian component. An extensive Emergent Mississippian artifact scatter extends over most of the site's 4.4 ha area. The site overlooks the lower floodplain and Mississippi River to the west. Site 24D3-50, located on the southwestern margin of the high ground, also has a major Emergent Mississippian component. A third large occupation occurs at the Dogtooth Bend Mound Center (24D3-13) which comes to prominence in the subsequent Mississippian period.

Other Emergent Mississippian sites are distributed loosely across most areas investigated in the survey (Table 5-9). Ten of them occur on the prominent north ridge system. They include a cluster of four sites some .1 km apart on the western portion of the ridge, two sites similarly spaced a little farther to the east, and a cluster of four sites some .1–.2 km apart are on the northeastern extent of the ridge. The 10 sites are on high terrain, typically with sandy soil. Two other sites are dispersed onto less prominent ridges to the south and west of the main ridge system. They have a locational density of one site per 16 ha or more. The small Emergent Mississippian components present at most of the sites of that period may be considered to be similar to components excavated at the Swimming Snake site located 3 km north of the bend. The larger sites may relate structurally and functionally to the Petitt site, 17 km upriver on the Mississippi.

Emergent Mississippian sites occur primarily (17 of 23 cases) on terrace soils, and they are located mainly on ridge tops (n=14 cases), rather than on lower terrain. Sites are oriented generally parallel to the ridges they are on and are close to swales, which would have provided a local water supply and some aquatic resources. Eleven of the sites are located closer to the Mississippi River on the west side of the bend, while 12 would have had closer access to it on the east side.

Emergent Mississippian components are noticeably absent from four surveyed quadrangles in the east and central portions of the research area. This is consistent with the idea that those relatively lower, flatter bottomland areas may have been more subject to flooding than the ridge systems along the northern, western, and southern

portions of the high-ground research area. The absence of sites there may be a prehistoric response to a relatively more low-lying, less predictable landscape or may be due to postoccupational geomorphological processes that destroyed sites or left them buried under alluvium.

Mississippian (A.D. 1000–1500)

Mississippian occupations occur at 31 sites within the surveyed quadrats (Table 5-2, Figure 5-7). The Mississippian occupation in the northern bend continued the process begun in Emergent Mississippian of filling in the landscape with numerous habitation sites. The Dogtooth Bend Mound Center (24D3-13) was the focal site of the settlement system around which a range of smaller sites were distributed.

Mississippian components are defined on the basis of ceramics and diagnostic chert tools. A large sherd collection (n=1318 items) was obtained from the three surveyed portions of the Dogtooth Bend Site (tracts DBS-104, DBS-106, and DBS-107). Moderate amounts of ceramics were found at sites 24D3-50 (51 sherds), 24D3-250 (21 sherds), 24D3-261 (37 sherds), and 24D3-265 (17 sherds). Small numbers of sherds were found at 16 other sites. Nearly all of the ceramics found at the outlying sites, and most at the mound center, are undecorated Mississippi Plain materials. Some Bell Plain specimens occur as well. The ceramics often have shell and grog tempering rather than solely shell material. The extensive ceramic collection from the mound center includes examples of several vessel forms (jars, bowls, plates, and water bottles) and decorated wares. Ceramic characteristics relate directly to those defined for the Cairo Lowlands of southeast Missouri. Varney Red Filmed sherds and some Mississippi Plain flared-rim jar fragments suggest an early Mississippian affiliation. Sherds from O'Byam Incised plates suggest the earlier portion of the middle Mississippian sequence. Sherds from Matthews Incised jars and a human effigy water bottle suggest the later portion of middle Mississippian. No later Mississippian (post A.D. 1400) ceramics were recovered.

Diagnostic Mississippian chert tools include 10 small triangular Madison points, 14 hoes, two adzes, and a gouge (Table 5-7). Although the items could also relate to Emergent Mississippian components, they are classed more definitively with the subsequent Mississippian period. Nine of the tools were found at the mound center, while the others came from 15 smaller sites. Most (n=18) of the diagnostic tools are made of Mill Creek chert derived from the Shawnee Hills 20 km to the north, although some Devonian, Kornthal, Mounds Gravel, Kaolin, and Cobden/St. Louis materials were also used for tools. Chert debitage from the mound center and other Mississippian sites also contain fair percentages of Mill Creek chert. The expanded utilization of that resource during the Mississippian period has been noted elsewhere (Cobb 1988; Muller 1986). Its use by Dogtooth Bend inhabitants suggests some important patterns of interaction and exchange with groups living to the north near the Mill Creek source area. Given the Dogtooth Bend site's location downstream from the Linn site and Mill

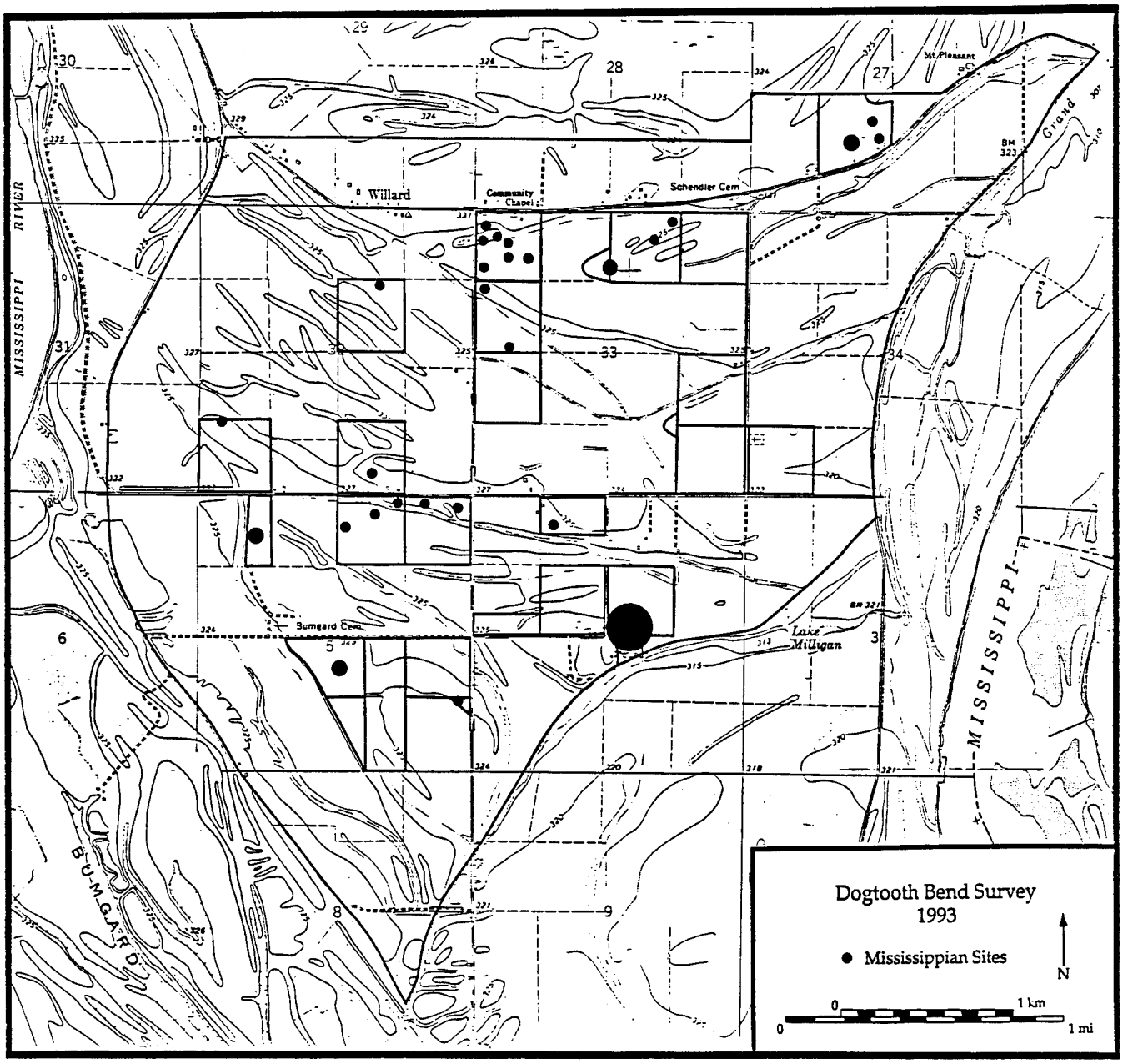


Figure 5-7. Distribution of Mississippian sites.

Creek quarries and near the Ohio-Mississippi River confluence, it may have served as a major participant in down-the-line exchange of that widely traded resource.

Mississippian occupation in the survey area is dominated by the Dogtooth Bend Mound Center (Stephens 1994a). That site encompasses an estimated 28 ha area at the southern boundary of the survey area. The site is bordered on the south by the 3m-high embankment that separates the high ground from the floodplain of the lower bend. A former river chute, Lake Milligan, that lies at the base of the embankment, may have provided direct access to the Mississippi River to the east in Mississippian times.

The site contains two definite mounds, including Mound 1 that is a 5 m-high platform mound, and the possible remnants of three others. It also has several residential areas, two cemeteries, and possible plaza(s), borrow pit, and palisade feature. The survey investigated three portions of the site (tracts DBS-104, 106, and 107), and extensive artifact collections were made in 50 m block units. The most dense artifact scatter occurred over a100 m x 100 m area located 100–200 m north of Mound 1. It included a wide variety of Mississippian ceramics, chert tools and debitage, groundstone items, and marine shell. Portions of that area are reported by a local informant to be a cemetery. The site's size and structure define it as the focal settlement within the Dogtooth Bend Mississippian settlement system.

The 30 other Mississippian occupations occur both at multicomponent and single component sites (n=17 and 13, respectively). Eight of the sites are heavily multicomponent with four or more earlier occupations. Fourteen sites have Emergent Mississippian components, two exclusively so, which indicates the degree of continuity between the two components. Fairly sizable Mississippian components occur at multicomponent sites 24D3-50, 250, 261, and 265. Those locations may have served as nodal settlements within the local system. The other sites are small occupations of less than 1.5 ha in size.

Site distributions demonstrate a filling-in of the landscape which began in Emergent Mississippian (Table 5-9). Thirteen sites, including the sizable 24D3-250 and 24D3-265 sites, occur along the prominent northern ridge system: seven cluster on the western portion of that feature (Quadrat 7)in the north-central part of the survey area; three others cluster at the ridge's northeastern end (Quadrat 1). The central portion of the survey-area landscape is dotted with a dispersed scatter of five small sites, and slightly farther south, with eight regularly-spaced small sites. Large sites (24D3-261, 50) occur, respectively, on the western and southwestern peripheries of the survey-area high ground. They would have served as access points to the Mississippi River on the west.

Mississippian Sites are located primarily on the tops of ridges, often on relatively level terrain, and usually at or above 106 m (325') in elevation. They tend to lie within .2 km of local water sources in swales adjacent to the ridges. Sites occur slightly more often on soils associated with terrace landforms than those related to bottomland topography (n=19 and 12 sites, respectively). Sites located along the northern ridge are on well drained sandy soils, as is the northern portion of the mound center (tracts DBS-

104 and 106), however, the rest of the sites occur on moderately-to-poorly drained silty or silty clay soils.

Mississippian settlement patterns can be discussed in terms of social and economic factors as well as physical settings. The small sites of less than 1.5 ha size fit within the size range and spatial characteristics defined elsewhere (e.g., Muller 1986) for farmsteads. The larger sites may represent more complex hamlet-sized occupations. Within the quadrats surveyed, sites tend to occur in linear groupings that extend along relatively level portions of the various ridge systems present. As they are defined, sites may be as little as 20 m apart, forming individual clusters that occur as parts of extended site distributions along the ridges. Among a given cluster of several sites, there tends to be a larger, nodal hamlet-sized settlement. That pattern is consistent with those seen in Mississippian distributions in the Black Bottom on the Ohio River (Muller 1978; 1986), southeast Missouri (Price 1978), and the American Bottom (Milner et al. 1984).

