

OZARK NATIONAL SCENIC RIVERWAYS

ARCHEOLOGICAL TEST EXCAVATIONS

An Evaluation of Three Archeological Sites in the Ozark National Scenic Riverways

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Abstract

Archeological testing by the Midwest Archeological Center was initiated in 1979 and 1980 at three sites in the Ozark National Scenic Riverways. Increasing demands for visitor facilities have resulted in plans to construct vault toilets on or near 23SH94 and 23SH106, and a maintenance structure at 23SH93. The archeological testing at these sites was undertaken to determine the size, depth and content of the cultural deposit, and to evaluate the potential of the site to contribute toward the solution of significant research concerns. All three of the sites appear to be in similar geomorphologic settings, and testing revealed that organic preservation is poor at each of the sites. Recent historic land-use practices have greatly disturbed the archeological context of sites 23SH93 and 23SH106, and they are evaluated to be not significant. Similar testing at 23SH94 has shown that the site retains contextual integrity, and appears to represent an intermittantly occupied campsite dating to the Late Archaic period. This site is believed to be significant, and it is recommended for nomination to the National Register of Historic Places. Recommendations about the treatment of these archeological resources are offered.

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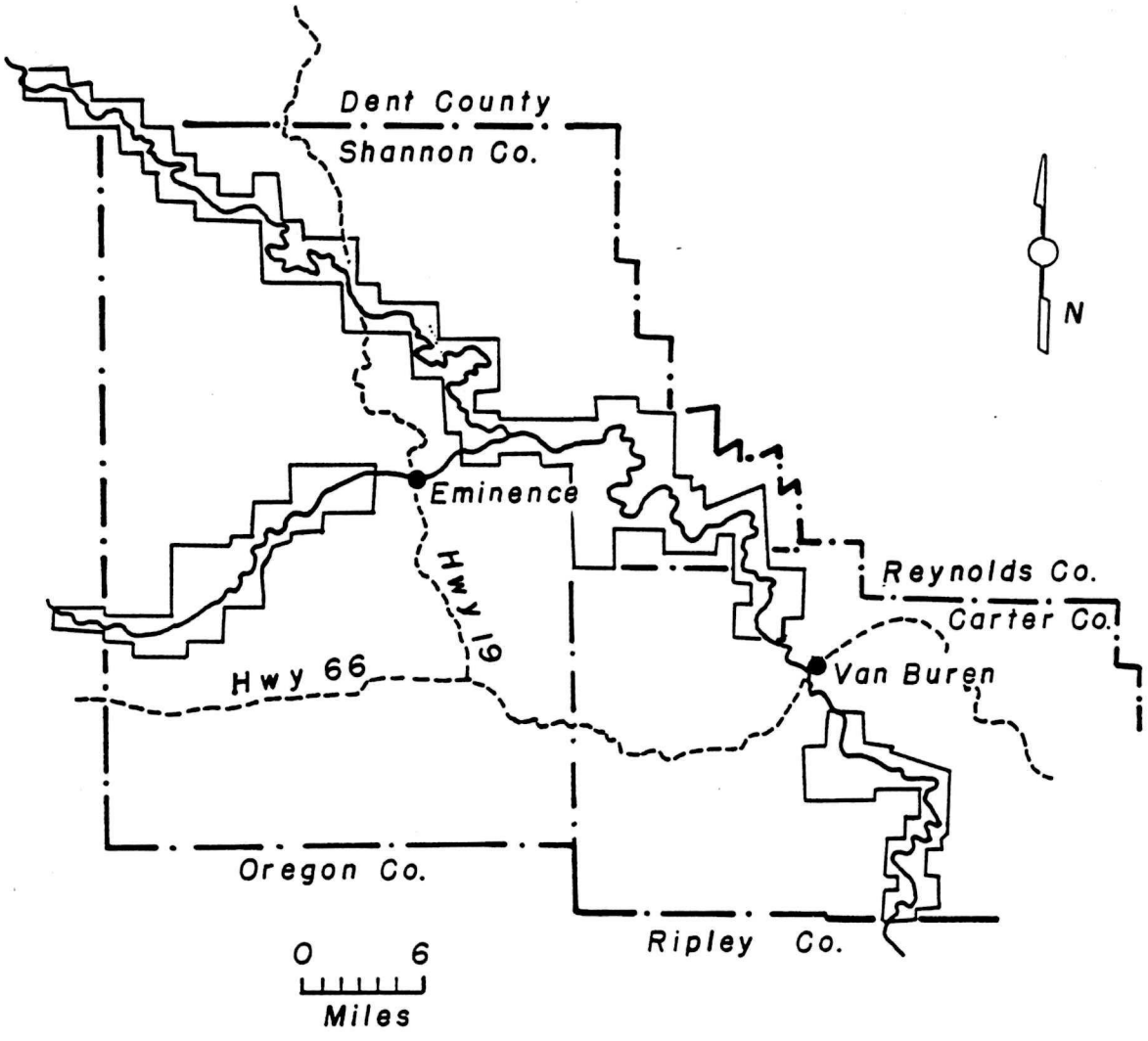
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I. Introduction

The Ozark National Scenic Riverways is located in southeast Missouri approximately 175 miles south of St. Louis and 250 miles southeast of Kansas City (Figure 1). The park is situated along the Current and Jacks Fork Rivers in Carter, Shannon, Texas and Dent Counties. Encompassing 134 miles of riverway, the park is noted for its large springs, numerous caves and beautiful Ozark scenery. Since it was authorized in 1964, the Ozark National Scenic Riverways has become very popular for floating the rivers in canoes or inner tubes. The popularity of the park has resulted in large visitation rates, particularly during the summer season.

To meet the health and safety needs of visitors to the park, the National Park Service is considering the development of selected features to serve the visitors. The Park is considering construction of a vault toilet in the group 3-4 campground at Pulltite, another vault toilet near the canoe landing at Akers Ferry, and a maintenance structure near the sewage treatment lagoon in the Alley Spring area. After potential construction sites were selected by the park, each of the areas were examined by one or more archeologists from the Midwest Archeological Center. Archeological remains were found at each of these locations. In keeping with National Historic preservation legislation and National Park Service policy, each of the archeological sites which were located have subsequently been investigated with the purpose of evaluating the preservation and content of the cultural deposits. This information is incorporated in this report to produce recommendations about the potential significance of the sites as it relates to their potential eligibility for the National Register of Historic Places.





OZARK NATIONAL
SCENIC RIVERWAYS

FIGURE 1

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a. Archeology and Historic Preservation Law

Since its establishment in 1916, the National Park Service has been the nation's major preservation agency. In addition to a long history of natural resource preservation, the National Park Service has also vigorously participated in the preservation of cultural resources. With the growing threat to cultural resources in the United States, it is essential that the National Park Service maintain a prominent role in the management and preservation of archeological resources.

The tremendous impact of land modification for highways, agriculture, reservoirs and urban growth is gradually reducing the number and quality of archeological sites. In some areas, it has been estimated that 25% of the archeological sites were destroyed in a recent ten-year period (McGimsey 1972). In most areas, archeologists believe that at the current rate of destruction, investigation of intact archeological sites will only continue for another 20-40 years. Thus, only those archeological sites which are actively preserved are likely to survive for study by future generations of archeologists and the appreciation of the public. Through a variety of Federal laws and implementation of National Park Service policy, areas within the National Park System may be considered archeological preserves. The National Park Service areas represent some of the few places where active preservation of archeological resources is possible.

The philosophy of archeological conservation is derived from the recognition that archeological resources are finite and non-renewable. There are a fixed number of sites, and once these have been altered or destroyed, they cannot be replaced. Thus, loss of an archeological site is equivalent to losing the only copy of an important book. As finite and non-renewable

resources, archeological sites are best managed through preservation, avoidance, or mitigation of impact. Active preservation of sites is preferred, avoidance of threatened sites is encouraged and salvage or some other mitigatory activity is conducted as the last resort.

The principles of archeological conservation are derived from a relatively large body of Federal legislation. In concert with local and State legislation, guidelines for implementation of Federal historic preservation legislation have created a working system that insures that concern for the national heritage is incorporated into the Federal planning process. The legislative mandates discussed below represent official recognition of public concern for the management and protection of archeological resources.

The Antiquities Act of 1906 was the first law designed to protect archeological remains on public lands. The act made it illegal to destroy, disturb or remove antiquities from Federal lands, and provided a punishment of up to a five hundred dollar fine, imprisonment of up to ninety days, or both. The act also provided the President with the authority to designate National Monuments and provided a permit system for study of archeological sites on public lands. Recent judicial confusion about the meaning of the term "antiquity" and law enforcement concern about the minimal penalties imposed by the 1906 Act have led archeologists to propose more contemporary legislation (Collins and Green 1978).

The establishment of the National Park Service in 1916 (39 Stat. 535) authorized the protection of historical as well as natural resources within the National Park System. The responsibility of the National Park Service to cultural resources was enlarged by the Historic Sites Act of 1935. This law stated that it is National policy to preserve for public use historic sites, buildings and objects of National significance. The Secretary of

Interior was authorized through the National Park Service to investigate historic and archeological sites, evaluate the significance of historic properties, and obtain sites of significance by gift, purchase or other means. The Act empowers the National Park Service to restore, reconstruct, rehabilitate, preserve and maintain significant cultural resources for public benefit. The Historic Sites Act of 1935 declares that it is "national policy to preserve for public use historic sites, buildings and objects of national significance for the inspiration and benefit of the people of the United States." The act became the authority for the development of National Park Service archeological programs.

The role of the National Park Service in managing cultural resources became even greater at the end of World War II. Recognizing that a large part of the nation's archeological record would be destroyed by the ambitious post-war reservoir construction program, the Committee for the Recovery of Archeological Remains in cooperation with the National Park Service and the Smithsonian Institute organized the River Basin Surveys (Brew 1961). Initially the role of the Park Service was largely administrative, but as the program developed, the National Park Service's involvement in archeological salvage research increased. The Reservoir Salvage Act of 1960 provided official authority for the River Basin Surveys program.

During the last 15 years, the emphasis of historic preservation has shifted from preconstruction salvage to planning and resource preservation. This change in orientation has been a product of public concern for archeological and historical resources, which has ultimately been reflected in the passage of several important laws and the issuance of executive directives.

The National Historic Preservation Act of 1966 is the foundation of current historic preservation policy, and provides the Secretary of the Interior with the authority to expand and maintain a National Register of "districts, sites, buildings, structures and objects significant in American history, architecture, archeology, and culture" (Public Law 89-665; Section 101:a:1). The law provides protection for National Register properties which will be adversely affected by actions sponsored totally or in part by the Federal government, and authorizes a program of matching grants to state historic preservation projects. The act provides for the establishment of an Advisory Council on Historic Preservation, and Section 106 of the act provides an opportunity for the Advisory Council to comment upon any project sponsored by a Federal agency which may impact a National Register property. This law is particularly important to management of archeological resources in the National Parks, because it directs the Service to take positive action to preserve sites and avoid or mitigate impacts which threaten sites located in the Parks.

The National Environmental Policy Act of 1969 provides a mandate for assessment of environmental impacts of proposed Federal action prior to initiation of a project. The Council on Environmental Quality authorized by the act is intended to advise the President on the status and condition of natural and cultural resources. The environmental assessment required by the Act includes an archeological assessment of any resources to be affected by a proposed project. In the National Parks, any construction or land modification should be preceded by an archeological assessement of resources likely to be affected by the project.

Executive Order 11593 instructed all Federal land managing agencies to inventory and evaluate archeological resources under their control.

To date, few Federal agencies have complied fully with this directive. The National Park Service is no exception. A complete inventory and assessment in any of the larger parks will be very expensive and legislative appropriations are sufficient to only achieve partial compliance at this time. The importance of an inventory and evaluation of cultural resources on Federal lands has recently been reinforced by the passage of the National Historic Preservation Act Amendments of 1980 (P.L. 96-515), which incorporates the inventory and evaluation directives of E.O. 11593 into law.

The previously mentioned concerns about the judicial weaknesses of the Antiquities Act of 1906 were alleviated in 1979 with the passage of the Archeological Resources Protection Act. The law provides strict criminal and civil punishment for actions which damage or destroy archeological remains on Federal lands. The Act also recognizes that archeological remains are vulnerable, non-renewable, and threatened. Of particular significance, the law encourages the cooperation of Federal agencies, professional archeologists, and private citizens in sharing information that will result in a more complete understanding of the archeological record.

This combined body of historic preservation legislation directs the National Park Service to plan for the protection of cultural resources in their care. Wise management of archeological resources requires the collection of data pertaining to the cultural resources base. The Midwest Archeological Center is actively involved in research at the Ozark National Scenic Riverways with the goal of acquiring useful information that will benefit the management of archeological resources in the park. The research reported here is intended to serve as an evaluation of three sites which may be adversely affected by proposed construction.

b. Previous Investigations

Archeological investigations in the upper Current River drainage are a relatively recent phenomenon. Many sites in the Mississippi alluvial valley in southeast Missouri were studied during the late nineteenth and early twentieth centuries, but the heavy vegetation and rugged terrain in the eastern Ozarks served as a deterrent to systematic study. Most early archeological data was derived from local farmers. Houck (1908) reports the presence of 189 sites in Carter county and 81 sites in Shannon County. Some of these sites are likely to be in the Ozark National Scenic Riverways, but precise locational data for individual sites is not available.

Prehistoric occupation of caves and rockshelters in the Ozark region has been recognized by professional archeologists for quite some time. Most noticable is the work of Harrington (1924; 1960) in sites attributed to the Ozark Bluff Dweller culture in southwest Missouri and northwest Arkansas. Fowke (1922) visited several caves in the upper Current River area as part of a regional study of caves in central Missouri, including Bat Cave, Fishing Cave, Welch's Cave and Big Creek Cave. No archeological remains were noted in any of these caves.

The majority of archeological data pertaining to the upper Current River prior to 1960 was a result of amateur archeological investigations. Leo Anderson of Van Buren and A.A. Seamon of Alley actively recorded sites in Carter and Shannon Counties. Particularly important during this period is a report of 136 prehistoric sites in Carter County by James L. Lowe (1940). The amateur archeological contribution to the study of Ozark archeology is significant and provided considerable background for later studies by professional archeologists.

During the late 1950's and early 1960's, sporadic archeological investigations at Round Spring State Park were conducted as burials were exposed by erosion or construction. In 1948, Mr. Manuel Banks, Superintendent of Round Spring State Park exposed a burial in an extended supine position near the lip of the sinkhole. A shell tempered elbow pipe and oval flint biface were associated with the burial. Mr. Leo Anderson visited the site and sent the skeletal material to the University of Missouri - Columbia. In 1959, a cache of flint blades and an extended burial associated with a shell tempered ceramic vessel were excavated (Haslag 1959). In 1964, another eroding burial was excavated (Bray 1964). The individual was buried in a fully extended, prone position and seemed to represent a sub-adult. The burial was made in midden deposits relating to Woodland occupation of the spring site, but was interpretted as relating to Mississippian culture. In 1966, James E. Price and Wayne Shields visited the site after a major flood. They made a large surface collection and excavated another burial.

Initial study of the Ozark National Scenic Riverways was initiated in the early 1960's. Chapman (1960) provided an overview of the archeology in the upper Current and Eleven Point River valleys and reported the presence of 45 sites. Most of these sites are located in the Current River drainage and were recorded by members of the Missouri Archaeological Society.

Following the authorization of the Ozark National Scenic Riverways in 1964, archeological investigations focused on development areas where construction was planned. Williams (1968) did a surface reconnaissance of the Owls Bend area and described a collection from 23SH10. More intensive survey of the Alley Spring area resulted in the recording of six sites, and testing indicated that the sites were occupied primarily during the Archaic and Woodland stages (Born and Chapman 1972). Archeological survey

and testing in the Round Spring, Big Spring and Owls Bend areas of the park provided data on 16 additional sites (Garrison et al 1976). These pre-construction studies were funded by contracts with the National Park Service.

In 1971, the University of Michigan conducted archeological excavations at the Gooseneck site. The investigations were conducted under an Antiquities Permit from the U.S. Forest Service, which managed the site at that time. Results of the investigation have not yet been fully reported, but data from the study have been reported in several papers (Smith 1971, 1974).

The Midwest Archeological Center became involved in the archeology of Ozark National Scenic Riverways in 1974, when non-NPS archeological services were transferred to the Interagency Archeological Service. Since then, archeologists from the Midwest Archeological Center have conducted several pre-construction surveys. Most of these were of limited scope and have produced negative findings. A notable exception is a study of the Akers Ferry area identifying two rock cairn sites and a large terrace site (Nickel 1975).

The participation of amateur archeologists in the study of upper Current River archeology was renewed in 1978 with the publication of Indians of the Upper Current River by Alan Banks. The book describes the author's research in Shannon County, and illustrates a large number of private collections.

Underwater survey of Round Spring and Alley Spring as part of an innundation experiment by the National Reservoir Innundation Study resulted in the recording of 23SH96 in the grotto at Round Spring (Carroll, May and Garrison 1980). This study and the inventory of caves in the park (Aley 1980, 1981) provide data about prehistoric occupation of cave environments in the Current River area.

Most recently, southwest Missouri State University has conducted pre-construction investigations in the park (C. Price 1980). They are also involved in an ongoing study of the site of Old Eminence, the original county seat of Shannon County (C. Price 1981).

c. Research Plan

The three sites which are reported here were first discovered during the period between September 1978 and October 1979. In each case, the site was recognizable only in areas where vegetation was minimized by development or erosion. The lush vegetation of the eastern Ozarks served to hamper site identification, so little was known about the sites other than their approximate locations (Figure 2). The evaluation of the sites was undertaken with several goals in mind. These goals represent a combination of cultural resources management and regional research concerns.

The initial goal of field investigations at each site was determination of the physical dimensions of the archeological site deposit. The size and depth of the site is relevant to the interpretation of past activities, and this dimensional information is critical for the selection of wise management strategies pertaining to the site. Archeological resources are manageable when the nature and location of the resource is known.

Beyond determining the size of the three archeological sites, the project was designed to collect information pertaining to the context and preservation of the archeological site deposits. It is important to determine whether the cultural remains at the site are currently in a context that relates to the prehistoric occupation of the site, or whether natural or cultural forces have subsequently altered and disturbed the context of the site. Sites which are found in an archeological context (Schiffer 1972) are more easily interpretted than are sites which have been greatly disturbed. Evaluation of the site deposits also requires an assessment of the preservation of organic remains at the sites. Many contemporary research concerns in archeology are most easily addressed through systematic recovery of organic remains, such as mammal bones or fossil pollen. The presence or absence of these kinds of information relates directly to assessments of site significance,

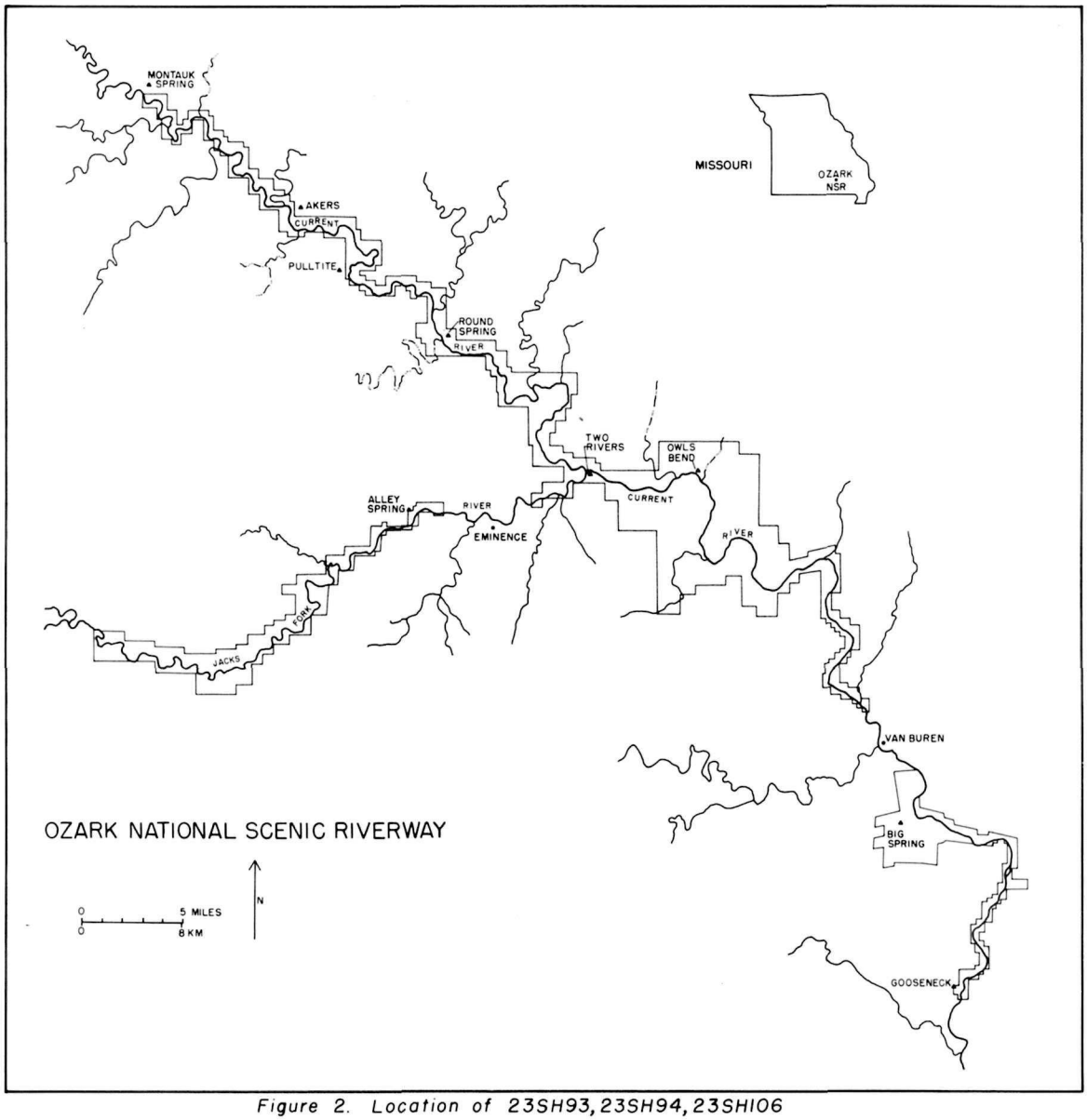


Figure 2. Location of 23SH93, 23SH94, 23SH106

and the investigations reported here were designed to evaluate whether these types of data are preserved.

The investigation of these three sites could not be justified if the information to be gathered did not contribute in some way to the understanding of the archeological record. The investigations reported here were designed to gather data which might reflect upon 1) the temporal position of the sites in the eastern Ozarks archeological record, and 2) the general nature of the activities which were conducted at the site. An estimation of the temporal periods in which each site was occupied is the first step in placing the sites in a culture historical framework for the eastern Ozarks. Once the temporal parameters of site occupation are established, the nature of past cultural activities at the site might be investigated. An understanding of the functional and temporal occupation of the sites might then contribute to a regional understanding of changing adaptive patterns in the eastern Ozarks.

Since each of the three sites is unique, field research strategies were tailored for individual sites. A description of site specific research strategies is presented in chapters 7, 8 and 9. Before considering the data pertaining to individual sites, it may be useful to consider the natural and cultural environment of the eastern Ozark region.

II. Natural Environment

The Ozark plateau is located in Missouri, Arkansas, Oklahoma and Illinois. It is distinguished from the surrounding area by its generally greater elevation and associated greater topographic relief. The Ozarks are a broad asymetric dome with a general accordance of summit levels believed to represent an ancient peneplain surface. The eastern margin is characterized by a relatively steep escarpment, but in the north and west the flanks are more gently sloping. The climate of the Ozark region is characterized by hot and humid summers and mild winters. The steep hills and valleys of the Ozark region are usually forested, with small prairies and open woodlands in the undissected upland plateau zones. Geological formations form the basis for widespread karst topography in much of the area. The Ozark highlands of Missouri consist of eight geographic provinces (Sauer 1920: 61-70). The majority of the Ozark National Scenic Riverways is located within the Courtois Hills province, but a small area of the park in the upper Jacks Fork drainage in Texas County is located in the Central Plateau province.

The Ozark region is a diverse area with a wide range of natural resources. A complete description of the natural environment is well beyond the scope of this report. The discussion which follows provides a brief introduction about those aspects of the natural environments which relate most directly to past patterns of human adaptation in the eastern Ozark region. The discussion includes remarks about climate, topography, geology and soils, hydrology, botanic and zoologic resources. The description of each of these aspects of the natural environment is oriented toward the late prehistoric and early historic period and is generated from historic studies and observations of the natural environment. The chapter concludes with a consideration of changes in past environmental conditions based upon paleoecological studies of the Ozark region.

a. Climate

The climate of the eastern Ozarks is continental, with hot summers and mild winters. The average annual temperature for the region is 56.8 degrees (U.S. Weather Bureau 1963), with considerable annual variation in temperature. Average daily high temperatures in summer are about 85°, while average daily high temperatures in winter are about 40° (Sauer 1920). Winter temperatures are particularly variable, with changes being related to storm systems and upper air patterns. Average daily low temperatures during winter months are sufficiently cold for humans to require some form of shelter. This is particularly true of Ozark valleys, where cold air is likely to settle during the night.

Prevailing winds are out of the south and a shift to winds out of the west or northwest usually signals a change in weather patterns. Most storms come from the northwest, particularly in winter. The Ozark area is frequently subject to cyclones and anticyclones moving southeast across the central pains from the Rocky Mountains (Sauer 1920).

Average annual precipitation is about 43-44 inches (National Park Service n.d.). Most precipitation falls as rain, but winter snow accumulations of 16 inches are common (Sauer 1920). Most rain falls in spring and early summer. Fall is usually dry, but sleet is relatively common during the winter months, making travel in the hill country particularly hazardous.

In terms of human adaptation, several climatic conditions are particularly important. Although prolonged cold periods are rare, winter temperatures are sufficiently cold to require some form of shelter for human survival. The area enjoys 190-200 frost-free days in an average year. This is an adequate growing season for most horticultural crops. Rainfall is generally adequate to support local agriculture without irrigation, but historic draughts

have recorded severly reduced yields (Sauer 1920). Irregular precipitation during growing seasons may severly limit the agricultural potential of the area during dry years.

b. Topography

The Ozark National Scenic Riverways is located mainly in the Courtois Hills province of the Ozarks (Sauer 1920: 68). A small area of the park in the upper Jacks Fork basin is located within the Central Plateau province, but the majority of the Current River is related to the Courtois Hills. The Courtois Hills are associated with the major area of Gasconade-Potosi limestone outcroppings. Indeed, the topography of the entire region is largely related to local geological conditions.

The Courtois Hills province consists mainly of steep hills and narrow ridges. Timber is the principal resource of the area; mineral and agricultural potential being particularly limited (Sauer 1920: 68). The best farming conditions are associated with the river valleys. The wider bottoms of major rivers are the most desirable agricultural lands in the province, and it is most likely that these areas were given high priority by early 19th century settlers. The steep hills and narrow ridges make cross country travel difficult, even in areas where roads are present.

The rough topographic conditions have served to isolate the area from outside influence. The Courtois Hills was one of the last areas of Missouri to be settled, and the wooded hollows have been a natural haven for outlaws and fugitives (Oakley 1970). During the war of the rebellion, the area suffered greatly from the destructive forces of guerrilla warfare. The rough topography limited major military movements to the few main roads in the state, and subsequently eliminated the Courtois Hills province from any major military encounters.

c. Hydrology

One of the more noteable characteristics of the Ozark region is the large number of beautiful springs that issue from underground drainage systems. Although springs are present in all areas of Missouri, they are most plentiful in the Ozark region. The large subsurface dolomite formations which form the Ozark highland provide a massive storage system for underground water, and the karst conditions which form caves in the dolomite also permit the formation of spring systems. The springs of the Ozarks are a network of underground drainages which move water along systems of faults, fractures and solution cavities in the dolomite.

The Salem Plateau, which includes the Ozark National Scenic Riverways, is the largest concentration of major permanent springs in Missouri (Vineyard and Feder 1974). Big, Blue, Alley, Welch and Round Spring rank among the largest springs in Missouri in terms of average daily flow. At least 27 large springs are present in the park: details about individual springs are provided by Vineyard and Feder (1974).

In addition to the underground drainage system, the Ozark region is recognized for its numerous and beautiful surface streams. Many of the surface streams are spring-fed, and some disappear into sinks and become underground streams. The relationship of surface and subsurface drainage systems is complex. Larger springs may drain huge areas, including areas underlying other surface drainage systems. Water tracing experiments demonstrate that Big Spring drains a large area to the west of the Current River, including parts of the Eleven Point drainage in Shannon, Oregon and Howell County (Vineyard and Feder 1974: 86-87). Similar drainage situations are likely for other major springs.

The year around availability of clean water in the Ozarks is important to human occupation of the area. The numerous springs and streams provide ample local water supplies. The regularity of available water made it possible for man to settle in a place and remain there throughout the year without developing systems to transport water. In many areas of North America, permanent water is available only along major riverways. In the Ozarks, permanent or regular springs are present in many small valleys, making water availability a less important concern in choosing a habitation site. The regular flow of streams and springs in the Ozarks makes the area attractive for development of small milling operations. This is particularly important to the historic development of the region, when several types of mills were in operation in the upper Current River valley.

d. Geology and Soils

The geology of the Ozark National Scenic Riverways has not been intensively studied. This description was developed from Branson (1944), Bridge (1930), and Bretz (1965).

The Ozark region is developed upon Pre-Cambrian volcanic deposits that represent one of the oldest land surfaces in North America. Principally composed of granite and rhyolitic porphyries, some of the Pre-Cambrian deposits show evidence of originating as lava flows. These early formations are deeply buried in the area of the Ozark National Scenic Riverways and are only exposed in deep well corings.

The Pre-Cambrian deposits are overlain by dolomites of Upper Cambrian age. An erosional epoch of unknown duration removed evidence of the Lower Cambrian. The Upper Cambrian is composed of two formations. The Potosi is a thick bedded crystalline dolomite containing large quantities of quartz, chalcedony and chert. The Eminence formation is mainly dolomite with some

shale and sandstone beds. Chert is abundant within this formation.

The Upper Cambrian is overlain by a series of Ordovician sedimentary formations. The earliest of these is the Gunter sandstone. This is highly variable in composition, and represents an important aquifer that was once the shoreline of an ancient sea. The Van Buren dolomite overlies the Gunter sandstone. This formation is well bedded and contains high quality vitreous white chert. Above the Van Buren formation is the Gasconade dolomite, which is light gray in color and also contains abundant chert. Above this formation are a series of interbedded sandstones and dolomites. The upper formation in the Ordovician series is the Cotter-Jefferson City formation, a series of limestone and sandstone beds. This formation is important because it is the source of cotton rock (argillaceous siliceous dolomite) in the area.

The geology of the Current River area is important to the interpretation of the archeological record for three reasons. As the foundation for local topography and the source material for local soils, the geology of the Current River valley has had a major impact on movement of people and agricultural potential of the region. The steep hills and deep valleys were a deterent to road and railroad construction in the 19th century, and thus had a major impact on the history of the area. The soils which are developed on the local geological formations are shallow and very rocky on hills, ridges and hillsides, making agriculture ineffective. The deeper and more fertile soils of the bottomlands were more attractive for agriculture, and early historic settlements of the region concentrated in these areas. These valley soils may have attracted prehistoric agriculturalists to some degree also.

The calcareous and soluble dolomites combined with the permeable sandstone aquifers of the region have produced a vast network of underground caverns. Many of these contain major underground streams and are the source of the numerous springs in the area. Other caverns are dry and may have served

as shelter for prehistoric and historic inhabitants. It is likely that the distribution of springs and caves has had some impact on the distribution of population during both the prehistoric and historic periods.

The abundance of local cherts in the many dolomites and limestones in the area were an important resource during the prehistoric period. Since this resource is abundant throughout the area, it is unlikely that it was an important consideration in the selection of camp or village sites. High quality chert is not available in all areas of the eastern United States. This is particularly true of the lowland areas of the Mississippi valley. It is possible that good quality chert from the Ozark region was procured by inhabitants of the Mississippi valley through short-term excursions into the highlands or by trade with the highland peoples.

It seems highly likely that the geology and soils of the Current River area have had an impact on the configuration and nature of settlement in the area during the prehistoric and historic periods. The steep hills and ridges served as barriers for movement of people, goods and ideas and are largely responsible for the backward image of the Ozarks. The generally poor agricultural soils also served as a deterrent to historic settlement, and the more fertile bottomland zones were important to historic agriculture and possibly prehistoric agriculture as well. The abundant chert resources in the area are so widespread that it is unlikely that availability of chert had any effect on the location of camps and villages during the prehistoric period.

e. Vegetation

The natural vegetation of the eastern Ozark region is the oak-hickory forest, which includes areas of mixed deciduous-coniferous and pure coniferous vegetation. Intensive logging during the late 19th and early 20th centuries

has greatly altered the configuration of vegetational communities. Through the study of remnant natural vegetation, Steyermark (1940, 1959) has defined a series of vegetation associations. These have been discussed in relation to the Little Black River drainage by Price and Price et al (1975). The following description of natural vegetation in the upper Current River has been generated from these studies.

The Ozark region is a mosaic of vegetation communities that are evolving through a succession of stages toward a mature or climax community. The process is a continuous one, because after climax communities are destroyed by logging, fire, or storms, the succession begins again. The discussion included here emphasizes the climax vegetation communities. Readers with an interest in successional stages are urged to consult the previously mentioned sources.

The floodplain and terraces of the Current River and the Jacks Fork are the habitat for the sugar maple-bitternut hickory community. This includes hornbeam, buckbrush, flowering dogwood, spicebrush and greenbriar on terraces and gravel bars. The wards-willow, witch hazel, sycamore, alder, sour grape, water willow and bullrush occur as initial stages in the floodplain succession along rocky streams of the floodplain. Silvermaple, cottonwood, birch, willow, sycamore, button bush, chairmaker's rush and gagittaria occur in bottomland zones frequently subjected to overbank flooding. Mature bottomland settings support elm, green ash, shumard oak, box elder, bur oak, sweetgum, cut and barnyard grass, and cane on shaded alluvial banks. The diverse floodplain zones of the Current River provide a variety of plant resources and support a variety of annual resources to man.

The numerous limestone bluffs that border the Current River are the location of sugar maple-white oak communities. These locations evolve through four stages of succession before reaching the climax state. The sugar maple-

white oak plant association becomes dominant on north and east facing slopes with good soil development. Chinquapin oak and white ash become dominant on west and south facing slopes with hop hornbeam, red bud, slippery elm, blue ash and greenbriar.

Vegetation of the hillslopes, ridges, uplands, and plateaus are variable, and highly dependent upon slope and soil acidity. The Black Oak-Hickory association is the most common, and consists of hickory with a wide range of oaks. The oak-pine association is most common on ridgetops near heads of tributaries, and in draws and ravines. The White Oak-Red Maple association occupies very similar settings.

This brief description of vegetation in the Eastern Ozarks does not include the complete range of plants that are of potential use to man. Future studies are needed to isolate the plants which were important to prehistoric and historic economic patterns. At this time, it is sufficient to note that the eastern Ozarks provides a wide range of nuts, fruits, berries, seeds, leaves and plants which have contributed to human subsistence patterns.

f. Fauna

The zoological resources of southeast Missouri in general, and the eastern Ozarks in particular, have never been fully studied. Smith (1975) has discussed the animal resources exploited by Mississippian people in the central Mississippi River valley. The brief description presented here is derived from that monograph and the description of floodplain and oak-hickory forest fauna presented by Shelford (1963). It should be noted that these two sources are in disagreement over relative density of several of the animals under consideration. The disagreement stems from the massive alteration of native habitats in the historic period due to lumbering and agriculture.

White-tailed deer represents the single most important animal in prehistoric subsistence strategies beginning with the Early Archaic Dalton occupation of the eastern Ozarks. The diverse floodplain and oak-hickory environments of the eastern Ozarks provide ample browse and acorn mast to support a relatively dense population of white-tailed deer, perhaps 40 to 50 per square mile. Smith (1975: 36-37) argues that deer were most efficiently and productively hunted during the fall and winter.

Wild turkey are plentiful in the oak-hickory forest, because acorns of black-jack and post oak are abundant and form a major part of their diet. Smith (1975) estimates a density of between 10 and 20 turkeys per square mile, and that they are best hunted during the winter when flocks are larger. Turkeys prefer mature forests with open understories, so it is possible that pre-lumbering forests supported larger numbers than are present today.

Raccoon is an important inhabitant of the Ozark area. Estimates of their density are extremely variable, ranging from a 3-4/sq. mile to around 40/sq. mile. Racoons have extremely variable diets, with major dietary constituents varying with seasonal availability. As nocturnal feeders, raccoons are best hunted with dogs, traps or by capturing them in denning trees.

Rabbits in southeastern Missouri include both the Cottontail and Swamp rabbit. Cottontail rabbits are highly adaptable, but occur most abundantly in areas with thick underbrush. Swamp rabbits occur primarily in areas adjacent to wetlands in the Mississippi valley. Both types of rabbits were probably hunted most productively with snares in the prehistoric period.