The sites may also be addressed in relation to their distance from the mound center, since that site would have served as the ceremonial and political center of the bend's settlement system. Only two small sites are recorded within 1.0 km of the mound center. That area did not appear to have had any substantial Mississippian habitation. Eleven sites were recorded within 1.0–2.0 km of the Dogtooth Bend site, primarily to the northwest of the site. Nine of the ten sites are small farmstead-sized units, while site 24D3-50 is a large hamlet-sized occupation. Fourteen sites occur between 2.0–3.0 km from the mound center, mainly on the prominent ridge system to the north and along the western periphery of the high ground in the bend. Within that zone, two of the sites are large hamlet-sized entities, the others are small occupations. Finally, another site cluster with a large occupation and two smaller ones occurs in the single surveyed quadrat (Quadrat 1) that lies between 3.0–4.0 km from the main site. In all, the Mississippian site distribution conforms to a pattern of dispersed farmsteads and secondary sites (hamlets?) in relation to the mound center. The sites are not clustered tightly around the center; rather, they are grouped in linear arrangements in relation to their local physical settings. The settlement system is well oriented to local geographical conditions of the river bend which presents a physically circumscribed environment for it.

The Dogtooth Bend Mississippian settlement system is also strategically located on the larger geographical landscape of the Ohio-Mississippi River confluence region. Its cultural manifestations relate directly to those in southeast Missouri, western Kentucky, and the lower Ohio Valley. The Dogtooth Bend Mound Center and its attendant settlement system were, no doubt, significant participants in the political geography of that region..

Unknown Prehistoric Components

A total of 32 sites lacked culturally diagnostic artifacts and cannot be assigned to specific prehistoric components. Their artifact assemblages consist primarily of chert

debitage of indeterminate cultural affiliation. The sites occur within various surveyed quadrats, but they are slightly more common on bottomland rather than terrace soils. They are also more prevalent on level floodplain terrain or in swales than are sites of known affiliation. Some of them thus occur in more marginal settings that are subject to flooding, which may affect their integrity as sites. Unknown sites include 10 isolated finds which are often difficult to assign to cultural components because of their limited assemblages. Some Unknown sites do occur on the ridge tops and may have sizable artifact assemblages, however. They simply lacked diagnostic artifacts in the 1993 survey collection.

Historic Period (A.D. 1600–Present)

Twenty-eight historic period sites were defined in the survey (Table 5-2). Site 24D3-13, the Dogtooth Bend Mound Center, actually has three separate historic distributions but is discussed here as one site. There are 14 substantial historic sites, whose site numbers were designated with the suffix "H" for "Historic" site, and 14 minor components that occur as limited amounts of historic material on otherwise prehistoric sites (Figure 5-8). The sites relate to the midnineteenth to midtwentieth centuries, although primarily from the late nineteenth century onward. The collection of historic period artifacts was not as systematic as that of prehistoric material, due to the potential volume of the historic material. A sample of diagnostic artifacts was collected, which was used subsequently to define temporal/functional components.

Historic period artifacts collected in the survey include several kinds of ceramics: plain (predominant) or hand-painted whiteware, porcelain, stoneware, and occasional pieces of older pearlware. Glass items include various kinds of container glass including fragments of medicine and other bottles, pressed glass, cold cream jars, canning jars, and insulators. Metal nails (cut and wire), iron hinges, a horseshoe, and other pieces of metal household or farm equipment were also retrieved. Specialized household goods such as glass and clay marbles, doorknobs, bakelite, and plastic items were collected, as were bricks, cinders, and concrete pieces. The artifacts relate to both household and farmyard settings.

The historic sites are often situated along the gravel roads that cross-cut the survey area. Early aerial photographs and topographic maps show structures at the locations of several of the designated historic sites. Local informants also reported the presence of occupied structures (family dwellings) until the 1950s or 1960s at some sites. The only standing structure encountered in the survey was a weathered barn at site 24D3-13. The sites primarily indicate former house or farm locations that were parts of the extended Dogtooth Bend rural. One historic period cemetery (Lake Milligan Cemetery), which served primarily the local African-American community, was reported as an archaeological site because it is not well maintained (beyond being kept out of cultivation), and it is often left off of maps and discussions of the area.

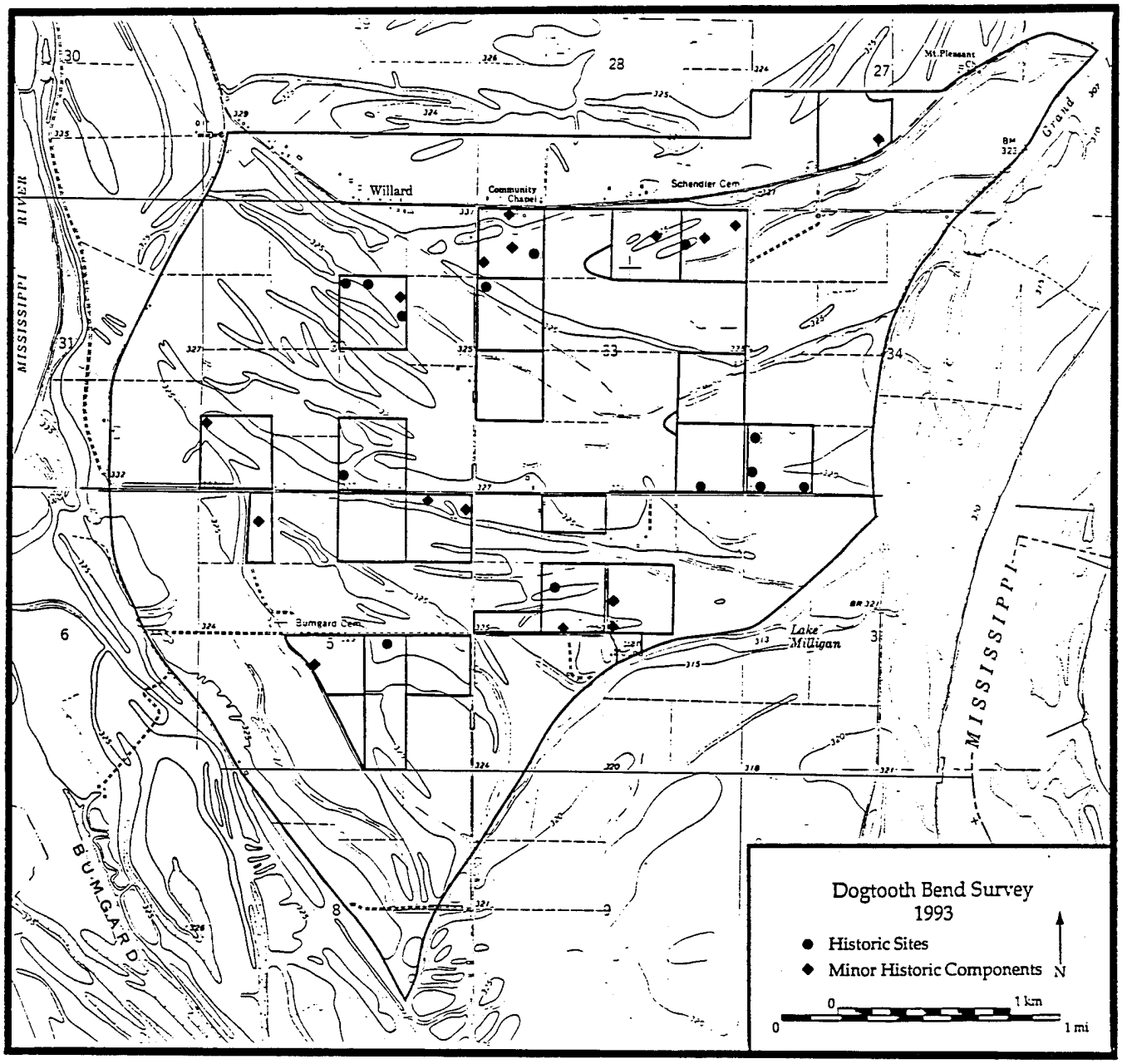


Figure 5-8. Distribution of Historic sites and minor Historic components.

Prehistoric Settlement Patterns Summary

In summary, prehistoric settlement patterns in upper Dogtooth Bend indicate changing intensity in land utilization through time. Continuity exists at some site locations through time, while others witnessed change in occupational intensity or focus. The prominent ridge system at the northern edge of the bend was repeatedly chosen for occupation during several periods of prehistory. The western and southern peripheries were occupied repeatedly as well. Some sites were reoccupied several (as many as five) times, but other sites have single or few-components.

Individual cultural components utilized the area in varying ways. Middle Archaic occupation, as seen in the survey, was sporadic and light. Late Archaic had more occupation, mainly in dispersed, extended but moderate occupations. Early Woodland witnessed slightly increased occupation of the survey area. Middle Woodland included one or more large focal sites on the western periphery and had cultural connections to regions to the north. Late Woodland occupation was light and dispersed along the survey peripheries. Emergent Mississippian witnessed the filling-in of the upper bend with more sites (and assumed greater population), including some large focal settlements, located especially on flat ridge top settings. Mississippian continued the Emergent Mississippian pattern of additional sites placed across the landscape (especially on flat ridge tops), and it contained an apparently hierarchical settlement system that focused around a prominent civic-ceremonial mound center, with attendant hamlets and farmsteads distributed along the outlying ridges. The shifts in settlement patterns through time attests to the dynamic cultural adaptations made to the dramatic landscape and environment of upper Dogtooth Bend.

Management of the Dogtooth Bend Cultural Resources

The 1993 Dogtooth Bend Survey was conducted as a research and teaching project. It was not mandated under the federal government's Section 106 guidelines that govern the undertaking of many archaeological projects. It was conducted soley on private property and was not undertaken to assess for potential eligibility of the cultural resources for listing on the National Register of Historic places. Nonetheless, the archaeological resources in the survey area, as in nearly all unprotected areas, are subject to natural and human-initiated impacts. It is thus important to discuss the nature of the effects on them and to highlight individual sites' potential for additional research. As the Dogtooth Bend example so forcefully demonstrated subsequent to the fieldwork, it is important to distinguish those sites that have the potential for answering substantial research questions about the area so that they can be monitored or given further investigation, if warranted, in the future.

Effects of Flooding on the Archaeological Resources

The high ground at the northern one-third of Dogtooth Bend, where the 1993 archaeological survey was conducted, is subject to periodic flooding, as are the lower portions of the bend. While the lower bend may experience widespread inundation from seasonal flooding, the upper high ground is more likely to have standing water along its low-lying swales and man-made drainage ditches. In situations of more intensive flooding, however, the high ground may be fully inundated, and its archaeological resources subject to erosion or other physical effects from the event.

Dogtooth Bend is partially protected from flooding by an earthen levee system that extends along the western edge of the high ground. The lower bend and eastern margin are not ringed by levees, however. Floodwater is allowed to cover the lower area as a means of absorbing the water and dampening its force. High water has a tendency to back up into the upper bend from the area of Grand Lake at the bend's northeastern edge. In seasonal flooding (generally spring or autumn) water often backs up into the swales and drainage ditches from the Grand Lake area, creating streams and pools of standing water in the lower elevations of the bend's high ground. In times of more massive, forceful flooding, large portions of the high ground may be inundated, as well.

Great Flood of 1993 and Its Aftermath

The 1993 Dogtooth Bend archaeological survey occurred in the midst of a sequence of events associated with the so-called "Great Flood of 1993." Above-normal precipitation and saturated ground conditions which developed in fall of 1992 and spring 1993 in the Upper Mississippi river basin, continued into the summer of 1993 (Chzastowski et al. 1994) and resulted in extensive flooding within the basin. While the local area was dry at the time of the archaeological survey, it was struck by massive flooding shortly after the survey was completed in early July 1993. Events associated with the flood and its aftermath left marked effects on the recorded archaeological sites and surrounding landscape of upper Dogtooth Bend (Figure 5-9) . Several times since the 1993 flood, the research area has been revisited and observations made on the condition of individual sites and portions of the landscape. The information provides important documentation on the effects of flooding on the archaeological resources located there.