Other mammals that were present and may have contributed to prehistoric subsistence in the region include bear, elk, squirrel, oppossum and beaver. All have been reported from Mississippian sites and identified in local histories as being hunted by early settlers and trappers.

Riverine resources of the eastern Ozarks include a variety of fish, shellfish, reptiles, amphibians and waterfowl, many of which contributed in some way to prehistoric subsistence strategy. Turtles are a common animal recovered from most archeological sites, and were probably captured with nets. Smith (1975) identifies a wide range of fish exploited by Mississippian populations. Shellfish occupy a wide range of river bottom habitats in the eastern Ozarks, but were probably more important to subsistence strategies in the Mississippi Valley. Likewise, migratory waterfowl occur in the eastern Ozarks, but exploitation was more systematic in the Mississippi valley.

Other animals were present in the Ozarks, but those mentioned above were the most important as reflected in the current archeological record. Certainly, fur bearing animals were important to early Euro-American trappers, but these are not reflected in the archeological record. Numerous questions about the seasonality of exploitation of individual animals require that additional archeological data be gathered. Systematic recovery of faunal remains from sites in the Current River valley will shed additional light on this problem.

III. Cultural Environment

The development of conservation archeology and the philosophy of cultural resource management in the United States is built upon the assumption that some resources (sites) are more important than others. Legislators and planners recognize that it is not possible nor even desireable to preserve every archeological site, and the same recognition is widespread within the archeological profession. Since it is desireable to protect and preserve the most important resources, managers are obligated to evaluate the relative significance of individual resources. Although the significance of resources may be evaluated against a variety of criteria (Moratto and Kelly 1977; 1978; Glassow 1977; Scovill, Gordan and Anderson 1972), most contemporary evaluation of archeological significance is based upon a comparison between the site and the regional data base. This evaluation of research potential is based upon the relevence of the resource toward one or more of the regional research problems. Thus, through the evaluation of significance, the regional approach has become particularly important in conservation archeology.

The regional concept was developed by geographers as an analytical tool (Grigg 1972) and is well suited for the systemic approach to archeological research. As an analytical construct, the parameters of a region can be established and adjusted to the requirements of particular research problems. In the study of past adaptive systems, regions should be defined on effective environmental grounds in order to select an area which supports all the critical elements of the regional adaptive patterns. Selection of too large an area is likely to result in a mixing of several adaptive strategies, making interpretation of the patterns difficult. Definition

of too small an area may result in the exclusion of critical elements of the cultural systems.

In this report, the particular unit of study is the Ozark National Scenic Riverways. Despite its seemingly large size, it is unlikely that the boundaries of this area contain all the critical elements of any past adaptive systems. For example, the park boundaries include only limited areas which are not adjacent to major streams and rivers. If past adaptive strategies were in part dependent upon aquisition of resources available only in the uplands and near headwaters of intermittent tributaries, it is likely that those elements of the adaptive strategy will not be included within the Ozark National Scenic Riverways.

The environmental and geographic region most appropriate for study in relation to the Ozark National Scenic Riverways is the eastern Ozarks area. Due to the inadequacy of archeological data within the direct region of study, data from beyond the eastern Ozarks region is used to generate hypotheses and model adaptive strategies which have yet to be identified or studied in the eastern Ozarks. This broad regional summary is intended to aquaint the reader with nature of the archeological record in southeast Missouri. The next chapter of this report will provide specific descussion of the archeological record within Ozark National Scenic Riverways.

a. Paleo-Indian Period

The first humans to occupy southeastern Missouri were part of a migration that seems to have originated in Asia. Archeologists are generally convinced that inhabitants of Siberia entered North America across a land bridge that connected Siberia and Alaska during the last major glacial

period. The land bridge was created by world-wide shrinkage of the oceans. During the glacial periods, ocean water became absorbed as ice in the massive glaciers that covered the poles and Alpine areas of the northern hemisphere. The waters in this area are shallow and reductions in sea level of 200 feet would have exposed a land surface nearly 1000 miles wide. Geological and radiocarbon evidence suggests that a land bridge connecting Alaska and Siberia was present at several times between 24,000 B.C. and 9000 B.C.

The massive continental glaciers that reduced the level of the ocean and permitted man and animals to cross from Asia to North America presented an obstacle in themselves to the peopling of the New World. These huge ice sheets, some several miles thick, covered most of western Canada and Alaska during the peak of the last ice age. The Laurentide ice sheet originating from the Hudson Bay area and the Cordilleran ice sheet originating in the Canadian Rocky Mountains merged together in western Canada to create a major barrier to the southward movement of humans from Alaska to central North America. It has been suggested that human migration was possible through a narrow ice free corridor in western Canada. Wendorf (1966) has suggested that these conditions were present from 24,000 B.C. to 18,000 B.C. and from 11,000 B.C. to 9,000 B.C. During the period 18,000 - 11,000 B.C. a massive ice barrier impeded the southward movement of humans from Alaska. The archeological evidence for Early Man can be best interpretted in view of these major environmental constraints, and the glacial model of a land bridge and ice-free corridor.

In a review of the chronological evidence for Early Man in the New World, Haynes (1969) has suggested that the evidence can be divided into three temporal stages. These stages date prior to 30,000 B.P. to 12,000

B.P. and from 12,000 B.P. to 8,000 B.P. Archeological evidence from these time periods is rare in southeastern Missouri. The discussion which follows is intended to acquaint the reader with the nature of Early Man sites in the United States, with the assumption that good context sites of this time period will eventually be discovered in the study area.

Archeological evidence for the pre-30,000 B.P. period in the New World is scanty at best. The Calico site in California is the only site which has seriously been attributed to this time period (Leakey, Simpson and Clements 1968). In a definitive study of the site and material recovered from it, Haynes (1973) has convincingly argued that none of the lithic material from the site is unquestionably of human origin. In view of current evidence, it seems unlikely that the migration of human population from Asia to North America occurred prior to 30,000 years ago.

Archeological data pertaining to the period from 30,000 B.P. to 12,000 B.P. is also limited, but the data base is more believable and steadily growing. At Old Crow Flats in Alaska, a bone tool of definite human manufacture has been recovered from a Pleistocene fossil bed. The tool was directly dated by the apatite radiocarbon method at 27,000 $\pm$ 3000 B.P. (Irving and Harington 1973). This date is consistant with other non-cultural bone dates from the site.

In Pennsylvania, excavations at the Meadowcroft Rockshelter have revealed a stratified sequence beginning with an occupation dated about 19,000 B.P. (Adavasio et al 1978). Cultural material from this horizon of the site includes firepits, and a small lithic assemblage composed of flakes, retouched flakes, and a biface. This site provides the best evidence available for Early Man in North America prior to 10,000 B.C.

In Idaho, excavations at Wilson Butte Cave provide evidence of human occupation which has been radiocarbon dated at about 12,500 B.C. (Gruhn 1965). The limited cultural material relating to this early occupation includes a biface, a flake, a blade, and a piece of bone which appears to have been intentionally modified (Crabtree 1969). Although the artifact assemblage is small, it provides solid evidence for the presence of early man.

The third stage of the Early Man period, 12,000 B.P. - 8,000 B.P., is frequently called the Paleo-Indian stage. Artifacts characteristic of this period include lanceolate projectile points, frequently in association with the remains of extinct big game animals. Sites of this time period are best known from the plains and southwestern United States, but artifacts characteristic of the stage have been found throughout the continental United States.

The Clovis complex, 11,200 B.C.- 10,000 B.C. is the earliest manifestation of the Paleo-Indian stage. It is characterized by parallel-flaked, lanceolate shaped points with basal fluting. The Clovis complex is consistantly associated with mammoth or mastodon remains. Examples of kill sites attributed to the Clovis complex include Domebo in Oklahoma (Leonhardy 1966), Blackwater Draw in New Mexico (Hester 1972), Lehner in Arizona (Haury, Sayles and Wesley 1959), and Kimmswick in Missouri (Graham n.d.). The Clovis Complex seems to disappear with the general extinction of mammoths and mastodons in North America.

The next Paleo-Indian complex is called Folsom. Named after a bison killsite in New Mexico, the complex is characterized by lanceolate, parallel-flaked points with broad and long channel flutes covering most of both sides of the tool. Folsom Complex sites are consistantly associated with remains of extinct bison. In addition to kill sites the Lindenmeier

site in Colorado (Roberts 1936, 1936; Wilmsen and Roberts 1978) appears to be a Folsom complex camp site. The Folsom complex appears to be confined to the Great Plains, and is of limited relevance to the eastern Ozarks.

The Plano complex is the last recognized manifestation of the Paleo-Indian stage 8500 B.C. - 8000 B.C. The Plano complex is characterized by a diversity of lanceolate, parallel-flaked projectile point forms, such as Plainview, Scottsbluff, Agate Basin, Meserve, and Hell Gap. These point styles generally lack basal fluting, but generally have obvious basal grinding. Plano complex sites are frequently associated with the remains of extinct forms of bison or other animals. Examples of sites attributed to the Plano complex include the Holcombe Beach site in Michigan (Fitting, Devisscher and Wahla 1966), Debert in Nova Scotia (MacDonald 1968), Scottsbluff in Nebraska (Barbour and Schultz 1932) and Plainview in Texas (Sellards, Evans, Meade and Krieger 1947).

The end of the Paleo-Indian period is marked by the continent-wide disappearance of numerous big game animals. Coincident with the disappearance of Pleistocene megafauna is the initiation of localized hunting traditions based upon modern fauna. The explanation for this abrupt cultural and ecological change has been debated by numerous scholars (Martin and Wright 1967). One of the more interesting theories proposes that prehistoric man, newly arrived from Asia, was largely responsible for the extinction. Introduction of new predators with new hunting techniques may have resulted in overkill of North American megafauna. A more traditional explanation for the disappearance of Pleistocene megafauna is the widespread climatic changes which occurred in association with the end of the ice age. Bryson, Baerreis and Wendtland (1970) have argued that these climatic changes occurred as a series of abrupt shifts followed by periods of stability. It is quite likely that both climatic change and prehistoric hunting practices contributed to the extinction of big game.

b. Archaic Stage

The end of the Paleo-Indian period is believed to coincide with a shift to environmental and climatic conditions approximating those of today. Throughout the southeastern United States there is believed to be a major change in subsistence patterns from the big game hunting of the Paleo-Indian period to a pattern emphasizing deer hunting and foraging strategies. The transition from Paleo-Indian to Archaic is generally believed to occur between 8000 and 6000 B.C. The first archeological complex associated with woodland adaptive patterns is known as the Dalton complex.

The Dalton complex appears as the earliest Archaic horizon throughout much of the southeast. It is characterized by lanceolate or pentagonal projectile points with basal grinding and thinning, and drills, gravers, burins, steep-edge scrapers, notches, backed blades and adzes. Other projectile point forms which appear to be roughly contemporary with the Dalton complex include Hardin Barbed, Searcy, Rice-Lobed and Graham Cave Sidenotched (C. Price 1979).

The study of Dalton complex sites in southeast Missouri and eastern Arkansas have led to the generation of three settlement models to explain site patterns during this time period. In the L'Anguille drainage of Arkansas, Morse (1973) and Goodyear (1974) have defined a Dalton pattern similar to that called Central Based Wandering (Beardsley et al 1956). The pattern is characterized by a few large sites containing the full-range of Dalton tools and a number of small sites with a limited number of diversity of Dalton tools. The larger sites are believed to be base camps, occupied by most members of a particular band during all or part of the seasonal round. The smaller sites are thought to be hunting camps,

occupied almost solely by males engaged in hunting and butchering. The territories occupied by Dalton bands are hypothesized to be the banana-shaped basins of the Western lowlands region.

An alternative model explaining Dalton settlement patterns in the L'Anguille drainage has been proposed by Schiffer (1975). This model proposes greater population mobility and seasonal movement of bands. Schiffer believes Dalton territories crosscut several environmental and physiographic zones, making various exploitable resources available at differing seasons of the year. This model proposes that base camps were occupied for two seasons of every year, during the winter/spring and the summer/fall. Short-term hunting camps are believed to have produced insufficient material remains to be detected by archeology. Dalton territories under this model are believed to be hexagonal in shape.

In the Little Black River watershed in Butler and Ripley Counties, Missouri, Price and Krakker (1975) have generated a model to explain Dalton settlement patterns on the Ozark border. They propose that the Dalton settlement system in that area is based upon semi-permanent base camps like the ones proposed by Schiffer (1975). These were intensively occupied sites, exhibiting material remains representative of the full range of group activities. Winter/Spring base camps were located in places protected from floods and north winds. Substantial structures for winter shelter are also expected. Summer/Fall base camps are expected in a wider range of environmental situations and structural remains are less likely to be present. Hunting camps and other extractive sites are represented as singular Dalton finds. This model suggests that territories occupied by Dalton social groups in the Little Black River drainage cross cut environmental zones but did not have a regular shape.

The Middle Archaic substage (5000 - 3000 B.C.) is poorly understood in the eastern Ozarks region. Projectile points which are believed to be diagnostic of the time period have been reported from the Current River area (Banks 1978: 9-10; Born and Chapman 1972:46-47; Garrison et al 1976:57), particularly Jakie and Table Rock Stemmed. Data relating to associated toolkits is lacking from the area, and most interpretation about technology and subsistence are extrapolated from more intensively studied areas of the western Ozarks.

Evidence from Rodgers shelter in westcentral Missouri indicates a shift from heavy reliance on hunting deer and small game in the Early Archaic to a more diversified foraging strategy in the Middle Archaic (McMillan 1976:224-225). Middle Archaic levels at Rodgers Shelter suggest that exploitation of small game, particularly squirrel, and gathering of plant food were major subsistence activities. It is uncertain whether the identified change represents an adaptive shift in response to changing environmental conditions (McMillan 1976: 230) or a change in the activity patterns of that one shelter. If a major climatic change is responsible for the recognized change in activities at Rodgers Shelter, it may or may not have had an impact on the eastern Ozarks. Climatic changes can be regional in scope or very localized.

Settlement patterns in the eastern Ozarks during the Middle Archaic are believed to be very similar to those of the preceding Early Archaic as described for the Ozark border (Price and Krakker 1965). Base camps occupied during the winter/spring are situated in areas which are protected from winter winds and floods. Summer camps are located in a wider range of settings. Structures are more likely to be present on winter/spring base camps. Isolated finds of Middle Archaic projectile points are probably

representative of hunting activities. Special activity sites for procuring resources will be situated near the resource being exploited.

The Late Archaic stage in the eastern Ozarks is characterized by a change in the style of projectile points, the appearance of a refined ground stone industry and the widespread use of quartzite in the manufacture of chipped stone tools (C. Price 1979:26). Projectile points attributable to this time period include many forms of broad corner-notched or stemmed dart points, such as Afton and Smith (Chapman 1975). Ground stone tools from this substage include manos, axes, bannerstones, plummets and beads. The reason for increased use of quartzite, particularly in areas with abundant chert resources, is unknown.

The Late Archaic substage in the eastern Ozarks seems to represent a period of population expansion. Sites attributable to this time period are particularly numerous and frequently very extensive. A shift in the settlement-subsistence system during this substage is indicated. Whereas freshwater shellfish were only marginally exploited by earlier occupants of the region, heavy shellfish exploitation during the Late Archaic has been interpretted (Price and Price 1975:50; McMillan 1976:225-226). The presence of cultigens, particularly squash and gourd are known from the western Ozarks (Chomko and Crawford 1978), but their presence in the eastern Ozarks has yet to be documented.

The increase in the number of sites during the Late Archaic corresponds with a diversification in the location of sites (C. Price 1979). In addition to sites on terraces of major rivers (Born and Chapman 1972; Garrison et al 1976), Late Archaic sites are located on levees, ridge slopes and ridge tops overlooking major stream valleys (C. Price 1979:46). The reason for the dispersal of settlement-subsistence systems during the Late Archaic is uncertain. It may be related to an increasing regional population, or perhaps a change in regional climate.

c. Woodland Period

The Woodland Period in the eastern United States is differentiated from the Archaic Period by the widespread appearance of ceramics and burial mounds. Conical and flat-bottomed ceramic vessels appear in association with burial mounds about 1000 B.C. in many areas of the eastern United States. Horticulture may be associated with these former developments, since native and tropical cultigens have been recovered from several sites of this time period. Large scale regional exchange networks involving exotic goods as mortuary offerings develop during the Woodland Period. Despite numerous technological, economic, and social innovations, the Woodland Period is a continuation of adaptive practices developed during the preceding Archaic Period.

Extensive research in major river valleys have established the validity of three stages of the Woodland Period for many areas of the eastern United States. The Early Woodland (1000 B.C. - 200 B.C.) is characterized by the first widespread appearance of ceramics and burial mounds. In southeast Missouri, this time period is poorly understood. It is known by a variety of names, including Pascola, Burkitt and Tchula. Chapman (1980) has argued that all of these components are temporally affiliated with the Middle Woodland. The Middle Woodland (200 B.C. - A.D. 400) in the eastern United States is most frequently associated with the Hopewell complex. The Hopewell Complex integrated much of the eastern United States through a ceremonial and exchange network which involves a well developed mortuary cult, mound building, and a wide variety of beautiful and exotic mortuary offerings. Non-Hopewellian sites are also present in the eastern United States during this time period. The Late Woodland

Stage (A.D. 400 - A.D. 800) follows the decline of Hopewell, and is characterized by a more diverse pattern of local subsistence and technological adaptations. The use of the bow and arrow probably begins during this time period.

The Woodland Period in the eastern Ozarks region is poorly understood. The three stage sequence identified above does not directly apply to the Woodland Period in the Ozarks (Roper 1979). The limited research conducted in the eastern Ozarks to date has failed to produce evidence of a stratified Woodland sequence. A general shortage of relevent radiocarbon dates also contributes to the problem. At this time, it is possible to distinguish geographic variability in the woodland Period of the eastern Ozarks, but it is not possible to distinguish many temporally diagnostic characteristics. The presence of large and small projectile points, indicative of atlatl and bow and arrow use, probably indicates Early-Middle and Late Woodland occupation. Projectile point forms which are characteristic of dated Early, Middle, and Late Woodland occupations in other areas are found in the Current River valley. Considerable research is needed to refine the local Woodland chronology in the eastern Ozarks.