The principal investigator, Jeanette Stephens, made a field inspection of the proposed survey area on the Dogtooth Bend high ground in mid-April 1993. At that time, portions of the bend were experiencing spring flooding. Nearly all of the terrain south of the high ground's southern embankment (i.e., nearly all the lower bend) was under water. Within the proposed survey area, water stood in most of the main drainways trending generally northwest-southeast across the landscape. In several locations on the eastern one-third of the area, shallow water covered major portions of cultivated fields. The water in the survey area had backed-up from Grand Lake. The water receded in the weeks that followed, and by the time of the survey 2 June–9 July

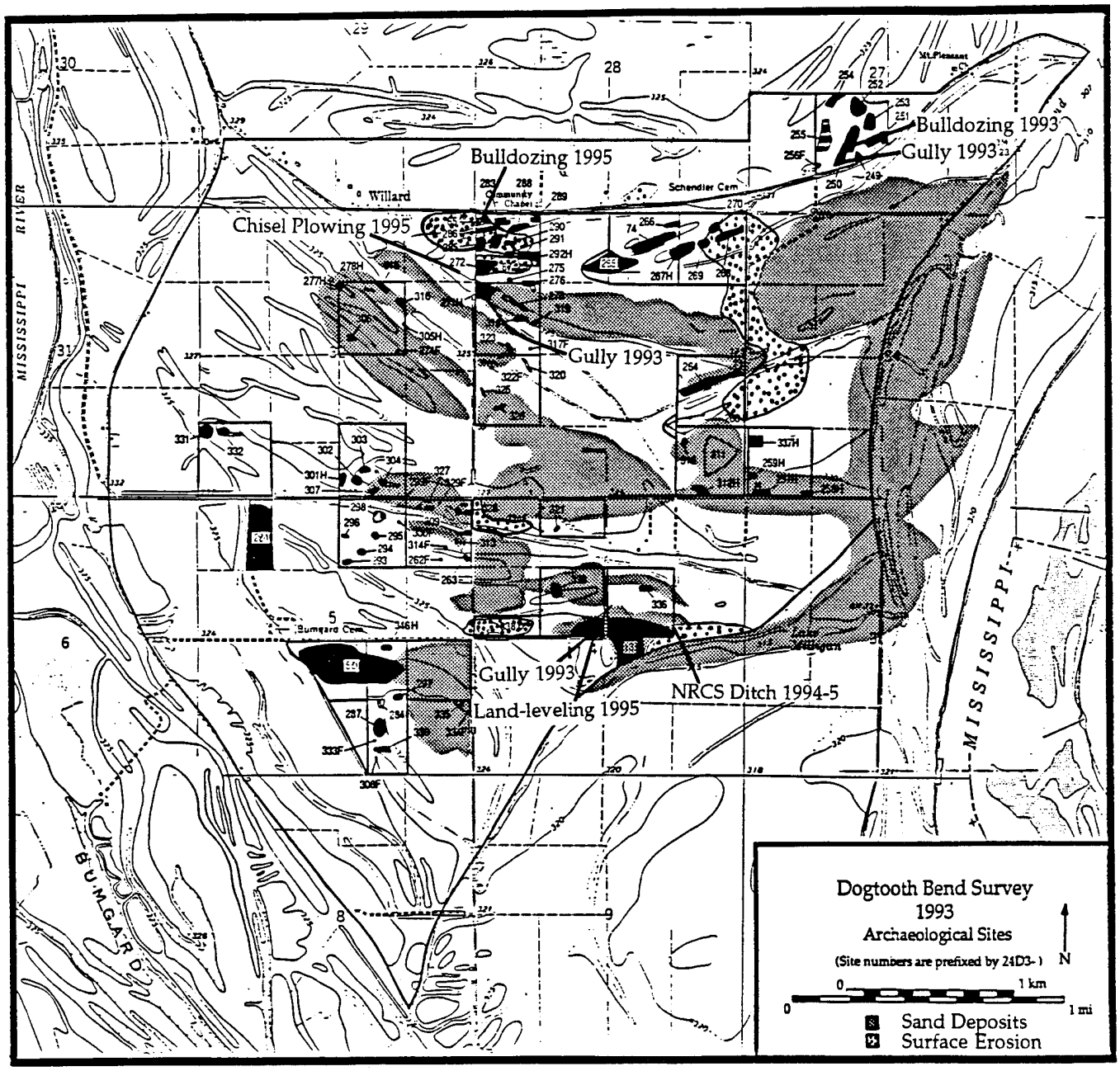


Figure 5-9. Effects of 1993 flooding and its aftermath on Dogtooth Bend archaeological sites.

1993, standing water occurred at only a few isolated low places on either the high ground or the lower bend. Precipitation and high-water levels continued upstream in the Mississippi River drainage, however. By the last week of the survey, the river was above flood stage and water was observed locally to cover much of the lower bend and the active channel bank at Grand Lake. It was also backing up into some of the upper bend drainways.

On 15 July 1993, one week after the survey was completed, a breach occurred in the river levee to the immediate northwest of the defined survey area, 1.5 mi (2.4 km) southwest of Miller City, Illinois at river mile 34 (Figure 5-10). The break occurred in the Len Small deflection levee, a portion of the Fayville levee, and a torrent of water rushed east and southeastward across the upper portion of Dogtooth Bend. The force of the water opened a breach .3 km (1500 ft.) long and scoured a massive channel hole that measured 2.4 km long x .4 km wide x 18 m deep (1.5 mi x .25 mi x 60 ft.). The hole was 27 m (90 Ft.) deep at the breach. The scour hole trended southeastward into the northern end of Dogtooth Bend. The scour stopped at a compacted gravel road that ran perpendicular to its trend. Water from the breach flowed across the bend to rejoin the Mississippi on the east at river mile 15. The scour hole is a classic example of the initiation of the river meander cutoff process. With continued force, the scour process would have formed a completely new river channel across the northern end of the bend, leaving the bend as a side chute or an oxbow feature.

Flooding continued in the area for several weeks in summer 1993. The Mississippi River crested at 3.8 m (12.5 feet) above flood stage at Thebes, Illinois, 10 mi (1.6 km) upstream from the breach on 7 August 1993. At that time, approximately 25% of the river's flood discharge was flowing across the potentially new channel (Chrzastowski et al. 1994:5). The water began to recede, but the area was again flooded in early October before the levee had been repaired. Dogtooth Bend could not be reached by land until late October 1993. The principal investigator returned to Dogtooth Bend in early November to assess the impact of the flood on the archaeological sites that had been recently recorded there.

The prolonged, massive flooding and forceful runoff of the Great Flood of 1993 had substantial effects on the upper Dogtooth Bend landscape and its archaeological resources. Massive amounts of sand (often fine silty-sand) that had been deposited by the flood water covered large portions of the land surface, producing an eery landscape devoid of cultivated vegetation that looked like it was covered with snow. The effects of the flooding actually varied considerably across the upper bend area, with localized soil deposition, surface erosion, or erosion gullies depending on the particular fluvial and topographic characteristics at a given location. Similar effects have been reported to landscapes and cultural resources upstream in the Mississippi River basin (Chrzastowski et al. 1994; Green and Lillie 1994).

The sand and silt deposits occurred along the ridge slopes (swale margins), parts of the ridge tops, and on the broad, gently sloping terrain. Sediment tended to be deposited at locations where some aspect of the topography or some protruding object

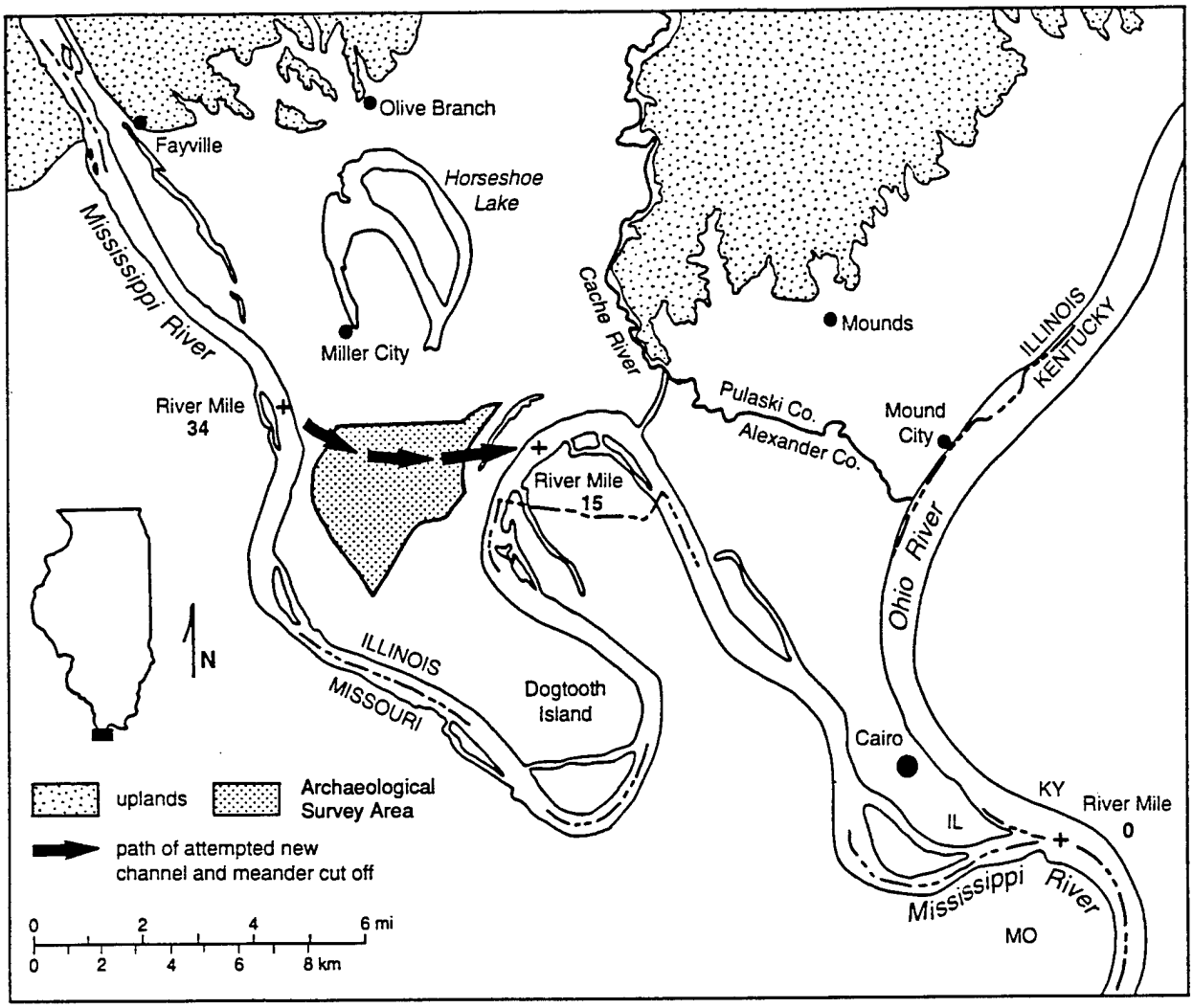


Figure 5-10. Path of attempted channel cutoff in 1993 flood (after Chrzastowski et al. 1994).

impeded the flow of the water, thus slowing the current so that it could no longer transport the heavy sediment. Sandy sediment tended to be dumped where the there was a drop in elevation, within swales or just off the south and east embankments of the high ground. In several cases, including the area immediately north of the Dogtooth Bend Mound Center in surveyed field DBS-104, swales were completely filled with sand, creating newly formed sand ridges in their places. Trees, buildings, and other elevated features acted as catch-points for the sand deposits where bottle-necks in the flowing water formed around the objects. The thickness of the sand deposits varied from a few centimeters on broad floodplain expanses to as much as 1.8 m (6 feet) along lowlying areas and along the south and east margins of the bend's high ground.

Other localized surface effects of the 1993 flood were observed within the survey area. Surface erosion occurred on some ridge tops and portions of relatively higher or flatter terrain. Such surfaces exhibited pitted, pock-marked appearances suggestive of disturbance by choppy, flowing water. The amount of surface erosion varied from one area to the next, but was generally less than 15 cm in thickness. In several locations, crop rows could still be discerned on the eroded surface. A few localized erosion gullies and scour holes occurred where forceful flowing water had worn through surface sediments. Those observed trended north-south, with the direction of the water flow. Some gullies were fairly substantial: more than 30 m long, 5 m wide, and 1 m deep.