In the Ozark highlands, the Woodland Period is known as the Meramec Springs Focus (McMillan 1965). The complex is known mainly from shelters, but open village sites adjacent to streams are also known. The village sites have localized middens and some have subsurface pits. Houses have not yet been identified. Ceramics related to the Memamec Springs Focus are limestone tempered with either plain or cordmarked surfaces. Decorative techniques include incising and punctations around the rim, neck or shoulder of vessels. Projectile points include small arrow points characteristic of the Late Woodland stage, and larger dart point forms probably characteristic of the Early and Middle Woodland stage. The Meramec Springs complex is best known from the Gasconade and Meramec drainages.

In the Eastern Ozark Border area and the Western Lowlands of southeast Missouri, the Woodland Period is known as the Barnes complex (Williams 1954; Phillips 1970). Ceramics during this period are sand tempered with either plain or cordmarked surfaces. Decorative techniques include pinching, bossing, punctates, fabric impressions and net impressions. Projectile points are generally large dart styles with contracting stems. No definite evidence of temporal subdivisions within the Barnes complex is available. The sand tempered Barnes ceramic series appears to be replaced in the Ozark border region by a transitional Late Woodland/Developmental Mississippian complex. This has been defined as the Buckskull Phase (Price, Price and Harris 1976). It is characterized by shell, sand and limestone tempered ceramics, occasionally decorated with a simple stamp motif. Shallow side-notched projectile points are part of the assemblage, which is estimated to date between A.D. 750-900 or earlier. Barnes complex sites in the Eastern Ozarks have been reported by Berry, Wrench and Chapman (1940) and C. Price (1976).

The Woodland sequence in the Cairo lowlands has been defined by S. Williams (1954) and extensively revised by J. R. Williams (1974). Woodland ceramics in the Cairo lowland are generally clay tempered, and are known as Baytown. The earliest phase is called Burkett and is believed to date from 300 B.C. to A. D. 1. Ceramics are cord-impressed, fabric-impressed or plain with incised, punctate or net-impressed decorative motifs. Projectile points are large stemmed forms, with contracting stem forms being most common. A burial mound associated with the Burkett Phase is reported from the Weems site. In the Ten Mile Pond phase (A.D. 1-A.D. 500), projectile points are generally smaller than those of the Burkett phase and consist of corner and side notched forms. In this

phase, cordmarked ceramics become common and cord-impressed and fabric-impressed ceramics become rare. Burial mounds are not associated with sites attributed to the Ten Mile Pond Phase. The final phase of the Woodland Period in the Cairo lowlands is called Hoecake (A.D. 500 - A.D. 1100). It appears to be a definite mix of Late Woodland and Developmental Mississippian attributes. The appearance of shell tempered ceramics probably occurs at the end of the phase. Most of the Hoecake phase ceramics are clay tempered and have either plain or cord-marked surfaces. Circular ceramic items called Kersey Clay objects are also characteristic of the phase. Small arrow points appear along with larger styles during the Hoecake phase and include triangular and stemmed forms. Small rectangular semi-subterranean houses have been excavated at the Hoecake site and conical mounds with log-lined tombs are also present. It is likely that further study in the Cairo lowland will refine the definition of the Hoecake phase and show that distinct Late Woodland and Developmental Mississippian components are present. Until that happens, the Hoecake phase is best treated as transitional.

Woodland settlement patterns in the eastern Ozarks are very poorly understood. C. Price (1979) suggests that two site types are recognizable: small villages and limited activity loci. Villages in the Woodland stage were probably more permanently occupied than the Archaic base camps. Village sites are usually located on terraces of major streams and probably represent year-round occupation by a few families. Limited activity loci are situated near exploited resources and represent short-term occupation with a limited range of artifactual material.

d. Mississippian Period

The Mississippian period in the eastern United States is generally characterized by maize agriculture, shell tempered ceramics, complex social-political organization, and a settlement system based upon ceremonial centers and/or sedentary villages. The origins of Mississippian culture are uncertain. It has been suggested that Mississippian culture developed as a specific adaptive pattern within the meander belt of the central Mississippi valley, and that Mississippian settlement-subsistence patterns are largely linked to exploitation of this segment of the natural environment (Smith 1978). This model implies that Mississippian exploitation of the eastern Ozarks is limited to temporary excursions for exploitation of particular resources, with little likelihood of seasonal, semi-permanent or year around habitation. A growing body of data from the eastern Ozarks tends to refute this interpretation of Mississippian adaptation and cultural development (Price and Price et al 1975; Lynott 1980). It appears that Mississippian culture adapted to a wide range of environmental settings in the eastern United States. Although each has some or all of the attributes which link it to the broader Mississippian pattern, each regional Mississippian complex developed a particular adaptive system.

The Developmental Mississippian substage is poorly recognized at this time. Most texts acknowledge the beginning of the Mississippi substage at A.D. 900 - 1000 (Chapman 1980). Radiocarbon dates from the Zebree site in northeast Arkansas (Morse and Morse 1976, 1977), the Narrows site in the Eleven Point River valley (C. Price 1978a, 1978b) and thermoluminescence dates from the Gooseneck site on Current River (Ross and Sutton 1980, 1981) provide evidence for an earlier development. These dates suggest that the Developmental Mississippian substage dates between A.D. 600 and A.D. 1000.

The presence of shell tempered ceramic vessels with inverted rims and a lack of decoration and appendages appears to be characteristic of the Developmental Mississippian substage in southeast Missouri. Red filmed wares are present in varying frequencies, and vessel forms include large jars, medium jars, bowls and perhaps pans. Projectile points are small and include expanding stems or corner-notched forms.

The Developmental Mississippian substage is called the Big Lake Phase in northeast Arkansas (Morse and Morse 1976, 1977), and the Naylor Phase in the eastern Ozarks of southeast Missouri (Price and Price et al 1975). In addition to these two complexes, Developmental Mississippian occupations are represented at the Hoecake site in the Cairo lowlands (J. R. Williams 1974), and Old Varney River site in the Malden Plain (S. Williams 1954), and the Kersey site in the Little River Lowlands (Marshall 1965:79) of southeast Missouri.

Three types of sites are recognizable for the Developmental Mississippian in the eastern Ozarks (C. Price 1980). The Pigman Mound (Anderson n.d.), located in the Eleven Point valley, is believed to be a temple mound. The limited data available indicates the mound was probably constructed during this period, and it may represent a ceremonial center. The Gooseneck site is representative of small villages or hamlets which occur on terraces of the major rivers in the eastern Ozarks. These sites are the basic unit of the settlement system. Less well known in the existing data base are special activity sites. These extractive sites are located in areas in close proximity to resources being exploited.

The next substage has been called Expansion Mississippian (Price and Price et al 1975) and is associated with the Powers phase (J. Price 1978; Price and Griffin 1979; Smith 1975) in the Western Lowlands and

Ozark border of southeast Missouri. The Powers phase has been extensively studied by the University of Michigan and the University of Missouri through grants from the National Science Foundation.

The Powers phase is characterized by a stratified settlement system (Price 1978). Powers Fort (Thomas 1894) is the civic-ceremonial center and the largest site of the Powers phase. A major temple mound, three smaller mounds, a plaza and an extensive number of houses are enclosed within a fortification trench. The next largest element of the Powers phase settlement system are villages. These occur in two sizes. Larger villages cover 2.5 acres, while smaller villages cover 1.5 acres. Both contain houses, specialized structures, courtyards, streets and fortifications. Villages sites tend to occur in pairs during the Powers phase. The smaller villages (1.5 acres) tend to contain cemeteries that serve a larger community than the village itself. Hamlets cover about .25 acres, and are the next site level in the settlement system. No hamlets have been excavated, so little is known about their structure and function. The smallest sites in the settlement system are special activity sites, which consist of only a few houses on an isolated sand ridge. The Gypsy Joint site appears to be year around habitation for a single family, participating in a wide range of maintenance and extractive activities (Smith 1978 b).

Powers phase ceramics include a wide variety of jars, bowls and bottles. Surface decorations include incising, punctating, noding, bossing, and painting. Other significant artifacts include a variety of arrow point styles, shaft straighteners, pottery trowels, ceramic discs, ceramic ear ornaments, ceramic effigies, and a full range of domestic habitation debris (Price and Griffin 1979).

The Powers phase seems to represent a colonization effort by Mississippian people during the late thirteenth and early fourteenth centuries. There is little evidence of earlier Mississippian occupation and nearly all Powers phase sites show evidence of being abandoned and burned between A.D. 1320 and A.D. 1350 (Price and Price et al 1975:60). Thus, the sites were occupied only a brief time and lack extensive middens and superimposed houses which are usually associated with prolonged village habitation.

The significance of the Powers phase to Mississippian occupation of the eastern Ozarks is unclear. Mill Creek chert hoes, which are relatively common on Powers phase sites, are present in the upper Current River area. It is uncertain whether this represents trade, short-term exploitation of Ozark resources by occupants of the Mississippi valley, or prolonged habitation and settlement.

Shortly after the abandonment of the Western Lowlands by Powers phase people, there is little evidence of human activity in the region. This is particularly true of the eastern Ozarks. A few large sites are present in the Mississippi valley. These are known as the Armorel Phase (Williams 1980), and include sites like Campbell (Chapman and Anderson 1955) and Parkin (P. Morse 1981). The abandonment and limited use of the eastern Ozarks during the end of the prehistoric period is reflected in part in the early historic archeological record as well.

e. Historic aboriginal settlement

The abandonment of the eastern Ozarks during the late prehistoric period carries over into the early historic archeological record. Although the Osage claimed the area between the Missouri and Arkansas Rivers from the Mississippi River to the Rocky Mountains (Mathews 1940: 345), their permanent

villages were located in western Missouri. The eastern Ozark region was probably utilized mainly as hunting territory. Continued movement to the south and west resulted in the Osage abandoning Missouri by 1825 (Chapman 1946:26).

Westward expansion of Euro-American settlement pushed native American groups consistently westward in the late 18th and early 19th centuries. The Shawnee and Delaware entered southeast Missouri and settled on the west bank of the Mississippi River in about 1784 (Houck 1908:208). The Shawnee-Delaware received lands around Cape Girardeau as part of a treaty with the Spanish government. After an initial period of conflict with the Osage, the Shawnee and Delaware began to move west. In 1806, a Shawnee-Delaware village is reported on the Current River (Houck 1908:218). In 1825, the Shawnee ceded their claim to lands near Cape Girardeau to the U.S. Government (Royce 1896:714). Morrow (1981) identified Delaware villages in the Jacks Fork drainage during 1815 to 1822, as part of their southwestward migration from Indiana. The affiliation of Indian villages located on the Jacks Fork in 1869 (Colton 1869) is uncertain, but these may represent remnants of the Shawnee-Delaware before their final movement into the Oklahoma area. Local histories report the presence of the Shawnee-Delaware and possibly the Choctaw at several localities in Shannon and Carter Counties (Pennington 1971:10-13; Dix 1978). Banks (1979) notes that archeological evidence of these historic native American groups is very limited in Shannon County, and the degree to which they had been previously acculturated may make it unlikely that we will be able to distinguish 19th century native American sites from 19th century Euro-American sites.

f. Early Euro-American settlement (1800-1860)

It is quite likely that the eastern Ozark region was visited and exploited by hunters and trappers prior to the Louisiana Purchase in 1804, but historical and archeological records documenting these activities have yet to be located. The first permanent settlements in the region were established in the early nineteenth century. Zimri Carter settled near present day Van Buren on the Current River in 1807 (Oakley 1970:3). Other settlers followed, and towns began to spring up. Greenville was platted about 1818 (J. Price and C. Price 1979), and Chilton was established in 1812 (Oakley 1970). Greenville was established as the seat of Wayne County. In 1833, Ripley County was established with Old Van Buren as county seat. Ripley County was later subdivided into Butler, Carter, Oregon, Shannon, Howell and Ripley counties (C. Price 1979). The present location of Van Buren was selected as county seat for the newly organized Carter County in 1859 (Oakley 1970:6). Shannon County was organized in 1841, with the site of Old Eminence on the Current River near Round Spring as the county seat. During the early nineteenth century, settlement of the eastern Ozarks was slow, and towns were usually limited to a few houses associated with a mill and/or store.

Early historic settlement patterns in the Ozark border region have been increasingly studied in recent years (C. Price and J. Price 1978; C. Price 1977; J. Price and C. Price 1978; 1979). Nucleated settlements served as trading centers, with goods being brought into the Ozarks from trade centers along the Mississippi River. The majority of these settlements were not formally platted, with the county seat usually being the only formally platted town. Towns probably served the same economic function as nucleated settlements (trade centers), but also served the additional

function of being political centers (county seat). As trade centers, nucleated settlements and towns were located on roads, frequently where they crossed major streams. Communication and movement of people and goods were closely linked to the rivers and limited roads during this period.

C. Price and J. Price (1978:7) recognize three general types of settlement below the level of the nucleated settlement. Hunter-squatters were highly mobile settlers that lived by hunting, trapping and trading. They did not remain long at any single settlement, moving regularly west to stay in advance of civilization. Family farmsteads were the basic settlement unit in many areas of the eastern Ozarks during the early 19th century. Participating only marginally in the marketing of cash crops, small scale farmsteads were oriented toward a multi-crop/animal complex, augmented by hunting wild game. Plantations were based on production of a single cash crop through the use of a captive labor force. Settlements were large and concentrated, including several class levels.

The role of roads and rivers as lines of communication was vital to political, social and economic interaction in the early historic period. Many of the early roads probably developed along aboriginal trails. Houck (1908:227) describes a trail which connected Virginia with the Rocky Mountains. The trail crosses the Ozark plateau through the valley of Big Barren Creek. Webb (1979) notes that this trail became important in early historic times and now approximates the route of Highway 60. As primitive as they were, these early roads, along with major rivers, were the only consistent means of travel and communication in the rough Ozark region.

Mills were also an important aspect of early historic life in the eastern Ozarks. Both grist mills and saw mills were present in the region,

and these often served as the impetus for the growth of small nucleated settlements. Mills were in operation in many areas in the upper Current River valley before the War of the Rebellion. Pottenger (1945) mentions mills above and below the present town of Chilton, and at the mouth of Mill Creek. Powder mills for the manufacture of gun powder were also significant contributors to the economy of the eastern Ozarks, mainly owing to the presence of saltpeter in many of the local caves (Sauer 1920:153-154).

The mineral resources of the eastern Ozarks were an important part of the early settlement of the region. The French began mining lead deposits near Potosi about 1720 (Pennington 1971:29). Joseph Slater moved from St. Genevieve to Shannon County in 1837 and purchased the mineral rights from a local hunter. Slater established several shallow pit copper mines in the area (Bridge 1930). One of these, the Jerktail Prospect, is located immediately adjacent to the Ozark National Scenic Riverways on the east side of Jerktail Mountain. This early copper mining industry was limited to shallow, surface sites, and business played out as the limited surface deposits were exploited. Bridge (1930) reports that a small town, including a boarding house, general store, blacksmith shop and a copper smelter were built by copper miners on Shawnee Creek. Although copper was by far the most important mineral in the Shannon-Carter county area, manganese was mined on Rocky Creek in Shannon County and granite was quarried near Van Buren in Carter County (Pennington 1971).

Population growth and regional economic development in the eastern Ozarks was slow in the first half of the 19th century. Frontier conditions persisted over much of the area. Although slavery was established by the Missouri Compromise, the Ozarks were in practice a non-slavery area.

The majority of inhabitants lived on family farmsteads, growing crops for subsistence with only limited marketing of cash crops. Hunting supplemented swine husbandry in meat procurement. Major items produced in the Missouri territory for exchange were lead, shot, whiskey, flour, wheat, corn, hemp, flax, tow-cloth, horses, beef, pork, dried venison, deer skins, furs, peltries, butter, pecans, iron, zinc, chalk, oil, hops, tobacco, salt, nitre, sulphur, arsenic, antimony, alum, serpentine and graphite (Schoolcraft 1821). Pork in particular may have been an important export (Hilliard 1969).

g. War of the rebellion

The slow but gradual settlement and economic development of the eastern Ozarks in the 19th century was abruptly terminated by the start of the Civil War. Situated on the border between two feuding factions, occupants of the eastern Ozarks were generally sympathetic to the Confederate cause (Oakley 1970:18). Although the Courtois Hills area was generally marginal to the major campaigns of the western border, the steep wooded valleys housed numerous bands of thieves, murderers and bushwackers. The terror and unrest associated with widespread lawless conditions resulted in a general depopulation of the eastern Ozarks and tremendous disruption of regional economic patterns.

Most of the major battles along the western frontier were associated with the Wire Road which connected St. Louis, Springfield, Fort Smith and Fayetteville. This military road and telegraph line permitted movement of troops, supplies, and information (Flanders 1979). The battles of Wilson's Creek and Pea Ridge were associated with the road and the logistical advantages of controlling it.

The Courtois Hills and the eastern Ozarks did not witness any significant battles during the Civil War. Military roads connecting Greenville and Van Buren, and Plot Knob and Pocohontas resulted in some movement of regular troops through the area. The most noteable was the battle at the Kinnard farm. Union forces on a mission to procure supplies encountered a Confederate troop and a skirmish ensued. Wounded were treated at the cabin of Widow Mary Ann Snider near the modern intersection of Highway 60 and Highway C on Pike Creek valley (Oakley 1970:18-22). In another encounter, Union cavalry attacked a Confederate camp near Van Buren, driving them from the area and inflicting an unknown number of casualities (Pennington 1971:42).

More typical of the violence associated with the Civil War in the eastern Ozarks were the attacks by outlaws, bushwackers and jayhawkers on local farmsteads and towns. Examples of the violence are provided by Pennington (1971:43), Flanders (1979:206-214), Weakley (1978a; 1978b) and Oakley (1970). Some of the bands acted as recruiters for their respective army; others acted to capture or kill enemy sympathizers. The net result was widespread destruction of crops, property, and loss of human life. It was nearly impossible to remain neutral. If a farm was not burned by one side, the other side would burn it thinking it was owned by opposing sympathizers. Men were either conscripted into the militia, shot as sympathizers of the enemy, or forced to join an outlaw band. The original site of Eminence, the county seat of Shannon County, was burned by outlaws, and the havoc associated with the conflict totally destroyed the pioneer economic and social networks.

The net result of the Civil War in the eastern Ozarks was a violent disruption of early 19th century economic and social life. A large part of the population fled the border conflict and greatly reduced regional

population (Flanders 1979). The tremendous destruction of property greatly retarded economic development, and the loss of a large portion of the adult male population had profound impacts on the demographic and social aspects of life in the region. The war had a very drastic impact on life in the eastern Ozarks, and in a sense created a new frontier and a definite break with past traditions.