Subsequent events to the Great Flood of 1993 also affected the Dogtooth Bend landscape and its archaeological resources. The 1993 levee breach was repaired by mid-April 1994, although the associated scour hole was too large to repair and has been left with standing water. The very day that the levee repairs were finished in mid-April 1994, another portion of the levee broke on the west edge of the survey area during spring flooding at that time. Dogtooth Bend was entirely inundated once again. However, the 1994 flood was not as massive nor the water flow as forceful across the bend. The area recovered within a month, and major portions of the bend were then cultivated. The bend remained dry and workable for more than a year. However, in late May 1995, heavy rains upsteam caused spring flooding on the Mississippi River. Dogtooth Bend was again completely inundated as water backed-up over it from the east, north, and south. The 1995 flood was not catastrophic, however, and by July the area was again being put in cultivation. A field observation made at the Dogtooth Bend Mound Center in mid-July 1995 indicated that the spring flood had deposited a .5-mm thick layer of new silty clay on the ground surface there.

Numerous localized responses to the flooding episodes have been undertaken by landowners in order to reclaim and rework the land. Many of the measures have impacted the archaeological resources. The massive sand deposits of 1993 posed major problems for local farming within the survey area. At several locations, landowners stockpiled the sand into huge mounds at the edges of their fields. Other attempts were made to mix the sand with the existing topsoil. Chisel plowing was used to incorporate the sand or replace the eroded plowzone, particularly in some fields on the northwest side of the survey area. Other fields that had lost topsoil were also cultivated more deeply than before the floods, thus disturbing any shallow archaeological deposits that

occurred within them. Some localized land-leveling and bulldozing have also occurred in efforts to mix the sand and topsoil or to fill erosion gullies. In one instance, topsoil was removed to build a small levee around a landowner's house. Some areas still covered by sand have been left out of production since 1993. In addition to the various land-recovery efforts, some residents moved from the northern end of Dogtooth Bend; thus abandoning efforts to maintain habitation in that unpredictable environment.

Effects on the Archaeological Resources

The 1993 floods, recovery processes, and more recent reflooding have had a noticeable impact on the Dogtooth Bend archaeological resources. Sites recorded weeks or even days before the July 1993 event were subjected to prolonged, repeated inundation and erosional or depositional natural processes. They were also impacted by the needs of farmers to put the land back into agricultural production. Repeated field observations through summer 1995 document specific natural or human impacts on individual sites. The principal investigator was unable to revisit all of the sites, but many of them were observed and their recovery statuses recorded. Table 5-10 presents information on the nature of the post-flooding impacts on the 1993 Dogtooth Bend Survey sites. In general, sites were caught up in the general natural effects (i.e., sand deposition, erosion, etc.) which occurred to the landscape in their specific localities. Landowner needs to reclaim the agricultural land produced a variety of localized effects on particular archaeological sites. In most cases, sites were impacted in some manner by the floods. Several sites sustained more specific, potentially more damaging, impacts in the aftermath of the floods.

The Dogtooth Bend Mound Center (24D3-13), a National Register site, was disturbed in several ways by the 1993 flood and its aftermath. Massive amounts of silty sand were deposited along the bank of Lake Milligan on the site's southern edge. The head-long deposition of sand occurred when the flood water dumped its heavier sediment as it flowed over the embankment. The new sand extended for 60 m south of the embankment, effectively creating a new, although unconsolidated, bank that was some 2 m thick. The sand bank will help to stabilize the archaeological resources which had been subject to erosion along the lake bank for many years.

The DBS-104 survey tract at the mound center had substantial sand deposition, particularly on its north and western portions. The sand did not completely cover the soybean cover in the south-central area. The swale just north of the site's edge was completely filled with sand and formed into a new sand ridge. The southeastern portion of the field suffered surface erosion which removed approximately 15 cm of the plowzone. Subsequently, the portions of the field that could be worked (i.e., lacked thick sand deposits) were put into agricultural production. In the process, the plowing incorporated previously undisturbed cultural deposits. In December 1994, the distinctive stains of Mississippian house basins and associated charcoal, daub, ceramics, and other artifacts were observed on the surface in the southern portion of the site, south of the DBS-104 and east of the DBS-107 survey fields. Their presence was confirmed in spring 1995, along with that of two other plowed-up house basins in the

Table 5-10.Effects of Recent Flooding on Dogtooth Bend Archaeological Sites

SIUC No. (24D3-)	Undisturbed (±)	Thick sand	Shallow Sand	Surface Erosion	Surface Pitting	Erosion Gully	Frequent Inundation	Bulldozing	Land-leveling	Whole Site	Partial Site
13		X	X	X		X			X		X
50	X									X	
65				X				X			X
67				X	X					X	
74	X									X	
249	X									X	
250						X		X			X
251	X									X	
252							X				X
253	X									X	
254							X				X
255				X							X
256F				X							X
257H			X							X	
258H			X							X	
259H			X							X	
260				X							X
261	X									X	
262F	X									X	
263	X										X
264			X							X	
265	X									X	
266	X									X	
267H	X									X	
268				X						X	
269				X							X
270				X							X
271H			X								X
272				X	X	X				X	
273		X								X	
274F							X			X	
275	X									X	
276			X								X
277H			X								X
278H			X							X	

Table 5-10.Effects of Recent Flooding on Dogtooth Bend Archaeological Sites

SIUC No. (24D3-)	Undisturbed (±)	Thick sand	Shallow Sand	Surface Erosion	Surface Pitting	Erosion Gully	Frequent Inundation	Bulldozing	Land-leveling	Whole Site	Partial Site
283								X			X
284	X									X	
285				X						X	
286				X						X	
287	X									X	
288	X									X	
289	X									X	
290				X						X	
291				X			X				X
292H				X			X				X
293	X									X	
294	X									X	
295	X									X	
296	X									X	
297	X									X	
298	X									X	
299F			X							X	
300F	X									X	
301H	X									X	
302	X									X	
303	X									X	
304		X								X	
305H							X			X	
306			X							X	
307		X								X	
308F	X									X	
309		X									X
310			X							X	
311			X							X	
312H			X							X	
313		X								X	
314F	X									X	
315			X							X	
316			X							X	
317F							X			X	

Table 5-10.Effects of Recent Flooding on Dogtooth Bend Archaeological Sites

SIUC No. (24D3-)	Undisturbed (±)	Thick sand	Shallow Sand	Surface Erosion	Surface Pitting	Erosion Gully	Frequent Inundation	Bulldozing	Land-leveling	Whole Site	Partial Site
318		X								X	
319		X								X	
320							X				X
321	X									X	
322F							X			X	
323			X							X	
324F	X									X	
325		X					X				X
326		X								X	
327		X								X	
328		X									X
329F		X								X	
330	X									X	
331	X									X	
332	X									X	
333F	X									X	
334F		X								X	
335		X								X	
336			X								X
337H		X									X
338				X						X	
339H			X								X
346H	X									X	

eastern part of the DBS-104 field. In fall 1994, as part of the 1993 flood clean-up efforts, the U.S.D.A. Natural Resources Conservation Service dug a new drainage ditch along the eastern edge of the DBS-104 field, with its outlet at Lake Milligan on the south. The ditch adversely impacted (bisected) two Mississippian structures in the residential area along the site's south side and two mortuary features (graves) on its north. Archaeological mitigation in spring 1995 retrieved the cultural remains and other data from the disturbed facilities (Stephens 1996, in preparation), and the ditch was refilled in July 1995. The other structures in the vicinity continue to be exposed on the ground surface, and will be subject to further destruction by future cultivation.

The DBS-106 survey tract at the Dogtooth Bend Mound Center also had thick sand deposits along its northern edge. Sand also pooled along the northwest side of an old barn that stood on the northwest edge of the site. Elsewhere in the field, sand occurred in shallow linear bands and the original ground surface appeared to be intact. However, a large gully formed 20 m west and 30 m north of the field's southeastern corner. The gully measured approximately 50 m long x 5–10 m wide x 1 m deep and cut through any cultural deposits located there. The gully was not inspected, however, because landowner permission for access to the property had been rescinded at the end of the July 1993 survey of the tract. The gully was filled in by the landowner, presumably using fill from the surrounding surface; thus impacting those areas of the site. The DBS-106 field was impacted again in spring 1995, when the landowner leveled an estimated 30 cm from the slight ridge there to get fill to mix with the sand deposited on the north part of the tract, in an effort to make the latter area more cultivatable. The land was observed by the principal investigator from the adjacent roads but was not traversed due to lack of landowner permission to do so. No cultural materials could be seen from the roads, but it must be assumed, given the location and amount of land leveling, that the archaeological resources there were substantially damaged. Other, deeper deposits will also be subject to surface erosion and plowing damage in the future.

The DBS-107 survey tract at the Dogtooth Bend Mound Center sustained substantial sand deposition in the 1993 floods. The 50-m area between Mounds 1 and 2 was filled with a sand deposit .5–1 m thick as the two mounds formed bottlenecks to the flowing water. Mound 2, observed to be 1.5 m high in the 1993 archaeological survey, was nearly covered with sand, and is now barely visible above the new land surface. The owners of the DBS-107 tract decided to take the field out of cultivation as a result of the heavy sand deposits. By summer 1995, it was covered with willow saplings and other vegetation. Mound 2 and the surrounding ground surface are now visible only at select locations.

Several other archaeological sites were heavily impacted by the 1993 flood and its aftermath. For example, an erosion gully developed on the southwest edge of Site 24D3-250, the hamlet-sized Mississippian site on the northeast edge of the survey area. The gully washed out the blacktop road at that location. The landowner bulldozed topsoil from the west edge of Area B at the site in fall 1993 to get fill to repair the gully, which he clearly needed to do. Two other sites, 24D3-65 and 24D3-283, had topsoil removed in spring 1995 when the landowner bulldozed a strip through them to get fill to construct

a local levee along the edge of his house. Site 24D3-272 was disturbed by several gullies in the 1993 events, and was later repaired with presumably local fill that may well have come from the site area. Several sites, including potentially seven (24D3-67, 272, 285, 286, 290, 291, and 338) on the north side of the survey area, three (24D3-268, 269, and 270) on the northeast, and at least one (24D3-338) on the south were in areas that had surface erosion. It is probable that the subsequent, ongoing cultivation of those fields is impacting formerly subplowzone cultural deposits at least some of them.

The two-year long observations on the effects of flooding on Dogtooth Bend and its cultural resources document the dynamic nature of fluvial processes in the area and the cyclical patterns of land use in response to them. The area has sustained a sequence of flooding, recovery, and farming activity to rework the land. The cultural resources are inextricably caught up in that process. They contain shallow deposits that to a large degree are incorporated within the plowzone. After a catastrophic flood such as that in 1993, more massive landowner responses are needed to reclaim and rework the land. There is thus a greater involvement of archaeological resources. This process has undoubtedly occurred numerous times before. For example, large floods are recorded in 1844, 1973, 1979, and 1983 (Chrzastowski et al. 1994:41). The cultural resources would have been impacted by those events. But, the 1993 flood, with its levee break and massive scour hole exceeded even those floods and caused even more major disturbance and response to the landscape. The archaeological sites were definitely affected by the 1993 event, and will, no doubt, be again in any future catastrophic floods. The fragile nature of the archaeological resources in the Dogtooth Bend floodplain setting underscores the importance of the archaeological survey of that area to document the nature of those resources and develop a better understanding of past cultural systems that occurred there while it is still possible to do so.

Sites' Additional Research Potential

The 1993 Dogtooth Bend Survey was undertaken as a research and teaching project to develop an understanding of prehistoric (and secondarily historic) occupation of the area, particularly change in settlement patterns through time. The 93 archaeological sites recorded in the survey vary in size, artifact assemblage, topographic location, and cultural components. Within these dimensions, and in terms of their physical conditions, sites vary in their potential to yield additional information in further studies. The Dogtooth Bend Survey sites are not evaluated in terms of their eligibility to the National Register of Historic Places, since the field project was not one mandated by federal Section 106 assessment procedures. The sites can nonetheless be ranked in regard to their additional research potential. However, such a ranking should be used only as a guide to help evaluate further research possibilities using the site data. A low rank (i.e., little anticipated research potential) should not entirely eliminate a site from any further consideration. Individual sites need to be considered on a case-by-case basis within the context of particular research initiatives.