Post Civil War settlement: 1870-1930

In the years following the Civil War, the eastern Ozarks remained sparsely populated and rural. Some families that fled the havoc of the war years returned to their land, but many did not. New immigrants settled and the region generally retained its dependence upon agriculture. The character of settlement changed somewhat after the war. Family farmsteads were still the basic settlement unit, but the development of towns became increasingly important. After being burned by outlaws, the town of Eminence was rebuilt at its current location on the Jacks Fork and the town of Van Buren was moved to its current locality in 1867 and established as the seat of Carter County (Oakley 1970). The return to law and order stimulated the growth of new towns and local businesses, like the construction of a mill and blacksmith shop at Alley Spring in the 1870's (Curtis 1973). In general, population growth during the post-war era was slow. The only exception was the rapid growth associated with the exploitation of timber resources by lumber companies.

The vast oak and pine forests of the eastern Ozarks remained pretty much intact through the Civil War years. Small scale agriculture did little to diminish the vast quantity of timber in the region. After intensively logging the forests of the northeast and the Great Lakes,

national lumber interest turned their attention to the eastern ozarks in the 1880's. The presence of local labor, good railroad transportation and low cost timberland, coupled with a mild climate permitting year around logging, and proximity to the plains area lumber market attracted the eastern logging companies (Hill 1949:14-21).

The construction of railroads to serve the lumber industry brought economic and social change to the Ozarks. Railroads created the stimulus for the development of towns. Initially serving as depots and growing into economic centers, the towns of Mountain View, Winona, Low Wassie, Fremont and Hunter sprang up along the Current River Railroad after its construction in 1888 (Flanders 1979). Those towns without access to the railroads, like Eminence, lagged behind. In addition to the major railroad lines connecting mills, depots and market centers, numerous local tramways were built to assist lumber companies in moving the timber to the mills (Lewis 1981). Major tramlines were in use 5 to 10 years, while minor lines were in service a year or less (Hill 1949:53).

The significance of the railroad and the lumber industry to the growth of towns is best illustrated by the Mill towns of Grandin and West Eminence. Grandin was established in 1875 as the depot of Tolliver Pond, but in 1887 the Missouri Lumber and Mining Company moved its main offices there. The town was renamed after a major stockholder and became the largest sawmill complex in Missouri (Oakley 1970). A natural millpond covered 3.5 acres (Hill 1949:33), and was used to store up to 500,000 board feet of logs (Harris, Price and Price 1978). The intensive timber harvesting of the Missouri Lumber and Mining Company gradually reduced the supply of locally available timber in the Grandin area. In 1907 a railroad was built to West Eminence on the Jacks Fork and the company moved its

mills and equipment there. Ferguson (1969) provides an excellent description of West Eminence during the lumber boom. The town covered 160-200 acres, including a 60 acre mill complex. Over 300 structures, including general store, post office, doctors clinic, railroad depot, ice house, slaughter house, a 28-room office complex, community hall, two hotels, warehouse, shingle mill, hub mill and residences were present in 1910. It remained a beehive of activity until the closing of the mill in 1927.

In addition to major mill towns, lumber era sites in the eastern Ozarks included large and small logging camps without mills. Larger camps like King Bee on the Little Black River were small towns with a commissary, barracks, residences, blacksmith shop, and possibly an engine repair shop (Harris, Price and Price 1978). Smaller camps were used to house loggers, and were usually located along tramlines (Hill 1949:50).

The Missouri Lumber and Mining Company specialized in harvesting yellow pine from the uplands (Hill 1949:40). After it was depleted in the eastern Ozarks the company moved on. Smaller lumber companies harvested oak and other hardwoods for barrels, railroad ties, wagon axles, and interior woodwork for houses. Chicopee on the Current River Railroad became a collection center for railroad ties (Oakley 1970). The ties were floated down Current River to Chicopee and loaded on railroad cars for shipment to the west.

Settlement patterns during the post Civil War era changed from those of the early 19th century. The family farmstead in well watered valleys with good soil were still numerous, and a large part of the population was devoted to small-scale agriculture. However, towns became larger and more numerous, filling the role of economic, social and political centers. During the lumber boom, four additional types of sites were

part of the lumber industry (C. Price 1978:100). Large sawmill towns like Grandin and West Eminence were the center of lumber industry activities. These towns included company offices, warehouses, sawmills and residential quarters. Rough and finished grades of lumber were produced and shipped to markets in the plains. Large collection camps served as secondary centers in major cutting areas. These camps served as collection centers for logs and dispersal centers for supplies and instructions to workers in cutting camps. Collection centers, like the Mule Camp associated with the Missouri Lumber and Mining Company, included quarters, stores, shops and barns (Price and Price et al 1975:242). Small cutting camps were temporary housing for workers in a cutting area. These camps were only operational for brief periods, and then crews and camp equipment were moved to new cutting areas. Tram lines were the heart of the logging industry. Miles of track were laid into areas to permit large-scale removal of timber. While in operation, tram lines carried logs, loggers, food and supplies and all the equipment of the logging industry. When cutting in an area was completed, tramlines were taken up and reused in a new area (Hill 1949:53).

The end of the lumber era brought about a major change in the economic and social pattern of life in the eastern Ozarks. The railroads and lumber industry brought a cash economy and all the acouterments of modern living to an isolated rural area. Traditional economic and social patterns were disrupted as farming was abandoned in exchange for jobs with the railroad or lumber companies. When the lumber industry moved on, the forests were gone and so were the jobs. The period since 1930 is the story of the eastern Ozarks adaptation to post-lumber era problems. The problems relating to this era are current and beyond the scope of this study.

IV. 23SH93

This site was located in September 1978 during an archeological survey of potential construction projects within Ozark National Scenic Riverways. The park was considering several potential locations for construction of a maintenance building. Archeological survey of one potential construction site, in the vicinity of the Alley Springs sewage lagoon, revealed a large quantity of chipped stone material being exposed by erosion in the bed of an access road to the sewage lagoon.

The site is a large lithic scatter situated atop a high bench overlooking the Jacks Fork River (Figure 3). The bench is situated at the base of the uplands, and appears to be a product of upland erosion rather than terrace formation. The bench upon which the site is situated has been extensively disturbed by construction of a sewage treatment lagoon system. Informants indicated that two historic structures were present prior to construction of the sewage lagoon.

In April 1980, a six person archeological crew under the direction of the author spent two days at the site (Figure 4). Investigations at the site were initiated through an intensive, non-selective surface collection of the sewage lagoon road. After this was completed, a number of shovel tests were excavated to determine the extent and character of the site deposit. Each shovel test was excavated to a depth of 30 cm below surface. After completion of the shovel tests, two 1xl meter test pits were excavated in areas that appeared to be the least disturbed. Both test pits were excavated to depths at which the soil became compact and the units appeared to be sterile of cultural remains. This varied between 35 and 40 cm below surface. Matrix from the shovel tests and test pits was carefully examined for artifacts and screened through 1/4 inch mesh hardware cloth.

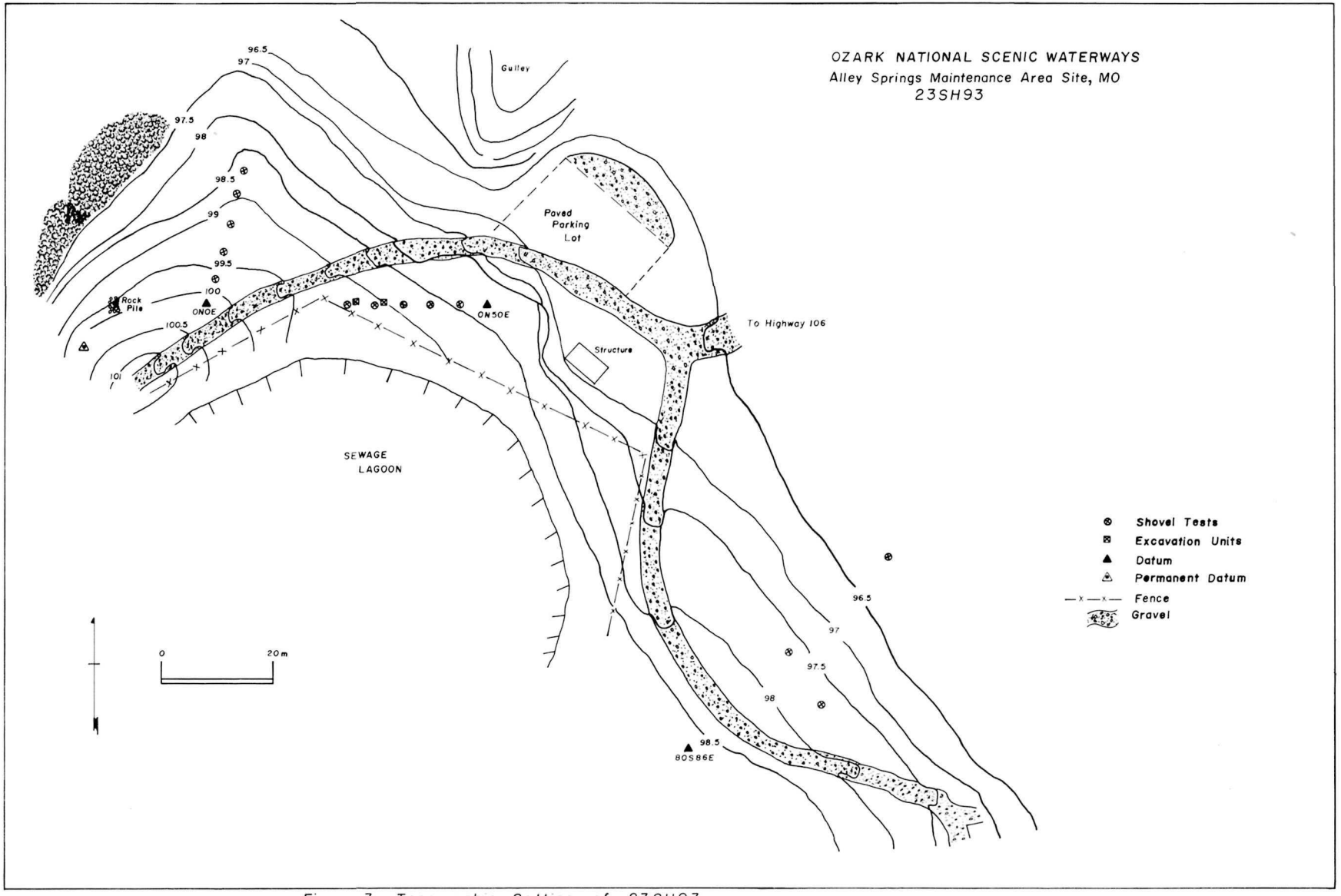


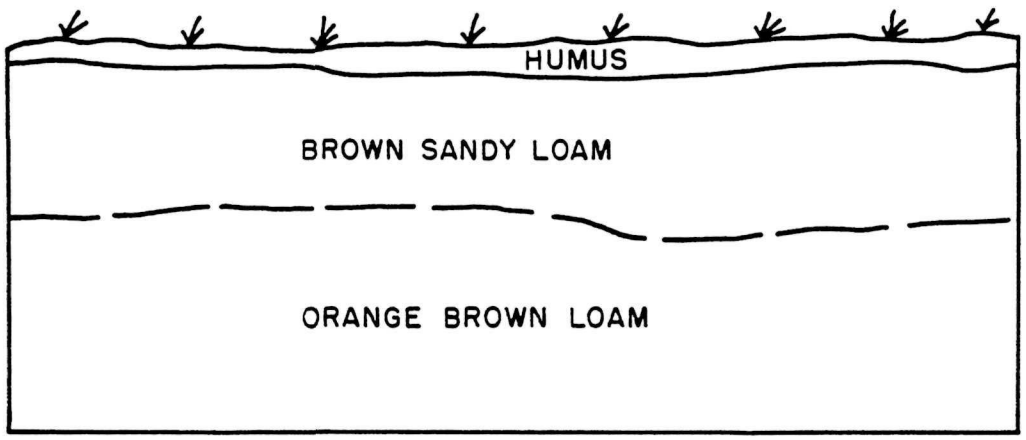
Figure 3. Topographic Setting of 23SH93

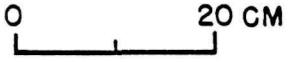


Figure 4. 23SH93 during field investigations

The purpose of the archeological testing has been to determine the nature and content of the archeological deposit at 23SH93 and evaluate whether the site is sufficiently significant to be considered eligible for the National Register of Historic Places. Efforts to determine the size of the site were hampered by lush grass cover and extensive disturbance from construction of the sewage lagoon system. Informants indicate that prior to excavating the lagoon and leveling for the sewage system, the topsoil was skimmed up and piled in the floodplain at the base of the bench. Surface examination of this topsoil mound failed to reveal artifacts of any kind, but the observations of the informants supported the initial notion that the area is extensively disturbed. Thus, archeological testing was oriented toward determining whether any portion of 23SH93 remains intact, or whether it has been thoroughly disturbed.

Excavation of two test pits near the northwestern edge of the sewage lagoon provided a profile of the current stratigraphic situation. Figure 5 illustrates the general stratigraphy of the site. The heavily disturbed nature of the deposit cannot be overemphasized. The top layer at the site is a brown sandy loam, which overlies an orange brown loam. The top layers are thoroughly disturbed with prehistoric and historic artifacts being present together as deep as 40 cm below surface. Table 1 summarizes the results of limited soil chemistry analyses at 23SH93.





23SH93
TYPICAL SOIL PROFILE

Figure 5

Table 1: Sediment Analysis, 23SH93

Depth below surface	Textural class	Soil pH	Phosphorus ppm	Organic matter
10 cm	10 am	5.3	24	1.1
20 cm	10 am	6.0	24	0.8
30 cm	10 am	5.7	28	1.1
40 cm	10 am	6.4	32	1.2

Artifacts were recovered from 23SH93 through a combination of systematic surface collection, and excavation of selected shovel tests and test pits. Cultural materials include fire-cracked rocks, chipped stone cores and debris, chipped stone tools, and miscellaneous historic period artifacts. In addition to materials collected during the 1978 fieldwork, the writer was able to incorporate data recovered by private collectors from 23SH93. These materials have been used to supplement the data from the National Park Service investigations as instructed by the Archeological Resources Protection Act of 1979 (P.L. 96-95).

Fire-cracked rock from the site is composed of granitic and sedimentary rocks which are angular in shape and appear to be burned or oxized as a result of being in contact with intense heat (Table 2). These artifacts are believed to be the scattered remains of hearths. Fire-cracked rocks are frequently found scattered throughout sites, but the disturbed nature of 23SH93 makes it difficult to determine whether this is a product of the archeological record or construction of the sewage lagoon.

Table 2: Fire-cracked Rock from 23SH93

	Count	Weight(g)
Surface Collection	207	2504.2
Test Pit 1		
Level 1	37	319.0
Level 2	28	255.1
Level 3	46	162.4
Level 4	8	45.8
Test Pit 2		
Level 1	142	2253.4
Level 2	130	3129.2
Level 3	51	1406.6
Shovel Tests (combined)	33	1143.1

Table 3: Non-Diagnostic Shatter from 23SH93

	Count	Weight(g)
Surface Collection	2574	6862.3
Test Pit 1		
Level 1	166	472.3
Level 2	198	390.4
Level 3	324	322.6
Level 4	13	11.5
Test Pit 2		
Level 1	426	1642.5
Level 2	333	360.2
Level 3	210	473.7
Shovel Tests (all combined)	527	986

Chipped stone debris from the site is composed of 257 flakes, 294 proximal flakes, 7 blades, 4771 non-diagnostic shatter and 6 cores. The majority of lithic debris consists of locally available gray or white chert, but a substantial quantity of granular white quartzite is also present. The provenience of lithic debris from 23SH93 is presented in Tables 3 and 4. The sample is composed largely of interior elements, with some secondary elements and only a few primary flakes. Platform preparation appears to be relatively limited, with plain and cortex platforms representing 81% of all lithic debris with identifiable striking platforms. The six cores from 23SH93 include two with single platform configuration, two with opposing platforms, one pyramidal core and one amorphic core (Table 5).

Table 4: Lithic Debitage from 23SH93

	Flakes	Prox Flakes	Blade	Plain Platform	Facetted Platform	Cortex Platform	Bulb-only platform	Primary	Secondary	Interior
Surface Collection	120	163	1	147	48	42	47	15	52	217
Test Pit 1										
Level 1	12	15	0	14	8	5	0	2	14	11
Level 2	7	13	0	11	5	2	2	0	5	15
Level 3	17	25	0	22	7	5	8	0	5	37
Level 4	0	0	0	0	0	0	0	0	0	
Test Pit 2										
Level 1	10	24	1	18	2	5	10	3	5	27
Level 2	63	19	13	62	10	9	4	1	18	66
Level 3	8	10	1	15	2	0	2	0	5	14
Shovel Tests (all combined)	20	25	1	28	10	3	5	1	13	32
Totals	257	294	7	317	92	71	78	22	117	419

In analyzing the lithic debris from 23SH93, the relationship of cores to flakes was considered in a technological and functional perspective. If the average length of flakes recovered at the site is greater than average length of flake scars on the cores, it is likely that the cores were exhausted and discarded. If the reverse situation occurs, then it is likely that the cores were abandoned while still useful. The former situation is more likely to be typical of a habitation site, while the latter is probably more typical of a special activity or workshop site.

The average length of flake scars on cores varies between 15.7 mm and 50.2 mm., with a mean of 33.75. The average flake length is 17.41. It appears that some of the cores may have been exhausted, but others were discarded before reaching that point. Table 5 describes the cores from 23SH93.

Table 5: Cores from 23SH93

Platform Configuration	Provenience	Number of Flake Scars	$\bar{X}$ length of Flake Scars (mm)
semi-pyramidal	surface	10	31.6
opposing	surface	6	34.8
single	shovel test	5	32.2
single	surface	5	38.0
opposing	Test Pit 2, Level 1	7	15.7
amorphic	surface	7	50.2

The chipped stone tool sample from the 1979 investigations at 23SH93 includes projectile points, bifaces, a graver and several unifacially retouched pieces. In addition to the artifacts collected by the National Park Service, Mr. Alan Banks has graciously provided photographs of artifacts

in private collections that pertain to 23SH93. Table 6 summarizes the nature and provenience of chipped stone tools collected during 1979 and Figure 6 illlustrates selected artifacts collected by the Midwest Archeological Center and private collectors from the site.

The four projectile points collected by the Midwest Archeological Center are all large dart points or knives. Only one of the points is complete, and the others include two bases and a blade tip. All three of the bases have straight stems. Two are made from chert, while the other is "sugar" quartzite.

The number of bifaces recovered from the site is surprisingly small. Two of the three bifaces are fragments. All of the specimens exhibit sufficient shaping to have a definite midline, although the edges of only one have been retouched to refine the shape of the piece. One of the bifaces is made from white chert, while the other two are made from white "sugar" quartzite.