The research potential of individual sites is relative to the specific research problems discussed in Chapter 3 dealing with prehistoric settlement patterns. Three aspects of settlement patterns in the Ohio-Mississippi River confluence area are emphasized: variation in settlement patterns through time, the structure of the Dogtooth Bend Mississippian-period settlement system, and the relationship of the Mississippian system to the broader contemporaneous political geography of the Confluence region. These broad problems can be addressed at individual sites in terms of specific questions about which components are present, the nature of the site's structure (e.g., size, spatial organization, activity structure, function, intensity and duration of occupation). The characteristics of sites within individual components can be compared to address aspects of social systems (group size, composition, and differentiation) and economic systems (microenvironmental adaptations, subsistence practices, technology, and exchange). Patterns among individual sites provide information on temporal variation and relationships to broader regional components. The potential of individual sites to contribute to various research questions also depends on their state of preservation, as well as their intrinsic archaeological properties.

The Dogtooth Bend Survey sites are ranked according to their suggested potential to contribute to further archaeological research in the area (Table 5-11). Four levels of rank are designated:

Rank 1 (high priority sites) include those that are important on the regional or broader scale, are major sites for the components present, and have excellent site integrity.

Rank 2 (moderate priority sites) include ones that are of local cultural importance, are average sites for the components present, and have good site integrity.

Rank 3 (low priority sites) are of minor local cultural importance, have minor or unknown cultural components, and have poor site integrity.

Rank 4 (no priority sites) are those with little local importance, unknown cultural components, and questionable site integrity. They include isolated finds.

In some instances, sites are ranked between two of the levels (e.g., Rank 2–3, or Rank 3–2) when they fit between the two rather than in either. In those cases, the first number listed is the rank where the site more closely belongs. The sliding scale allows additional flexibility in the ranking process. The four rankings are relative, of course, and individual sites vary in the nature of specific criteria. The rankings do provide a means, however, of establishing some guidelines to govern further investigation of the sites. There is a realistic need to have such priorities for requirements of further cultural resource management as well as specific research initiatives. Cultural management must be done in relation to the research questions, as well.

Table 5-11. Research Potential of Dogtooth Bend Archaeological Sites

Site No. (24D3-)	Research-Potential Rank	Site No. (24D3-)	Research-Potential Rank	Site No. (24D3-)	Research-Potential Rank	Site No. (24D3-)	Research-Potential Rank
13	1	268	2	295	3-2	318	3
50	1	269	2	296	3-2	319	3
65	3-2	270	3	297	3	320	4-3
67	2	271H	2	298	3	321	3-2
74	2	272	3	299F	4-3	322F	4
249	3	273	3	300F	4	323	3
250	1	274F	4	301H	3	324F	4
251	3-2	275	3-4	302	3	325	4-3
252	3	276	3	303	3	326	4-3
253	3-2	277H	4	304	3	327	3-2
254	3	278H	4	305H	4	328	3-2
255	3-2	283	3	306	3	329F	4
256F	4	284	1	307	3	330	3-2
257H	3-2	285	2	308F	4	331	3-2
258H	3	286	3	309	4	332	3-2
259H	3	287	4	310	3	333F	4
260	4	288	3-2	311	4	334F	4
261	1	289	3	312H	3	335	3-2
262F	4	290	3	313	3-4	336	3
263	3-4	291	3	314F	4	337H	3
264	2	292H	3	315	3-2	338	3
265	1	293	3-4	316	3	339H	3
266	3	294	2-3	317F	4	346H	3-2
267H	2						

References Cited

Ahler, Steven R.
1984 *Archaic Settlement Strategies in the Modoc Locality, Southwest Illinois.* Unpublished Ph.D. dissertation, Department of Anthropology, University of Wisconsin at Milwaukee.

1993 Stratigraphy and Radiocarbon Chronology of Modoc Rock Shelter, Illinois. *American Antiquity* 58:462-489.

Alexander, Charles S. and Jean Cutler Pryor
1968 The Origin and Function of the Cache Valley, Southern Illinois. In *The Quarternary of Illinois,* edited by Robert E. Bergstrom, pp. 19-26. Special Publication No. 14. College of Agriculture, University of Illinois, Urbana.

Bauxer, J. Joseph
1978 History of the Illinois Area. In *Handbook of North American Indians, Volume 15: Northeast,* edited by William C. Sturtevant, pp. 594-609. Smithsonian Institution, Washington, D.C.

Billings, Deborah A.
1984 *An Analysis of Lithic Workshop Debris from Iron Mountain, Union County, Illinois.* Research Paper No. 47. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Bradsby, H. C.
1883 History of Alexander County. In *History of Alexander, Union, and Pulaski Counties, Illinois,* edited by William H. Perrin, pp. 443-502. O. L. Baskin and Company, Chicago.

Braun, David P.
1977 *Middle Woodland-(Early) Late Woodland Social Change in the Prehistoric Central Midwestern U.S.* Ph.D. dissertation, University of Michigan. University Microfilms, Ann Arbor.

1987 Coevolution of Sedentism, Pottery Technology, and Horticulture in the Central Midwest, 200 B. C. to A. D. 600. In *Emergent Horticultural Economies of the Eastern Woodlands,* edited by William F. Keegan, pp. 153-181. Occasional Paper No. 7. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Braun, David P. and Stephen Plog
1982 Evolution of "Tribal" Social Networks: Theory and Prehistoric North American Evidence. *American Antiquity* 47:504-525.

Brown, James A. and Robert K. Vierra
1983 What Happened in the Middle Archaic? Introduction to an Ecological Approach to Koster Site Archaeology. In *Archaic Hunters and Gatherers in the American Midwest*, edited by James L. Phillips and James A. Brown, pp. 165-195. Academic Press, New York.

Butler, Brian M., and Michael L. Hargrave
1993 Archaeological Survey of the Mark Rolwing Tract, Cypress Creek National Wildlife Refuge, Alexander County, Illinois. Manuscript on File 1993-4. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Butler, Brian M. and Richard W. Jefferies
1986 Crab Orchard and Early Woodland Cultures in the Middle South. In *Early Woodland Archeology*, edited by Kenneth B. Farnsworth and Thomas E. Emerson, pp. 523-534. Kampsville Seminars in Archeology, No. 2. Center for American Archeology, Kampsville, Illinois.

Caldwell, Joseph R.
1964 Interaction Spheres in Prehistory. In *Hopewellian Studies*, edited by Joseph R. Caldwell and Robert L. Hall, pp. 133-143. Scientific Paper No. 12. Illinois State Museum, Springfield.

Canouts, Veletta, Ernest E. May, Neal H. Lopinot, and Jon D. Muller
1984 *Cultural Frontiers in the Upper Cache Valley, Illinois.* Research Paper No. 16. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Carr, Philip J., and Brad Koldehoff
1994 A Preliminary Analysis of Mississippian Lithic Technology at Wickliffe Mounds (15BA4), Ballard County, Kentucky. *Tennessee Anthropologist* 19(1):46-65.

Chapman, Carl H.
1975 *The Archaeology of Missouri, I.* University of Missouri Press, Columbia.

1980 *The Archaeology of Missouri, II.* University of Missouri Press, Columbia.

Clifton, Julia E.
1990 The Lower Mississippi River Drainage Basin of Illinois. In *Cultural Resource Studies at Illinois Department of Conservation State Parks and Recreation Areas. Volume Three: the 1988 Season*, pp. 217-248. Quarternary

Studies Program Technical Report 90-532-4. Illinois State Museum, Springfield.

Cobb, Charles R.
1988 An Appraisal of the Role of Mill Creek Chert Hoes in Mississippian Exchange. *Southeastern Archaeology* 8:79-92.1988 *Mill Creek Chert Biface Production: Mississippian Political Economy in Illinois*. Unpublished Ph.D. dissertation, Department of Anthropology, Southern Illinois University at Carbondale.

1989 An Appraisal of the Role of Mill Creek Chert Hoes in Mississippian Exchange Systems. *Southeastern Archaeology* 8:79-92.

1991 One Hundred Years of Investigations at the Linn Site in Southern Illinois. *Illinois Archaeology* 3:56-76.

Cobb, Charles R., and Richard W. Jefferies
1983 *Archaeological Investigations at the Milar Site, Alexander County, Illinois*. Research Paper No. 40. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Cobb, Charles R., and Larissa A. Thomas
1994 Investigations at the Dillow's Ridge Site (IAS U-635), an Unplowed Mississippian Village in Union County, Illinois. Report submitted to the U.S. Forest Service, Shawnee Hills National Forest, Harrisburg, Illinois.

Cooperative Wildlife Research Laboratory
1985 *Baseline Ecology of the Illinois Route 3 Study Area, Alexander County, Illinois*. Cooperative Wildlife Research Laboratory, Southern Illinois University at Carbondale.

Chrzastowski, M. J., M. M. Killey, R. A. Bauer, P. B. DuMontelle, A. L. Erdmann, B. L. Herzog, J. M. Masters, and L. R. Smith
1994 *The Great Flood of 1993: Geologic Perspectives on the Flooding along the Mississippi River and Its Tributaries in Illinois*. Special Report 2. Illinois State Geological Survey, Urbana.

Denny, Sidney G.
1972 *Archaeology of the Big Muddy Basin of Southern Illinois*. Unpublished Ph. D. dissertation, Department of Anthropology, Southern Illinois University at Carbondale.

Dunnell, Robert C., and James K. Feathers
1991 Late Woodland Manifestations of the Malden Plain, Southeast Missouri. In *Stability and Variation: the Late Woodland Southeast*, edited by Michael S. Nassaney and Charles R. Cobb, pp. 21-45. Plenum, New York.

Fehrenbacher, J. B., G. O. Walker, and H. L. Wascher
1967 *Soils of Illinois.* Bulletin 725. Agricultural Experiment Station, University of Illinois.

Fisk, H. N.
1944 *Geological Investigation of the Alluvial Valley of the Lower Mississippi River.* Mississippi River Commission Publication No. 52. United States Army Corps of Engineers, War Department, Washington, D.C.

Fortier, Andrew C., Thomas E. Emerson, and Fred A. Finney
1984 Early Woodland and Middle Woodland Periods. In *American Bottom Archaeology,* edited by Charles J. Bareis and James W. Porter, pp. 59-103. University of Illinois Press, Urbana.

Fortier, Andrew C., Thomas O. Maher, Joyce A. Williams, Michael C. Meinkoth, Kathryn E. Parker, and Lucretia S. Kelly
1989 *The Holding Site (11-Ms-118): a Hopewell Community in the American Bottom.* American Bottom Archaeology FAI-270 Site Reports Vol. 19. University of Illinois Press, Urbana.

Fowler, Melvin L.
1959 *Summary reports of Modoc Rock Shelter: 1952, 1953, 1955, 1956.* Reports of Investigations No. 8. Illinois State Museum, Springfield.

Green, William, and Robin M. Lillie
1994 *Archaeology and the Great Midwestern Floods of 1993.* Research Papers Vol. 19, No. 4. Office of the State Archaeologist, The University of Iowa, Iowa City.

Hargrave, Michael L.
1982 Woodland Ceramic Decoration, Form, and Chronometry in the Carrier Mills Archaeological District. In *The Carrier Mills Archaeological Project: Human Adaptation in the Saline Valley, Illinois,* edited by Richard W. Jefferies and Brian M. Butler, pp. 1233-1288. Research Paper No. 33. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

1992 The Ceramic Assemblage: Vessel Form, Decoration, and Regional Comparisons. In *The Petitt Site (11-Ax-253), Alexander County, Illinois,* edited by Paul A. Webb, pp. 125-182. Research Paper No. 58. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

1994 Regional Prehistory and Previous Research in Southeastern Illinois. In *Archaeological Investigations on the Bankston Fork of the Saline River: the Amax West Harrisburg Project,* edited by Michael L. Hargrave and Brian

M. Butler, pp. 32-39. Technical Report 1994-3. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Hargrave, Michael L. and Brian M. Butler
1993 Crab Orchard Settlement Patterns and Residential Mobility. *Illinois Archaeology* 5:181-192.

Hargrave, Michael L. and Brian M. Butler (editors)
1993 *Archaeological Investigations on the Bankston Fork of the Saline River: the Amax West Harrisburg Project.* Technical Report 1994-3. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Hargrave, Michael L., Brian M. Butler, and Timothy W. Pugh
1992 *Mollie Baker (11-J-964), a Woodland Period Site in the Kinkaid Creek Drainage, Jackson County, Illinois.* Manuscript on File 1992-3. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Hargrave, Michael L., Charles R. Cobb, and Paul A. Webb
1991 Late Prehistoric Ceramic Style Zones in Southern Illinois. In *Stability and Variation: the Late Woodland Southeast,* edited by Michael S. Nassaney and Charles R. Cobb, pp. 149-176. Plenum, New York.

Hargrave, Michael L., and Charles R. McGimsey
1990 *The Joppa S.E.G. Plant Rail Line Project: Archaeological Investigations at Six Multicomponent Sites Near Joppa, Massac County, Illinois.* Manuscript on File 1990-8. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Hofman, Jack L.
1980 Twenhafel Archaeology; 1958 Excavation in the Village Area (11Jv87) and a Preliminary Definitioin of Ceramic Phases. Ms. on file, Illinois State Museum, Springfield.

Jefferies, Richard W.
1982 Archaeological Overview of the Carrier Mills District. *In The Carrier Mills Archaeological Project: Human Adaptation in the Saline Valley, Illinois, edited by Richard W.* Jefferies and Brian M. Butler, pp. 1459-1509. Research Paper No. 33. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Jefferies, Richard W., and Brian M. Butler (editors)
1982 *The Carrier Mills Archaeological Project: Human Adaptation in the Saline Valley, Illinois.* Research Paper No. 33. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Justice, Noel D.
1987 *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States. A Modern Survey and Reference.* Indiana University Press, Bloomington, Indiana.

Kelly John E.
1991 Cahokia and Its Role as a Gateway Center in Interregional Exchange. In *Cahokia and the Hinterlands: Middle Mississippian Cultures of the Midwest*, edited by Thomas E. Emerson and R. Barry Lewis, pp. 61-82. University of Illinois Press, Urbana.

Kelly, John E., Fred A. Finney, Dale L. McElrath, and Steven J. Ozuk
1984 Late Woodland Period. In *American Bottom Archaeology*, edited by Charles J. Bareis and James W. Porter, pp. 104-127. University of Illinois Press, Urbana.

Koldehoff, Brad
1985 Southern Illinois Cherts: A Guide to Silicious Materials Exploited by Prehistoric Populations in Southern Illinois. Manuscript on file 1985-1986. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Knight, Francis R., and Brian M. Butler
1995 *Archaeological Survey on the Mississippi River Floodplain, Union County Conversation Area, Illinois: Results of the 1994 Southern Illinois University at Carbondale Field School Survey.* Technical Report 1995-3. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Knight, Francis R., Terrance J. Martin, J. Chris Richmond, Marjorie B. Schroeder, and Kenneth B. Tankersley
1992 *Archaeological Investigations at the Swimming Snake Site, Horseshoe Lake Conservation Area, Alexander County, Illinois.* Quaternary Studies Program Technical Report 91-594-1. Illinois State Museum, Springfield.

Kreisa, Paul P.
1987 Late Prehistoric Settlement Patterns in the Big Bottoms of Fulton County, Kentucky. In *Current Archaeological Research in Kentucky: Volume One*, edited by David Pollack, pp. 78-100. Kentucky Heritage Council.

Kreisa, Paul P. and Charles Stout
1991 Late Woodland Adaptations in the Mississippi and Ohio Rivers Confluence Region. In *Stability and Variation: the Late Woodland Southeast*, edited by Michael S. Nassaney and Charles R. Cobb, pp. 121-147. Plenum, New York.

Leighton, M. M., Ekblaw, George E., and Leland Horberg
1948 *Physiographic Divisions of Illinois.* Reports of Investigations No. 129. Illinois State Geological Survey, Urbana.

Leopold, Luna B., M. Gordon Wolman, and John P. Miller
1964 *Fluvial Processes in Geomorphology.* W.H. Freeman, San Francisco.

Lewis, R. Barry
1974 *Mississippian Exploitative Strategies: a Southeast Missouri Example.* Research Series No. 11. Missouri Archaeological Society, Columbia.

1982 *Excavations at Two Mississippian Hamlets in the Cairo Lowland of Southeast Missouri.* Special Publication No. 2. Illinois Archaeological Survey, Urbana.

1990 The Late Prehistory of the Ohio-Mississippi Confluence Region. In *Towns and Temples Along the Mississippi: Late Prehistoric and Early Historic Indians in the Memphis Area,* edited by David H. Dye and Cheryl A. Cox. University of Alabama Press, Tuscaloosa.

1991 The Early Mississippi Period in the Confluence Region and Its Northern Relationships. In *Cahokia and the Hinterlands: Middle Mississippian Cultures of the Midwest,* edited by Thomas E. Emerson and R. Barry Lewis, pp. 274-294. University of Illinois Press, Urbana.

Lewis, R. Barry, (editor)
1986 *Mississippian Towns of the Western Kentucky Border: The Adams, Wickliffe, and Sassafras Ridge Sites.* Kentucky Heritage Council, Frankfort.

Majewski, Teresita, and Michael J. O'Brien
1984 *An Analysis of Historic Ceramics from the Central Salt River Valley of Northeast Missouri.* Cannon Reservoir Human Ecology Project, Vol. 2. Publications in Archaeology No. 3. American Archaeology Division, Department of Anthropology, University of Missouri, Columbia.

Maxwell, Moreau S.
1951 *The Woodland Cultures of Southern Illinois: Archaeological Investigations in the Carbondale Area.* Logan Museum Publications in Anthropology, Bulletin No. 7, Beloit College, Beloit, Wisconsin.

May, Ernest E.
1982 Analysis of Carrier Mills Projectile Points. In *The Carrier Mills Archaeological Project: Human Adaptation in the Saline Valley, Illinois,* edited by Richard W. Jefferies and Brian M. Butler, pp. 1347-1379. Research Paper No. 33. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

1984 Prehistoric Chert Exploitation in the Shawnee Hills. *In Cultural Frontiers in the Upper Cache Valley, Illinois,* by Veletta Canouts, Ernest E. May, Neal H. Lopinot, and Jon D. Muller, pp. 68-91. Research Paper No. 16. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

McCorvie, Mary R.
1987 *The Davis, Baldridge, and Huggins Sites: Three Nineteenth Century Upland South Farmsteads in Perry County, Illinois.* Preservation Series 4, American Resources Group, Ltd., Carbondale.

McElrath, Dale L., Thomas E. Emerson, Andrew C. Fortier, and James L. Phillips
1984 Late Archaic Period. In *American Bottom Archaeology,* edited by Charles J. Bareis and James W. Porter, pp. 34-58. University of Illinois Press, Urbana.

McNerney, Michael J. (editor)
1975 *Archaeological Investigations in the Cedar Creek Reservoir, Jackson County, Illinois.* Southern Illinois Studies No. 12. Southern Illinois University Museum, Southern Illinois University at Carbondale.

Meltzer, David J., and Bruce D. Smith
1986 Paleoindian and Early Archaic Subsistence Stragegies in Eastern North America. In *Foraging, Collecting, and Harvesting: Archaic Period Subsistence and Settlement in the Eastern Woodlands,* edited by Sarah W. Neusius, pp. 3-31. Occasional Paper No. 6. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Merwin, Bruce W.
1935 An Aboriginal Village Site in Union County. *Journal of the Illinois State Historical Society* 28:78-92.

Milner, George, R., Thomas E. Emerson, Mark W. Mehrer, Joyce A. Williams, and Duane Esarey
1984 Mississippian and Oneota Periods. In *American Bottom Archaeology,* edited by Charles J. Bareis and James W. Porter, pp. 158-186. University of Illinois Press, Urbana.

Morrow, Carol A.
1988 *Chert Exploitation and Social Interaction in the Prehistoric Midwest, 200 B.C.-A.D. 600.* Ph. D. dissertation, Southern Illinois University at Carbondale. University Microfilms, Ann Arbor.

Morse, Dan F., and Phyliss A. Morse
1983 *Archaeology of the Central Mississippi Valley.* Academic Press, New York.

Muller Jon
1978 The Kincaid System: Mississippian Settlement in the Environs of a Large Site. In *Mississippian Settlement Patterns*, edited by Bruce R. Smith, pp. 269-292. Academic Press, New York.

1986 *Archaeology of the Lower Ohio River Valley*. Academic Press, New York.

Muller, Jon, and Jeanette E. Stephens
1991 Mississippian Sociocultural Adaptation. In *Cahokia and the Hinterlands: Middle Mississippian Cultures of the Midwest*, edited by Thomas E. Emerson and R. Barry Lewis, pp. 297-310. University of Illinois Press, Urbana.

Nance, Jack D.e
1984 Lithic Exploitation Studies in the Lower Tennessee-Cumberland Valleys, Western Kentucky. In *Prehistoric Chert Exploitation: Studies from the Midcontinent*, edited by Brian M. Butler and Ernest E. May, pp. 101-127. Occasional Paper No. 2, Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Naylor, Larry L.
1975 Project 19--An Archaeological Survey of the Confluence of the Ohio and Mississippi Rivers in Extreme Southern Illinois. In *Preliminary Report of 1974 Historic Sites Survey Archaeological Reconnaissance of Selected Areas in the State of Illinois: Part I, Summary Section B*. Illinois Archaeological Survey, Urbana.

Neumann, George K., and Melvin L. Fowler
1952 Hopewellian Sites in the Wabash Valley. *In Hopewellian Communities in Illinois, edited by Thorne Deuel*, pp. 175-248. Scientific Paper No. 5. Illinois State Museum, Springfield.

Parks, W. D., and J. B. Fehrenbacher
1968 *Soil Survey of Pulaski and Alexander Counties, Illinois*. U.S. Department of Agriculture Soil Conservation Service and Illinois Agricultural Experiment Station. U.S. Government Printing Office, Washington, D.C.

Parry, William J.
1992 Stone Tools and Debitage. In *The Petitt Site (11-Ax-253), Alexander County, Illinois*, edited by Paul A. Webb, pp. 231-260. Research Paper No. 58. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Peithman, Irvin
1951 The Archaeology of Southern Illinois: Part I. *Journal of the Illinois State Archaeological Society* 1(4):123, 124.

Phillips, Philip
1970 *Archaeological Survey in the Lower Yazoo Basin, Mississippi, 1949-1955. Part Two.* Papers of the Peabody Museum of Archaeology and Ethnology 60. Harvard University, Cambridge.

Powell, Terry J.
1981 Understanding Canning Jars. *In A Guide for Historical Archaeology in Illinois,* edited by Charles E. Orser, Jr., pp. 50-59. Research Paper No. 1. Mid-American Research Center, Loyola University of Chicago.

Price, Cynthia R.
1979 19th Century Ceramics in the Eastern Ozark Border Region. *Center for Archaeological Research Monograph Series No.* 1. Center for Archaeological Research, Southwest Missouri State University, Springfield, Missouri.

1981 Early to Mid-Nineteenth Century Refined Earthenwares. *In A Guide for Historical Archaeology in Illinois,* edited by Charles E. Orser, Jr., pp. 24-48. Research Paper No. 1. Mid-American Research Center, Loyola University of Chicago.

Price, James E.
1978 The Settlement Pattern of the Powers Phase. In *Mississippian Settlement Patterns,* edited by Bruce R. Smith, pp. 201-233. Academic Press, New York.

Pryor, W. A., and C. A. Ross
1962 Geology of the Illinois Parts of the Cairo, La Center, and Thebes Quadrangles. Circular 332. Illinois State Geological Survey, Urbana.

Rackerby, Frank E.
1974 Project 19--An Archaeological Survey of the Confluence of the Ohio and Mississippi Rivers in Extreme Southern Illinois. In *Preliminary Report of 1973 Historic Sites Survey Archaeological Reconnaissance of Selected Areas in the State of Illinois,* pp. 140-143. Illinois Archaeological Survey, Urbana.

Robison, Cathy A., and Brian M. Butler
1981 Archaeological Summary of the Southern Illinois Region. Manuscript on file, Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Sant, Mark B., Brian M. Butler, and Brad Koldehoff
1987 Chapter Twenty: The Lower Mississippi River Drainage Basin of Illinois. In *Cultural Resources Studies at Illinois Department of Conservation State Parks and Recreation Areas, Volume One: The 1985 Season,* edited by Harold Hassen and Marjorie B. Schroeder, pp. 501-548. Illinois State Museum. Springfield.