Table 6: Chipped Stone Tools from 1979 NPS Investigations at 23SH93

	Projectile Points	Bifaces	Retouch Pieces	Graver
Surface	3		11	
Test Pit 1				
Level 1				
Level 2	1		1	
Level 3				
Level 4				
Test Pit 2				
Level 1			1	1
Level 2		1	11	
Level 3				
Shovel Tests (combined)		2	1	

Unifacial tools from 23SH93 are relatively common from the 1979 investigations, but the diversity of forms is minimal. A single graver made from white chert was collected. It exhibits minimal retouch in

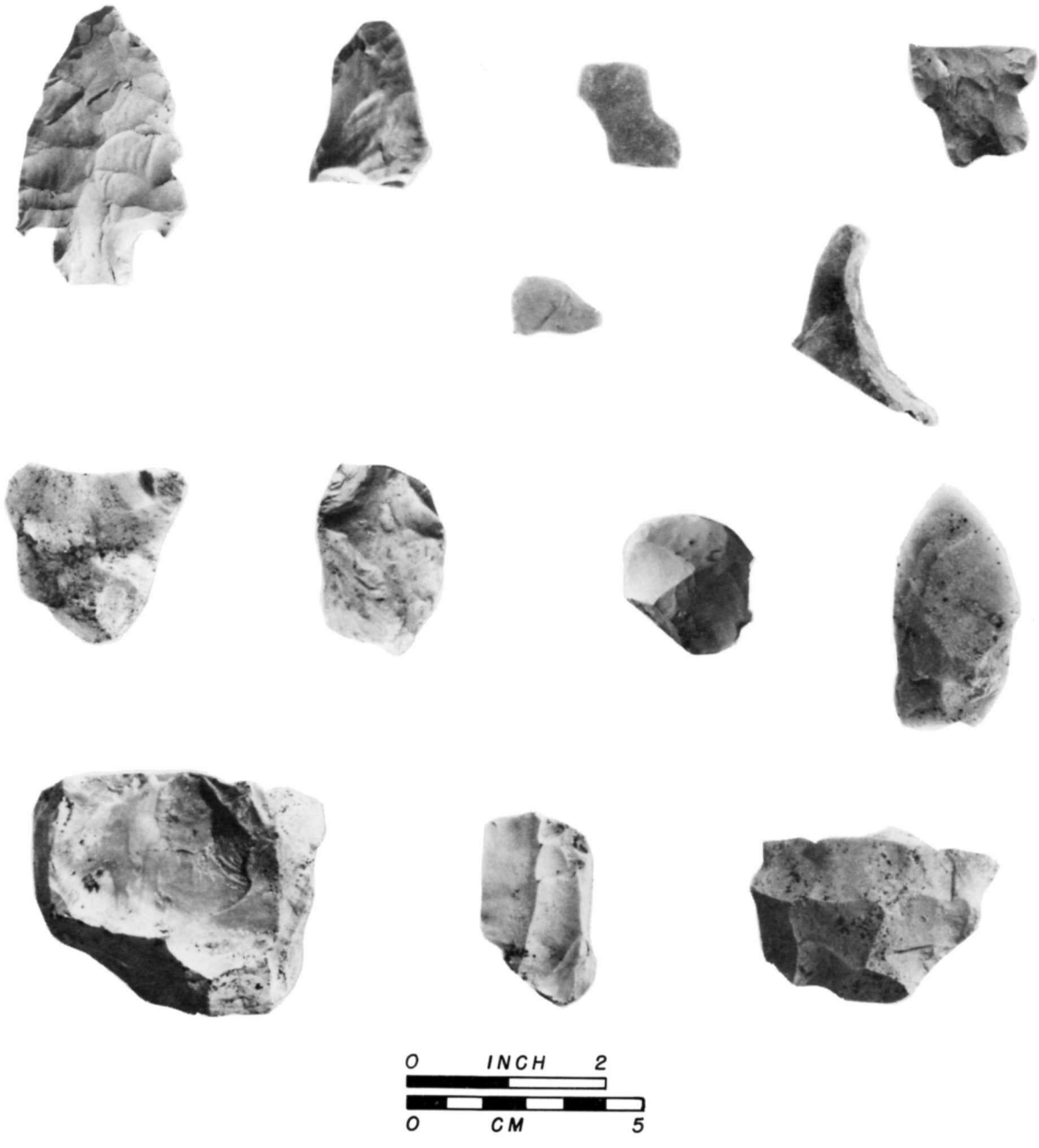


Figure 6. Chipped Stone Tools, 23SH93

the area of the tip, but examination with a 30x binocular microscope revealed the presence of polish and tiny retouch flakes. The remaining unifacial tools are retouched pieces. Nearly all the specimens have minimal retouch, but in two cases the retouch was sufficient to have contributed to the shape of the pieces. All recognizable retouch occurs on dorsal surfaces. The pieces are made primarily from local chert, but three white quartzite pieces are also present.

The sample of tools from the 1979 investigations at 23SH93 is limited. The large projectile points are fragmentary and it is not easy to interpret the time period they represent. The straight stemmed dart points are probably indicative of the Late Archaic period, but a Middle Archiac or Woodland occupation is also possible. Given these data alone, our knowledge of 23SH93 would be very limited. Fortunately, information provided by amateur archeologists permit us to better interpret the prehistoric occupation of the site.

Figures 7, 8 and 9 illustrate artifacts collected by amateur archeologists from 23SH93. Figure 7 includes a variety of biface, projectile point and drill fragments. Most of the specimens are made of "sugar" quartzite. With the exception of the contracting stemmed point in the top row, the majority of projectile points have straight to slightly contracting stems. The fragmentary nature of most of these specimens inhibits definitive estimates of the age of the pieces, but the general appearance of the sample seems to indicate Archaic and Woodland period occupations.

Figure 8 illustrates a sample of more complete dart points. The points are large dart forms with generally straight to slightly expanding stems. Several of the expanding stem specimens may also be considered corner-notched. These point styles are generally regarded as characteristic of Archaic and Woodland period occupation in the eastern Ozarks. These points are composed of "sugar" quartz, local chert or rhyolite.

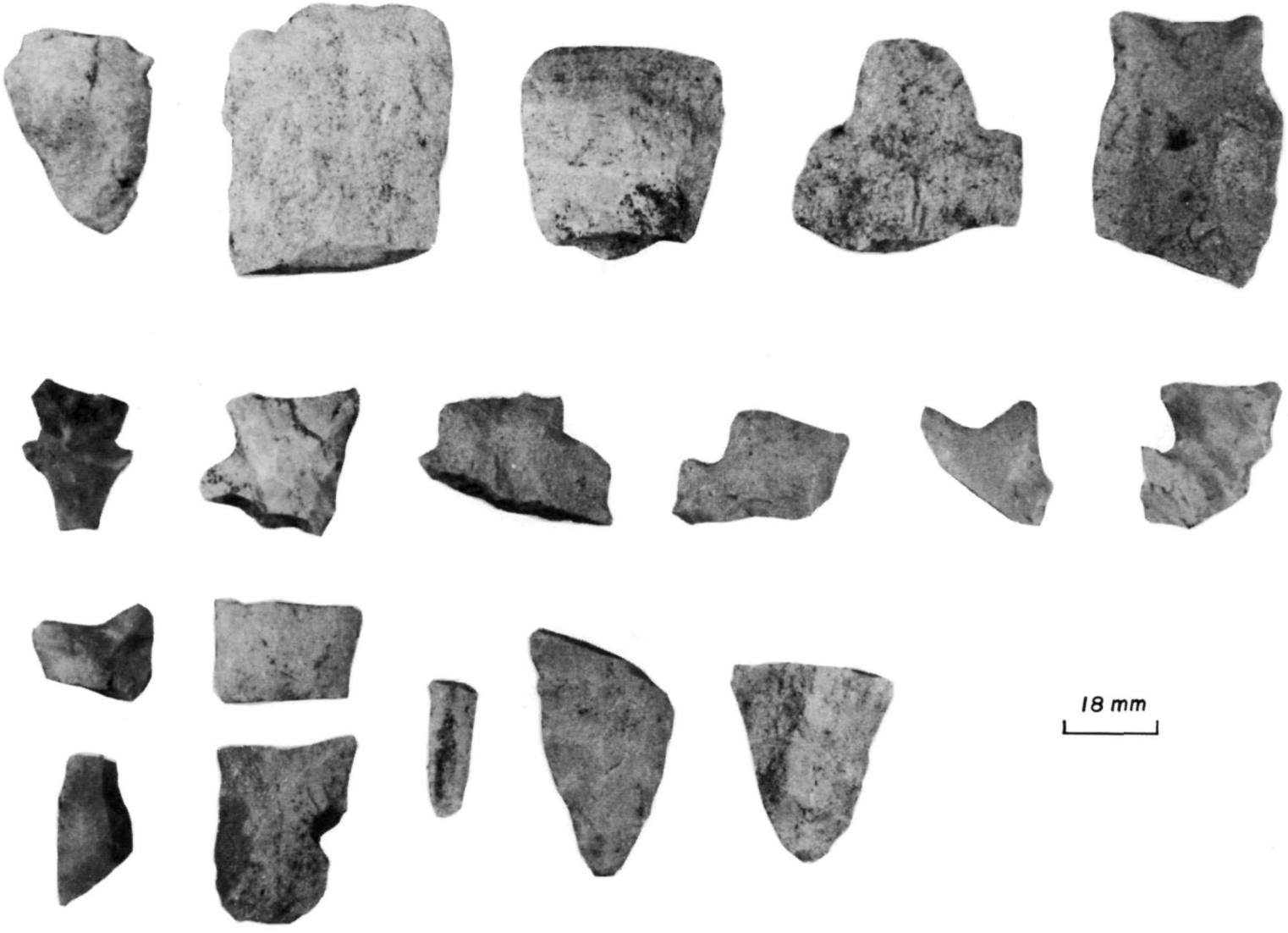


Figure 7. Miscellaneous Chipped Stone Tools from Private Collection, 23SH93

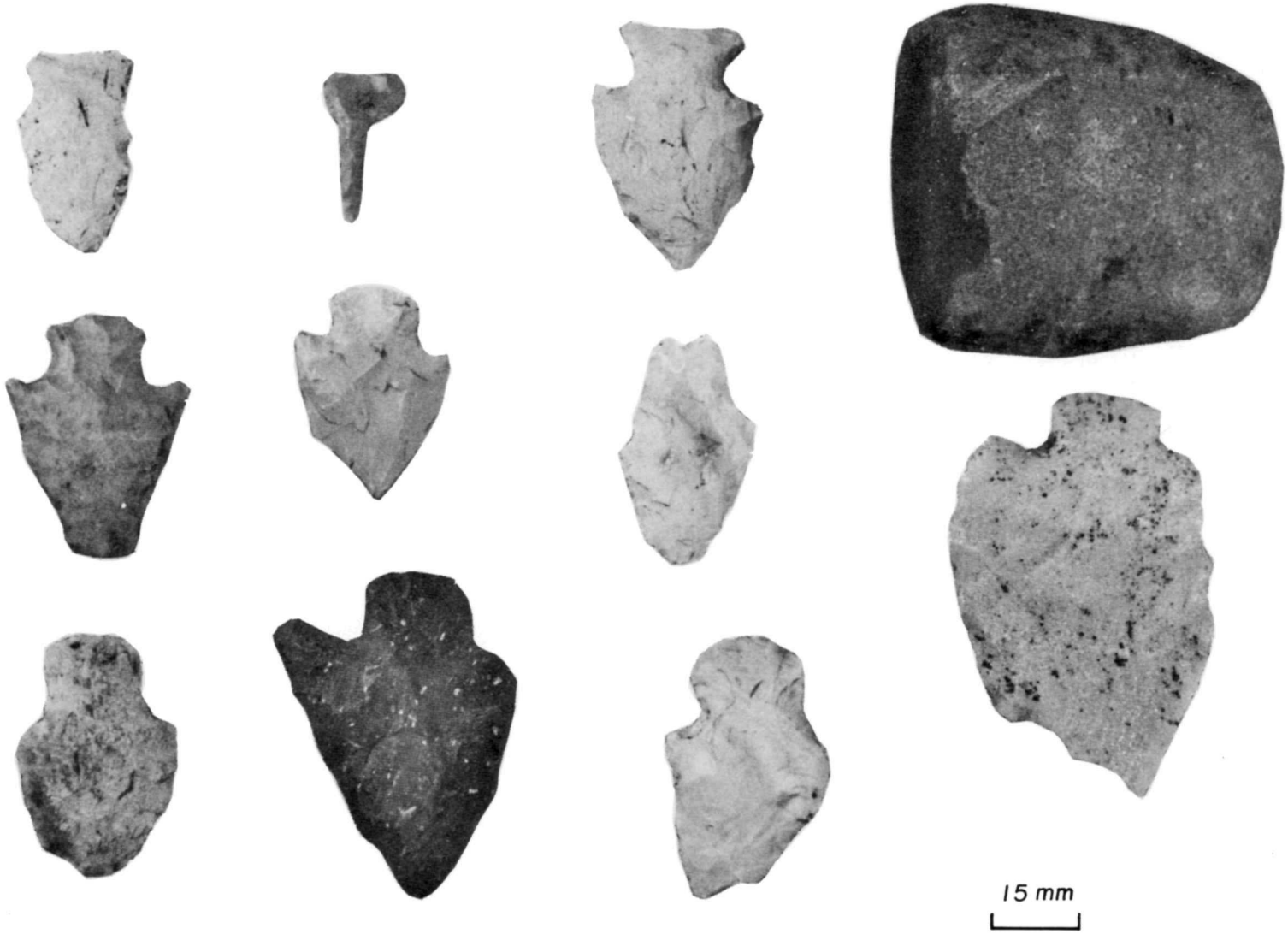


Figure 8. 23SH93, Miscellaneous Artifacts from Private Collection

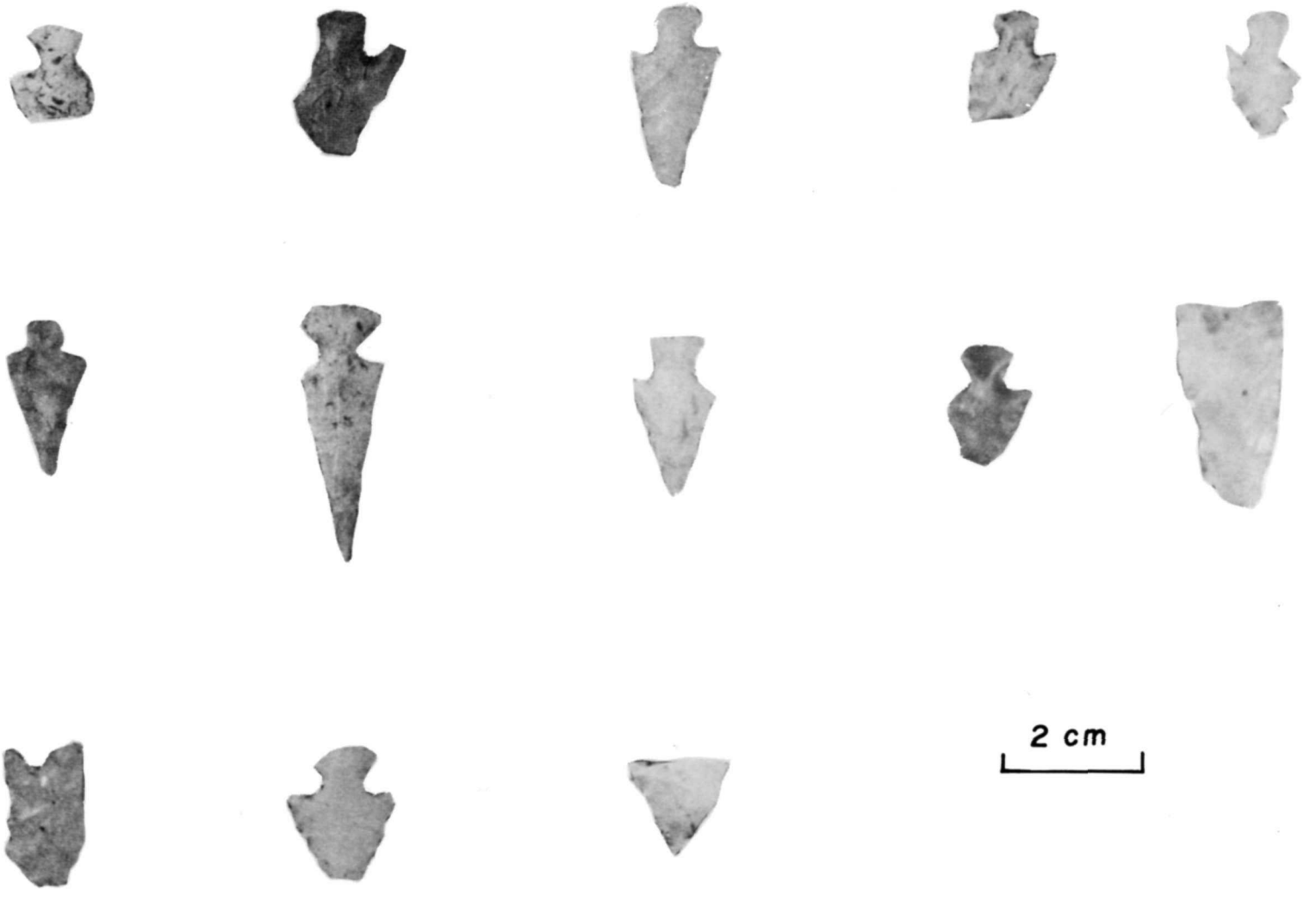


Figure 9. 23SH93, Arrow Points from Private Collection

The small arrow points in Figure 9 are characteristic of the Mississippian and Late Woodland periods in the Upper Current River valley. Definitive assignment of temporal periods to all these points is not possible, but some speculation about the temporal position of selected specimens is possible. Several of the points are roughly chipped with small square to slightly expanding stems. These points are very common at the Gooseneck site, which is the Developmental Mississippian time horizon, probably A.D. 700-900. The side-notched specimen is characteristic of the classic or Expansion Mississippian time horizon, about A.D. 900 - A.D. 1300. Other points in Figure 9 are either related to the Late Woodland time horizon or are not diagnostic of any of these late prehistoric time horizons.

Overall, the data from the 1978 test excavations and the surface collections made by amateur archeologists suggest that 23SH93 was occupied over a considerable period of time. There is some evidence from a local private collection that the site was occupied as early as the Dalton period (J. Price, personal communication), but most evidence points to Late Archaic and Woodland period occupation. There is no evidence of sedentary habitation, but the wide diversity of tool forms is not characteristic of a special activity site either. Most likely, the site was occupied frequently for short periods of time throughout this period. Evidence for Late Woodland and Mississippian use of the site is less substantial, and appears to be limited to the northeast corner of 23SH93 (A. Banks, personal communication). This suggests that during the Mississippi time horizon, 23SH93 served as a temporary camp. Historic period artifacts are not clearly diagnostic of any time period or any special function, but probably relate to a farm or homestead.