Santeford, Lawrence Gene
1981 Medicine Bottles: One Man's (or Woman's) Cure Becomes the Archaeologist's Tool. In *A Guide for Historical Archaeology in Illinois,* edited by Charles E. Orser, Jr., pp. 60-77. Research Paper No. 1. Mid-American Research Center, Loyola University of Chicago.

Santeford, Lawrence Gene and Neal H. Lopinot
1978 *Final Report on Archaeological Investigations at Frog City and Red Light: Two Middle Woodland Period Sites in Alexander County, Illinois.* Research Paper No. 6. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Saucier, Robert T.
1971 *Quaternary Geology of trhe Lower Mississippi Valley.* Research Series No. 6. Arkansas Archeological Survey, Fayetteville.

Schiffer, Michael B.
1975 An Alternative to Morse's Dalton Settlement Pattern Hypothesis. *Plains Anthropologist* 20:253-266.

Schwegman, John E.
1973 Comprehensive Plan for the Illinois Nature Preserves System, Part 2, *The Natural Divisions of Illinois.* Illinois Nature Preserves Commission, Rockford.

Shepard, Steven J.
1981 Nails, Buttons, Tobacco Pipes, and Dolls: Remnants of Historic Occupation. In *A Guide for Historical Archaeology in Illinois,* edited by Charles E. Orser, Jr., pp. 78-99. Research Paper No. 1. Mid-American Research Center, Loyola University of Chicago.

Simons, D. B., S. A. Schumm, and M. A. Stevens
1974 *Geomorphology of the Middle Mississippi River.* Contract Report Y-74-2. U.S. Army Engineer District, St. Louis, Missouri.

Smith, Bruce D.
1986 The Archaeology of the Southeastern United States: From Dalton to De Soto, 10,500-500 B.P. *Advances in World Archaeology* 5:1-92.

1987 The Independent Domestication of Indigenous Seed-Bearing Plants in Eastern North America. In *Emergent Horticultural Economies of the Eastern Woodlands,* edited by William F. Keegan, pp. 3-47. Occasional Paper No. 7. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Stephens, Jeanette E.
1991 Crab Orchard Settlement Patterns in the Big Muddy Drainage of Southern Illinois. Paper presented at the thirty-sixth annual Midwest Archaeological Conference, La Crosse.

1993 Prehistoric Settlement Patterns in Extreme Southwestern Illinois: A Survey of Dogtooth Bend on the Mississippi. Paper presented at the annual Illinois Archaeological Survey Workshop in Archaeology, Urbana.

1994a Near the Confluence: The Dogtooth Bend Mound Center and Its Settlement System. Paper presented at the joint meeting of the fifty-first annual Southeastern Archaeological Conference and the thirty-ninth annual Midwest Archaeological Conference, Lexington.

1994b Lithic Assemblages from the Funkhouser, Kottmeyer, and Wasson No. 1 Sites. In *Archaeological Investigations on the Bankston Fork of the Saline River: the Amax West Harrisburg Project*, edited by Michael L. Hargrave and Brian M. Butler, pp. 332-447. Technical Report 1994-3. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

1996 Archaeological Mitigation in a Residential Area at the Dogtooth Bend Mound Center (11-Ax-31) in Alexander County, Illinois. Center for Archaeological Investigations, Southern Illinois University at Carbondale. Report in preparation.

Stephens, Jeanette, E., Michael L. Hargrave, and Charles R. Cobb
1993 A Locational Analysis of Mississippian Mound Centers in Southwestern Illinois. Paper presented at the fifty-eighth annual meeting of the Society for American Archaeology, St. Louis.

Stewart-Abernathy, Leslie C.
1986 *The Moser Farmstead: Independent but not Isolated: the Archaeology of a Late Nineteenth Century Ozark Farmstead.* Research Series 26. Arkansas Archaeological Survey. Fayetteville, Arkansas.

Struever, Stuart
1964 The Hopewell Interaction Sphere in Riverine-Western Great Lakes Culture History. In *Hopewellian Studies*, edited by Joseph R. Caldwell and Robert L. Hall, pp 85-106, Scientific Paper 12. Illinois State Museum, Springfield.

Struever, Stuart, and Gail L. Houart
1972 An Analysis of ghe Hopewell Interaction Sphere. *In Social Exchange and Interaction*, edited by Edwin N. Wilmsen, pp. 47-79. Anthropological Paper 46. Museum of Anthropology, University of Michigan, Ann Arbor.

Styles, Bonnie W., Steven R. Ahler, and Melvin L. Fowler
1983 Modoc Rock Shelter Revisited. In *Archaic Hunters and Gatherers in the American Midwest*, edited by James L. Phillips and James A. Brown, pp. 261-297. Academic Press, New York.

Temple, Wayne C.
1966 *Indian Villages of the Illinois Country*. Illinois State Museum Scientific Papers, Vol. 2, Pt. 2. Springfield.

Terpening, V. A., L. J. Hunt, D. K. Evans, S. J. Bleiweiss, and R. C. Zoanetti
1974 *A Survey of the Fauna and Flora Occurring in the Mississippi River Floodplain Between St. Louis, Missouri, and Cairo, Illinois*. Contract Report Y-74-3. U.S. Army Engineer District, St. Louis.

Thomas, Cyrus
1894 Report on the Mound Explorations of the Bureau of American Ethnology. *Twelfth Annual Report of the Bureau of American Ethnology, for 1890-1891*. Smithsonian Institution, Washington, D. C.

Webb, Paul A. (editor)
1992 *The Petitt Site (11-Ax-253), Alexander County, Illinois*. Research Paper No. 58. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Webb, Paul A., Michael L. Hargrave, and Dennis B. Blanton
1989 *Archaeological Investigations in the Thebes Gap Vicinity, Alexander County, Illinois*. Research Paper No. 55. Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Wesler, Kit W.
1985 *Archaeological Excavations at Wickliffe Mounds, 15BA4: Mound F, Mound A Addendum, and Mitigation for the Great River Road Project, 1985 and 1986*. Wickliffe Mounds Research Center Report No. 2. Murray State University, Wickliffe, Kentucky.

1991 Ceramics, Chronology, and Horizon Markers at Wickliffe Mounds. *American Antiquity* 56:278-290.

Wiant, Michael D., Edwin R. Hajic, and Thomas R. Styles
1983 Napoleon Hollow and Koster Site Stratigraphy: Implications for Holocene Landscape Evolution and Studies of Archaic Period Settlement Patterns in the Lower Illinois River Valley. In *Archaic Hunters and Gatherers in the American Midwest*, edited by James L. Phillips and James A. Brown, pp. 147-164. Academic Press, New York.

Williams, J. Raymond
1974 The Baytown Phases in the Cairo Lowland of Southeast Missouri. *The Missouri Archaeologist* 36.

Williams, Stephen
1985 The Vacant Quarter and Other Late Events in the Lower Valley. Paper presented at the forty-second annual meeting of the Southeastern Archaeological Conference, Birmingham.

Winters, Howard D.
1967 *An Archaeological Survey of the Wabash Valley in Illinois*. Reports of Investigations No. 10. Illinois State Museum, Springfield.

1969 *The Riverton Culture*. Reports of Investigations No. 13. Illinois State Museum, Springfield.

n.d. Progress Report on the Cache River Valley Project. Ms. on file, Center for Archaeological Investigations, Southern Illinois University at Carbondale.

Plates

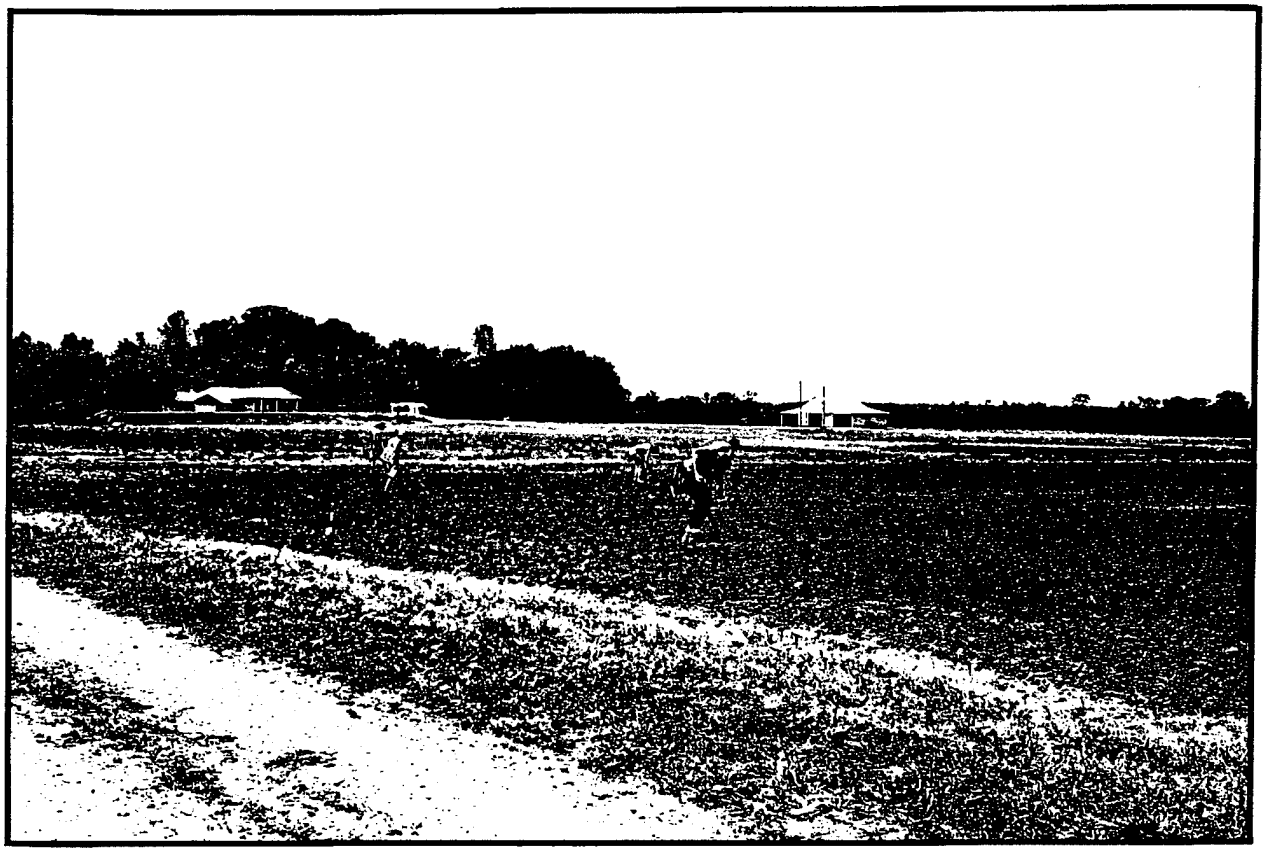


Plate 1. Surface collecting at the Dogtooth Bend Mound Center (24D3-13, IAS 11-Ax-31), Tract DBS-106.