Table 7: Historic period artifacts
from 23SH93

23SH93 - Test pit 1, level 2
5 small sherds
clear window glass

Surface
4 sherds clear window glass
1 wire nail
1 piece scrap iron
1 horse shoe nail fragment

V. 23SH94, Pulltite Site

This site was located in September, 1978 through a pre-construction survey by the Midwest Archeological Center of potential vault toilet locations in the Pulltite group campgrounds. The site is situated on a gently sloping bench at the base of a bluff on the east side of the Current River. The bench drops off abruptly to the floodplain of the Current River on the west. The site is bordered on the south by an intermittant spring branch. The general topography of the site is similar to a small terrace, but the landform is more likely a product of colluviation.

The Pulltite archeological site (23SH94) is situated within an area designated as group camps 3 and 4. The site has been altered by existing facilities in the form of a gravel road, pit toilets, and foot paths. Vegetation on the site is generally open and seems to represent secondary growth, primarily grasses, weeds and brush. The site is exposed along the edges of the road and in footpaths.

In 1978 a six person team from the Midwest Archeological Center spent two days at the site (Figure 10). Initial goals of the research were to determine the size, location, and depth of the site deposit. Site size and location were approached through excavation of 29 shovel tests (Fig. 11). The shovel tests were excavated in areas which would permit determination of the distribution of artifacts and thereby determine the limits of the site. Shovel tests were approximately 25 cm in diameter and excavated to 30 cm below surface. Matrix from the shovel tests was screened through 1/4" hardware cloth. The shovel tests provided an opportunity to examine the depth of the site deposit and the distribution of cultural remains across the site. Using the data from the shovel tests as a guide, three areas were selected for more intensive evaluative testing.



Figure 10. 23SH94 during field investigations

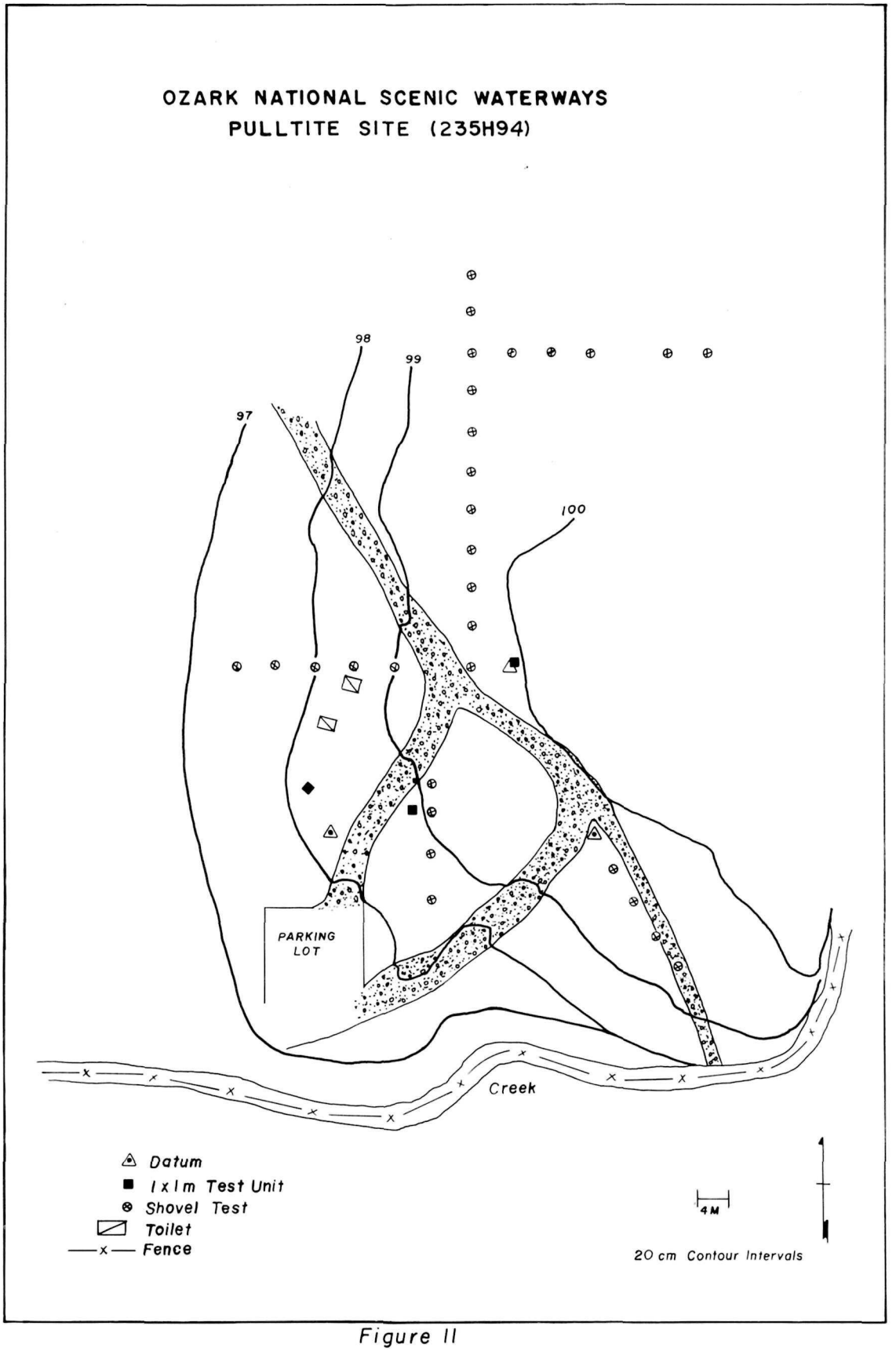
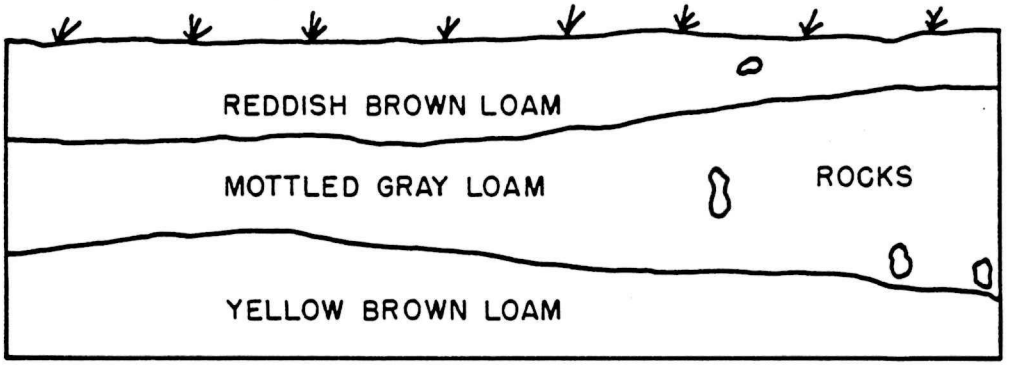
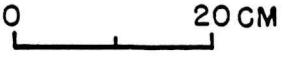

OZARK NATIONAL SCENIC WATERWAYS
PULLTITE SITE (235H94)
98
99
97
100
PARKING LOT
Creek
Datum
1 x 1 m Test Unit
Shovel Test
Toilet
Fence
4M
20 cm Contour Intervals

Figure 11





23SH94
TYPICAL SOIL PROFILE

Figure 12

Each of the three test pits were 1x1 meter units. Matrix was removed from each unit in arbitrary 10 cm levels to a depth of 30 cm below surface. Matrix was excavated with shovel and trowels and sifted through 1/4 inch mesh hardware cloth. Units were excavated until a yellow-brown subsoil, which is sterile of cultural remains, was reached. Profiles of one wall from each test unit were made.

The stratigraphy of the site is illustrated in Figure 12. The uppermost layer is reddish brown loam which overlies a mottled gray loam. These two layers were found to contain prehistoric artifacts, while the yellow-brown loam below them is largely sterile. Significant quantities of lithic debris were recovered from the top of the yellow-brown loam. Whether this is attributable to pedoturbation rather than cultural context of the artifacts cannot be determined with certainty at this time. No evidence of a plowzone was noted during excavation of the three test pits, but it is possible that the area was cleared and cultivated at some time in the past.

Artifacts recovered during the fieldwork at the Pulltite site are largely chipped stone tools and debris. These artifacts were recovered through a non-selective surface collection of material exposed in the gravel road, or through excavation of test pits and shovel test units. The sample is too small for definitive interpretations about the age and function of the site. Fortunately, surface collections from the Pulltite area made by Mr. Alan Banks are available for study. The combination of the excavated sample made by the Midwest Archeological Center and the surface collection made by Mr. Banks provides sufficient information to evaluate the research potential of the site.

The lithic artifacts from the 1979 investigations are composed of flakes, proximal flakes, blades, non-diagnostic shatter, chipped stone tools, and fire-cracked rock. Quantification of these data according to the provenience from which they were collected are presented in Tables 8-11.

Lithic debris from the Pulltite site consists of diagnostic (Table 8) and non-diagnostic (Table 9) elements. The diagnostic elements possess a bulb of percussion and striking platform which indicate that they were produced through deliberate human actions. Non-diagnostic shatter may also represent human activity, but definite evidence of human involvement in the shaping of the piece is lacking. Diagnostic elements include 237 flakes, 255 proximal flakes and 16 blades, and two cores. Lithic debris at the Pulltite site is composed primarily of local white cherts, but white sugar quartzite is also present in noteable quantities. The majority of diagnostic lithic debris have plain platforms while only about 19% of the platforms are facetted. The majority of diagnostic lithic debris exhibit no evidence of cortex, with about 80% of the sample being classified as interior elements. The combination of a relatively low frequency of primary flakes (2%) and cortex platforms (11%) suggest that the activity of initial resource procurement, selection and shaping did not occur at 23SH94.

Table 8: Lithic Debris from 1979 Investigations at 23SH94

	Flakes	Proximal Flakes	Blades	Plain Platforms	Facetted Platforms	Cortex Platforms	Bulb-only Platforms	Primary	Secondary	Interior	
Surface	20	32	0	27	7	11	7	1	8	43	52
Test Pit 1											
Level 1	33	48	3	43	12	8	21	1	15	68	83
Level 2	4	1	0	1	1	0	3	0	1	4	5
Level 3	19	32	0	35	15	0	1	0	1	50	51
Test Pit 2											
Level 1	41	40	0	35	12	14	20	5	17	59	81
Level 2	12	12	0	10	4	6	4	0	8	16	24
Level 3	26	22	9	11	20	10	5	0	17	40	57
Test Pit 3											
Level 1	33	12	0	38	3	2	2	1	8	36	45
Level 2	12	3	2	10	3	1	3	0	2	15	17
Level 3	5	1	0	4	1	1	0	0	0	6	6
Shovel Tests	32	52	2	51	17	6	12	3	13	70	86
Totals	237	255	16	276	95	59	78	11	90	407	

Table 9: Non-Diagnostic Shatter from 1979 Investigations at 23SH94

	Count	Weight (g)
Surface	181	381.5
Test Pit 1		
Level 1	211	115.0
Level 2	111	110.0
Level 3	205	110.4
Test Pit 2		
Level 1	71	111.8
Level 2	51	50.1
Level 3	73	150.9
Test Pit 3		
Level 1	43	36.6
Level 2	159	143.3
Level 3	47	24.4
Shovel Tests	427	1271.8
	1579	2505.8g

Fire-cracked rock from the site is composed of granitic and sedentary rocks which are angular in shape and appear to have been burned or oxidized as a result of being exposed to intense heat (Table 10). Fire-cracked rock is believed to be a product associated with construction and use of hearths or fire-pits. Although no hearths were exposed by the 1979 testing, fire-cracked rock is scattered throughout the site. Most pieces are generally small (less than 3 g), but several large fire-cracked rocks are present. The overall quantity of fire-cracked rock which is present is not extensive and probably indicates limited activities relating to hearth construction and use.

Table 10: Fire-cracked Rock from 1979 Investigations at 23SH94

	Count	Weight(g)
Surface	42	1185.4
Test Pit 1		
Level 1	52	1324.6
Level 2	23	45.2
Level 3	7	108.5
Test Pit 1		
Level 1	13	63.8
Level 2	14	1724.7
Level 3	14	892.4
Test Pit 3		
Level 1	28	45.5
Level 2	55	2596.9
Level 3	10	34.2
Shovel Tests	58	1651.1
	316	9672.3g

The chipped stone tools from the 1979 investigations are limited in quantity and diversity (Table 11). The seven projectile points are fragmentary and only two are useful in estimating the age of the site.



Figure 13. Chipped Stone Tools, 23SH94

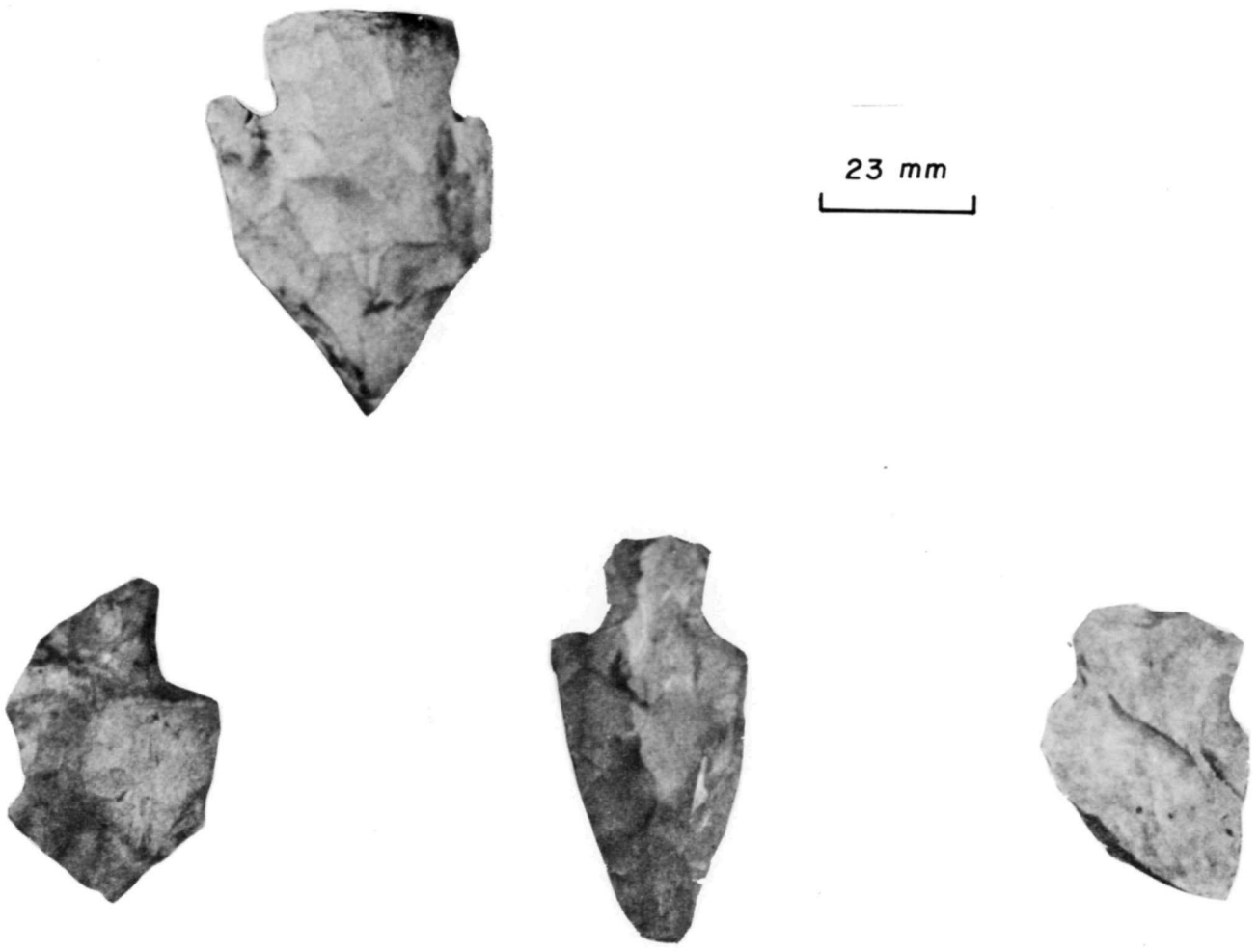


Figure 14. Pulltite Projectile Points



Figure 15. Pulltite Projectile Points



Figure 16. Pulltite Projectile Points

The two corner notched point fragments in Figure 13 are indicative of the Late Archaic or Woodland periods. The 13 bifaces from the site are generally well formed, and evidence of initial biface manufacture is not present. All bifaces recovered from the site are fragments, and it is uncertain whether they were broken in use or manufacture. Based on the relatively limited quantity of lithic debris, fracture resulting from use seems more likely. The unifaces from the site include a single graver and 10 retouched pieces. The absence of drills, scrapers, notches and other forms of chipped stone tools indicate that only a limited range of activities were conducted at 23SH94. The tools are nearly all made of white chert.

Table 11: Chipped Stone Tools from 1979 investigations at 23SH94

	Projectile Points	Bifaces	Gravers	Retouch Pieces
Surface	2	4	1	1
Test Pit 1				
Level 1	1	1	0	0
Level 2	0	0	0	0
Level 3	1	1	0	0
Test Pit 2				
Level 1	0	2	0	5
Level 2	0	0	0	0
Level 3	0	0	0	0
Test Pit 3				
Level 1	1	2	0	2
Level 2	1	1	0	0
Level 3	0	0	0	0
Shovel Tests		2		2
Totals	6	13	1	10

The artifacts collected by Mr. Alan Banks from the Pulltite area are useful in providing additional insights into the age and function of 23SH94. Although Mr. Banks' collection contains materials from several localities in the Pulltite area, the majority of the material in Figures 14-16 relate to the Pulltite site. The uppermost specimen in figure 14 was collected from 23SH94 and is similar to the Afton point style which is believed to be associated with the Late Archaic period. All of the points in Figures 15 and 16 are also from the Pulltite area. Some of these points were collected at 23SH94, but Mr. Banks is unable to recall which relate to the site and which were collected elsewhere on the former Current River Resort property.

The overall impression received from investigations at 23SH94, is that the site is shallow, but not badly disturbed. It seems to have been used for short periods of time, probably during the Late Archaic period. Evidence for long-term or intensive habitation is lacking. The limited diversity of stone tool forms seems to indicate that the site was used as a resource procurement or processing station, rather than a base camp. Since the 1979 testing program at 23SH94 was limited, these interpretations must be considered tentative. Recommendations relating to additional study of the Pulltite site are offered in Section VII.