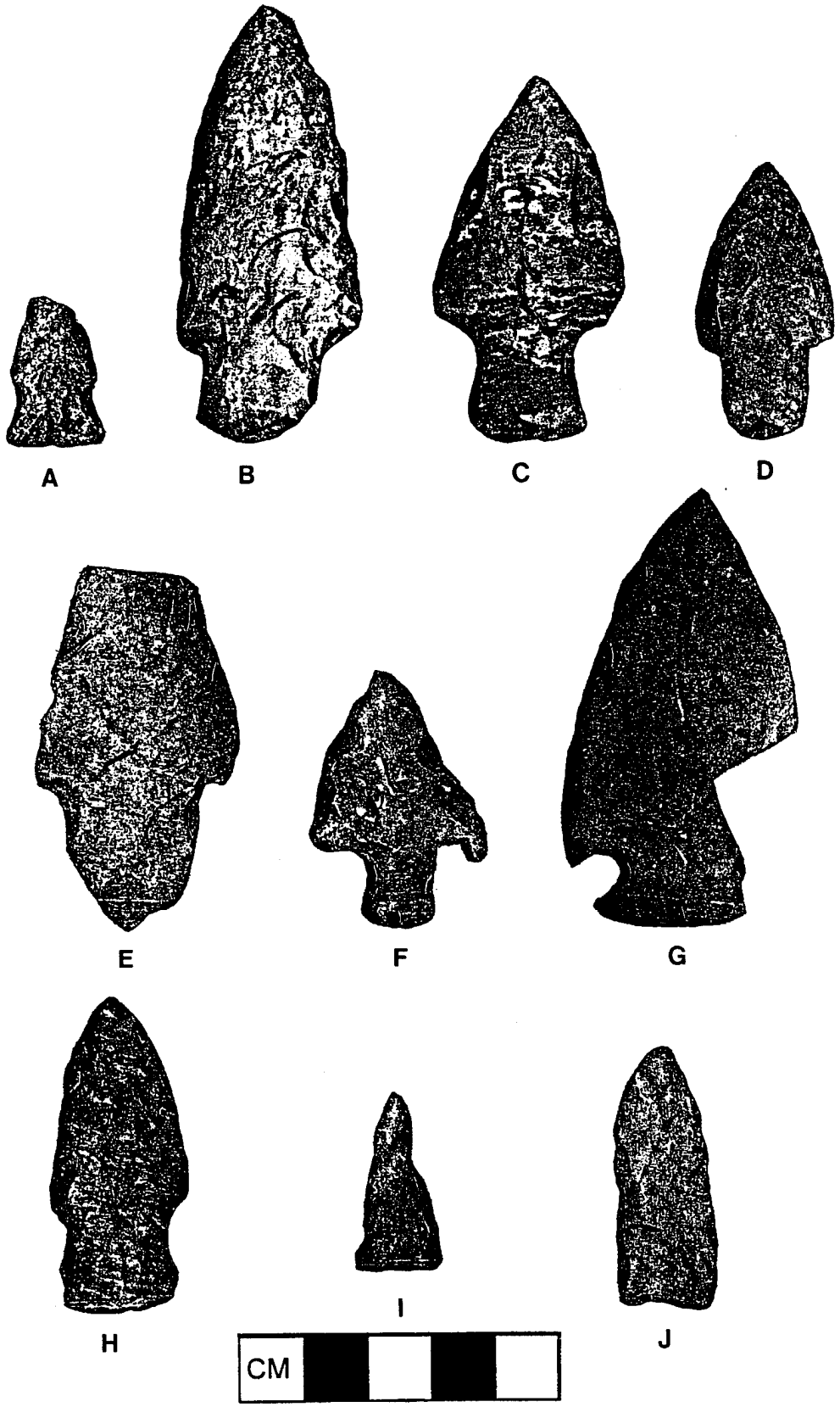


Plate 2. Hafted bifaces from selected Dogtooth Bend Survey archaeological sites (artifact key, next page).

Plate 2. Hafted bifaces from selected Dogtooth Bend Survey archaeological sites (artifact key, next page).

A. Matanzas point, late Middle Archaic, site 24D3-285
B. Etley point, Late Archaic, site 24D3-251
C. Saratoga Straight Stemmed point, Late Archaic/Early Woodland, site 24D3-283
D. Cypress Straight Stemmed point, Early Woodland, site 24D3-268 Area B
E. Adena point, Early Woodland, site 24D3-288C
F. Motley point, Early Woodland, site 24D3-272
G. Snyders point, Middle Woodland, site 24D3-50 Area G
H. Lowe Flare Based point, Late Woodland, site 24D3-289
I. Madison point, Emergent Mississipian/Mississippian, site 24D3-67
J. Madison point, Emergent Mississippian/Mississippian, site 24D3-335

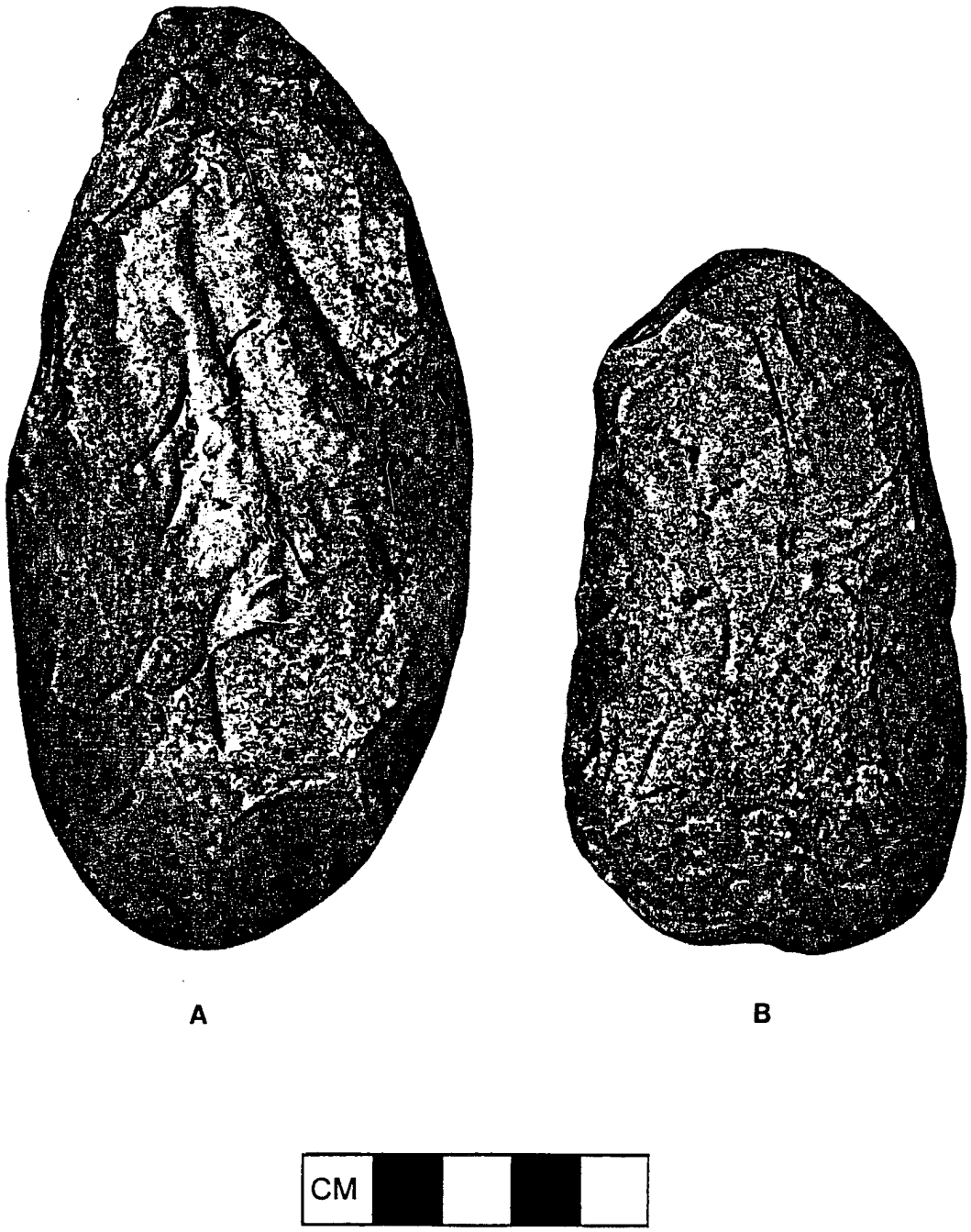


Plate 3. Mill Creek hoes from sites (A) 24D3-323, Area B, and (B) 24D3-291.

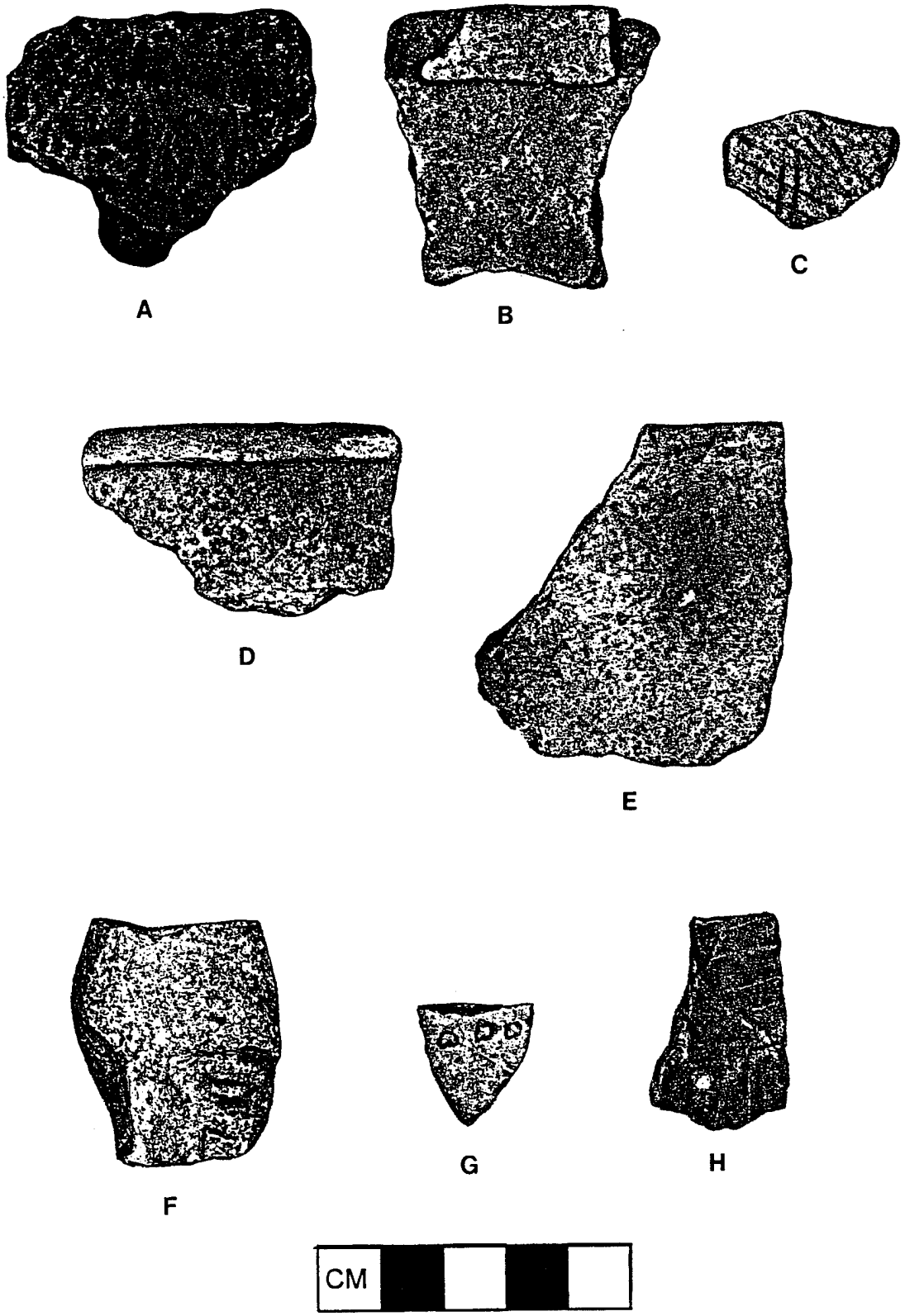


Plate 4. Prehistoric ceramics from selected Dogtooth Bend Survey archaeological sites (artifact key, next page).

Plate 4. Prehistoric ceramics from selected Dogtooth Bend Survey archaeological sites (artifact key, next page).

A. Baumer/Crab Orchard sherd, Middle Woodland, site 24D3-50 Area G
B. Dillinger rim sherd, Emergent Mississippian, site 24D3-50 Area G
C. Dillinger sherd, Emergent Mississippian, site 24D3-265 Area A
D. Mississippi Plain everted rim sherd, Mississippian, site 24D3-13, Tract DBS-104 Area D
E. Mississippi Plain jar rim sherd, Mississippian, site 24D3-13, Tract DBS-104 Area B
F. Human-effigy waterbottle sherd, Mississippian, site 24D3-13, Tract DBS-104 Area H
G. Matthews Incised, *var. Manley* sherd, Mississippian, site 24D3-13, Tract DBS-104 Area D
H. O'Byam Incised sherd, Mississippian, site 24D3-13, Tract DBS-104 Area A