VI. 23SH106

Heavy visitor use of the canoe landing at Akers Ferry has created a need for a vault toilet in reasonable proximity to the canoe landing. The park staff suggested that a relatively flat bench near the existing campground amphitheater would be the most desirable location for this facility. Initial surface examination of this area by staff of the Midwest Archeological Center revealed the presence of chipped stone debris in areas exposed by erosion. A line of shovel test holes paralleling the existing fence were excavated at five meter intervals across the top of the bench. These tests revealed that chipped stone debris, indicative of prehistoric occupation is present in subsurface context across the entire bench. Consultation with District Ranger Don Utterbach suggested that a vault toilet in that general area was greatly needed. On the basis of this need, the Midwest Archeological Center determined to undertake test excavations for the specific purpose of determining the potential significance of site 23SH106.

The site is located on a narrow bench at the base of a gently sloping hill adjacent to the ampitheater at Akers Ferry and about 200 m southwest of the intersection of Hwys. K and KK. The edge of the bench has been dissected by a river access road and the stratigraphic structure of the bench is exposed in numerous small erosional gullies. The site appears to cover an area of about 90 by 30 meters. A small water retention structure is present on the hill above the site (Figure 17).

Archeological testing was initiated at 23SH106 in May 1980. Two 1x1 meter test pits were laid out in the area identified by the park as being the preferred placement for the vault toilet. Under the direction of the writer, an eight person field crew excavated the two test pits in ten centimeter levels. All solid matrix was screened through 1/4"

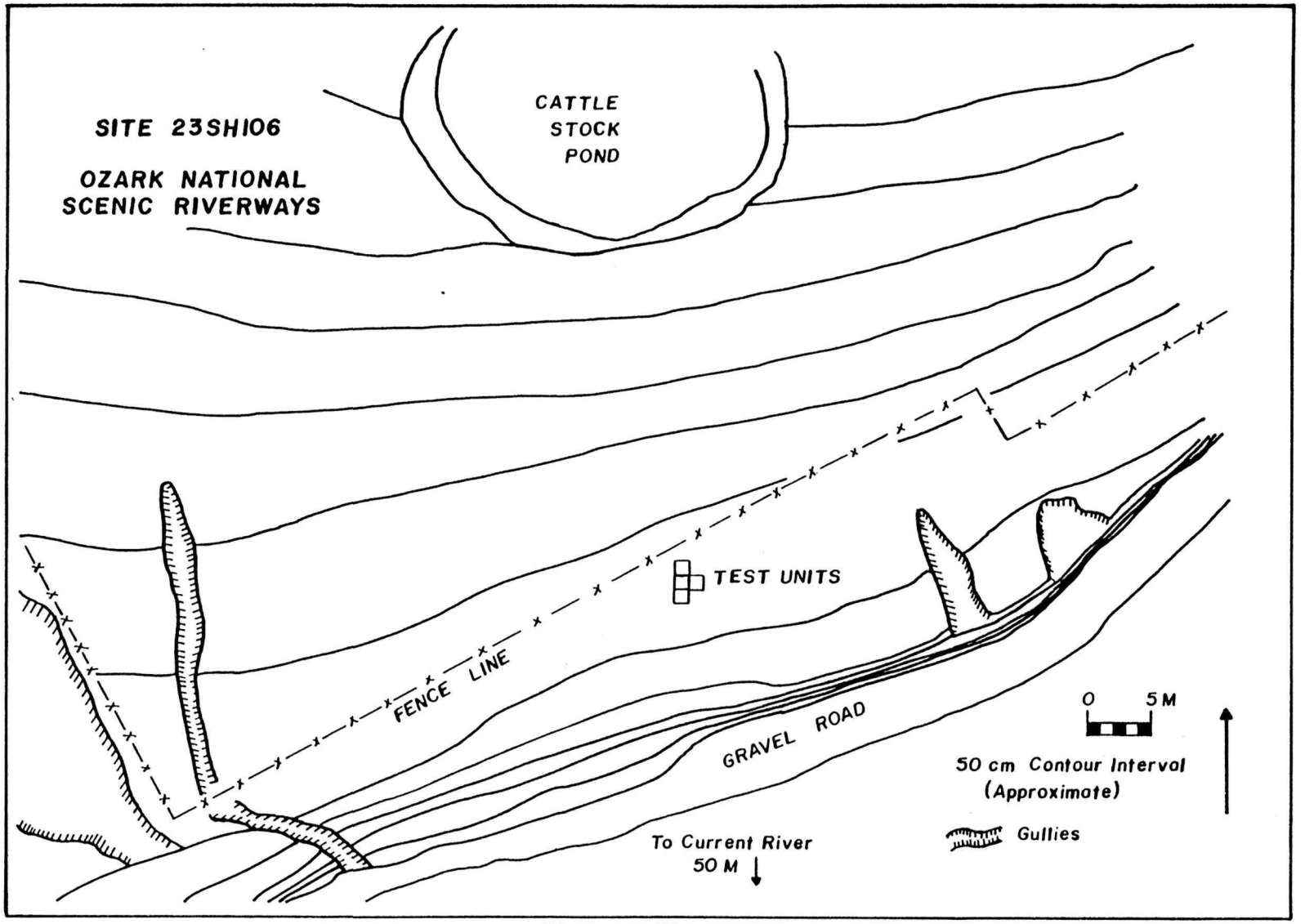

SITE 23SH106
OZARK NATIONAL
SCENIC RIVERWAYS
CATTLE
STOCK
POND
TEST UNITS
FENCE LINE
GRAVEL ROAD
0 5M
50 cm Contour Interval
(Approximate)
Gullies
To Current River
50 M

Figure 17

mesh hardware cloth. Although no definite plowzone was identified, cultural material was limited to the upper 25 cm of the deposit. The test pits were excavated to depths of 20-30 cm below surface, the point at which the deposit was judged to be sterile of cultural remains.

Archeological testing was continued at 23SH106 in September, 1980 under the direction of Jeffrey Richner. Two additional test pits were excavated near the first test pits. All matrix was screened through 1/4 inch hardware cloth, but the units were excavated as single vertical units. As noted during the excavation of test pits 1 and 2, cultural remains were found only in the upper 20-25 cm of the deposit.

Profiles of the areas tested revealed only limited stratigraphic change from the surface to 30 cm below surface. The color of the deposit did not change in a noteable way, but the matrix became more compact and rocky at about 20 cm. below surface. No visible evidence of a plowzone was detected and the humus zone was limited to the top centimeter of the deposit.

The artifactual remains recovered from surface collection and limited testing at 23SH106 are limited mainly to chipped stone tools and debitage. Lithic debris recovered from 23SH106 is quantified in Tables 12 and 13. These materials include 81 flakes, 62 proximal flakes and 753 non-diagnostic elements. These materials consist mainly of locally available cherts that range from white to light gray in color. The sample is composed largely of interior and secondary flakes, but primary flakes are also present. This implies that a relatively broad spectrum within the lithic reduction and tool manufacture sequence is represented. This is supported by the variety of platform preparation. Although facetted platforms represent the largest category, plain and cortex platforms are present in relatively high frequencies also. Despite the small size of the sample

Table 12: Flakes, Proximal Flakes and Blades from 23SH106

	Flakes	Proximal Flakes	Blades	Plain Platforms	Facetted Platforms	Cortex Platforms	Bulb-only Platforms	Primary	Secondary	Interior
Test Pit 1 - Level 1	3	4	0	2	4	1	0	1	4	2
Level 2	24	18	0	14	22	4	2	3	14	25
Level 3	9	8	0	4	9	4	0	0	5	12
Test Pit 2 - Level 1	4	5	0	4	3	0	2	0	4	5
Level 2	27	12	0	11	20	7	1	4	16	19
Test Pit 3 - Levels 1 & 2	9	5	0	7	4	2	1	0	5	9
Test Pit 4 - Levels 1 & 2	6	10	0	6	7	3	0	0	8	8
Totals	82	62	0	48	69	21	6	8	56	80

Table 13: Non-diagnostic Shatter from 23SH106

	Count	Weight
Test Pit 1, Level 1	59	112.2
Level 2	192	636.6
Level 3	80	170.5
Test Pit 2, Level 1	49	39.6
Level 2	240	387.9
Test Pit 3, Level 1 and 2	102	293.5
Test Pit 4, Level 1 and 2	71	81.6

from 23SH106, it seems apparent that a broad spectrum of stone tool manufacturing activities were conducted, rather just a single specialized stage in the reduction sequence.

In comparison to lithic debris, chipped stone tools from 23SH106 are few in number. Table 14 summarizes the provenience of these artifacts. Retouch pieces from the site include 3 pieces of non-diagnostic shatter and 2 proximal flakes that have been modified by limited retouching of one or more edges. Bifaces from the site are generally fragmentary and seem to represent roughout or blank stages of biface reduction. The lone projectile point from the site is also fragmentary, with a straight stem and a concave base. It is unfortunately too fragmentary to be assigned to a temporal period, although the size and shape of the specimen are consistent with points generally assigned to the Late Archaic or Woodland horizons.

Table 14: Chipped Stone Tools from 23SH106

	Surface	Test Pit 1 Level 1	Test Pit 1, Level 2	Test Pit 1, Level 3	Test Pit 2, Level 2	Test Pit 2, Level 1	Test Pit 4, Level 1	Site Totals
Bifaces		1			1	2		4
Projectile Points	1							1
Retouch Pieces		1	1	1		1	1	5

The small sample of chipped stone tools from 23SH106 provides little evidence that can be used to interpret the function of the site. The limited number and diversity of tool types, and the fragmentary nature of the bifacial implements may be indicative of stone tool manufacturing

activities. This model implies that stone tools were roughly shaped at 23SH106 with completed tools being carried off for use at another locality and debitage and tools broken during manufacture left at the site. The presence of a relatively small quantity of fire-cracked (Table 15) rock may indicate that the site also served as a short term camp during the performance of these activities, or the fire-cracked rock may have been produced in the process of heat treating the lithic material during the stone tool making process.

Table 15: Fire-cracked rock from 23SH106

Provenience	Count	Weight(g)
Test Pit 1, Level 1	16	134.2
Level 2	74	652.5
Level 3	4	72.0
Test Pit 2, Level 1	4	7.9
Level 2	44	588.7
Test Pit 3, Level 1 and 2	3	122.7
Test Pit 4, Level 1 & 2	3	249.3
Totals	148	

The disturbed nature of 23SH106 is greatly responsible for the limited nature of the interpretations offered here. Construction of a water retention structure and river access road along with historic agricultural activities have had an extensive impact upon the context of the site. At this time, it seems to represent a shallow prehistoric site which was largely used for stone tool manufacture. There is not enough evidence to determine whether the site was used intermittantly over a long period of time or whether it represents a single temporal period.

Discussion and Recommendations

The archeology of the Ozark National Scenic Riverways has only received cursory attention in the past. This study has focused on evaluation of three sites which may be affected by proposed construction within the park. The three sites were recorded as part of a preconstruction survey of the proposed construction zones, and testing was undertaken to evaluate the size, depth, and content of the cultural deposit. Evaluation of the sites must be accomplished in reference to our current knowledge of the archeology of the Current River valley.

Site 23SH93 at the Alley Spring Sewage Lagoon appears to be a large multicomponent site. Evidence from the 1979 testing and study of private collections from the site indicate that the site was occupied initially during the Early Archaic and then intermittantly until the end of the prehistoric period. The site contains a relatively high density of artifactual remains, but the context of the remains has been thoroughly mixed by construction of the sewage lagoon. Historic period artifacts from the site likely reflect a late-nineteenth century farmstead, and related activities.

The Pulltite site, 23SH94, in group campgrounds 2 and 3 is a small lithic scatter on what appears to be a colluvial surface formed by sediments washing off the hillside. Limited testing in 1979 indicates that the site is shallow but largely intact, with little evidence of major disturbance. The 1979 investigations and data derived from private collections indicate the site was occupied mainly during the Late Archaic period. It is likely that the site served as a temporary camp and extractive station, but this cannot be determined with certainty from the currently available data.

Site 23SH106 at the Akers Ferry amphitheater was recorded during a preconstruction survey of that area. Testing in 1980 provided evidence that the site is shallow and has been extensively disturbed, presumably by historic agricultural activities. Very few chipped stone tools were collected at the site. The small overall sample of chipped stone debris seems to indicate a short-term ephemeral occupation. No temporally diagnostic artifacts have been collected from the site so it is impossible to identify the temporal period in which the site was occupied.

The archeological investigations at these three sites have clearly produced data which can be used to interpret the archeological record at Ozark National Scenic Riverways. The study has provided additional evidence about the culture history of the region, and demonstrated that the area was occupied over a great deal of time. It is also important to note that this study has contributed to improved cooperation between professional and amateur archeologists with an interest in this area. Future studies must encourage even greater cooperation if the public is to benefit from the full interpretive potential of archeological research in the park.

Although this study has produced a body of useable data, it has also raised a number of questions about the archeology of Ozark National Scenic Riverways. This is a desirable aspect of all research. The questions which have been generated as a result of this study will help guide future research, and will thereby produce greater interpretive and resource management benefits for visitors to the park.

a. Significance

Significance of archeological resources has become the basis for making decisions about the utilization, avoidance or protection of individual

resources. Significance evaluation is a dynamic process (Lynott 1980b) which changes in response to a variety of factors. In the same manner that natural resources must be managed as an evolving system, cultural resources are most effectively managed with dynamic and flexible policies.

The condition of the regional archeological resource base is a major consideration in evaluating archeological significance. In an area where all sites are well protected with minimal disturbance from modern forces, the intact condition of a single site will be of little importance in judging the significance of that site. However, if the same area is greatly altered by timbering or urban development, and only a small percentage of the total number of sites are still preserved in good stratigraphic context, then the condition of a particular site becomes an important criterion in significance evaluation. Thus, it is possible that a site might initially be considered only one of many well preserved Archaic hunting stations in an area, but when subsequent land use activities destroyed all other Archaic hunting stations, it is then highly likely that the significance of the remaining intact site will be greatly increased.

The significance of archeological resources is also related to the methodological and theoretical development of the archeological profession. Research topics which were considered very important in 1950 have become less so today as the sophistication of researchers has increased. In the next few decades, the archeological profession will evolve to new levels of sophistication and new research topics will emerge. Since significance evaluations are frequently measured against research questions or problems (Raab and Klinger 1977), the significance of a resource will evolve as the level of research questions evolve.

These hypothetical cases clearly illustrate the dynamic nature of significance evaluation in archeology. Most federal agencies treat archeological

remains through a management policy that ignores the dynamic nature of archeological research and significance evaluation. Calabrese (1976) has argued that the existing decision-making system frequently represents an irreversible committment of non-renewable resources. Managers in some development agencies prefer to fund data recovery programs at significant sites, proceed and destroy resources without data recovery at non-significant sites, and never consider either of the resources in long-range planning policy.

The National Park Service, as a result of the organic legislation under which it was established, is obligated to consider archeological resources in a long-term perspective. In the same manner that National Park Service units are preserved for natural resources, the cultural resources under National Park Service jurisdiction should be accorded the same protection. Archeological resources are truly finite and non-renewable. If they cannot be preserved for future generations within National Park Service areas, it is unlikely that they will be preserved anywhere. Therefore, even if a site is judged insignificant, it is in the best interest of the National Park Service and the people of the United States to protect the resource to the greatest degree possible without jeopardizing other programs. Several decades of methodological development within the archeological profession and continued deterioration of the regional resource base may greatly enhance the significance of a formerly insignificant site.

Archeological significance is generally evaluated against a number of categories. Although the number of significant categories is potentially endless, scientific, historical, ethnic, social or public, the legal significance are the most frequently utilized.

Scientific significance relates to the potential of a site to help answer contemporary research questions. Scientific significance is closely related to research potential and is most easily evaluated against a research design (Raab and Klinger 1977). Historical significance relates to resources which are characteristic of a prehistoric culture, historic tribe, temporal period, historic event or a specific individual that is important in history. Ethnic significance relates to sites which may be of religious, mythological or social importance to a specific ethic group, and social or public significance refers to sites which are of importance to public education and awareness about our cultural heritage. Legal significance relates to specific criteria which have been authorized by the United States government (36CFR800). More detailed discussion of significance categories is available in Scovill, Gordon and Anderson (1972), Moratto and Kelly (1977; 1978), Glassow (1977) and Schiffer and Gumerman (1977).

This brief description of significant categories illustrates that none of the categories are mutually exclusive. The overlap of categories and the dynamic process of significance evaluation makes this one of the more creative aspects of archeological science. Researchers are obliged to consider any and all ways in which a given resource may be significant.

b. Recommendations

Site 23SH93 is considered to be not significant in regard to any of the categories of significance. The site has been greatly disturbed and the context of artifacts is thoroughly mixed. The site does not relate to any known ethnic religion or myth that might make it significant to a particular ethnic group. The site does not relate to any historic

person or event, and the proximity of the site to the Alley Spring sewage lagoon makes potential its value for public education minimal. It is possible that data from the site might contribute to some problem of scientific importance, thereby making the site significant under criteria outlined in 36CFR800. However, it is this writer's opinion that the site is thoroughly mixed and disturbed, and any questions which might be answered through additional work at the site are probably trivial in nature.

In terms of the mission of the National Park Service to preserve and protect the significant archeological resources under their control, the disturbed condition of 23SH93 does not warrant active preservation. However, it is recommended that efforts to avoid further disturbance to the resource be emphasized. If possible, additional construction or land alteration at the site should be avoided. Additional research using current methods is not likely to produce information that will justify the expense of the research, but in 20 to 50 years archeological techniques may advance sufficiently to extract worthwhile information.

Site 23SH94 is considered as a result of this study to be potentially significant. The context of cultural remains at the site appears to be largely intact and thus reflects directly upon the past processes which created the site. In regard to the National Register eligibility criteria outlined in 36CFR800, the site is likely to yield information which is significant to the interpretation of the Late Archaic/Woodland periods. Careful research at the site is likely to clarify the kinds of activities conducted at the site, the temporal extent of the occupation, and the position of the site in the Late Archaic/Woodland settlement patterns of the upper Current River valley.

It is recommended that 23SH93 be nominated to the National Register of Historic Places. All activities which will disturb the earth at this

site should be preceded by a section 106 review. Grading activities to maintain the access road for the group campground should be conducted in a careful manner to avoid disturbing the site deposits along the margins of the road. Construction of additional campground facilities at site 23SH94 should be preceded by a Section 106 review.

Site 23SH106 is considered to be not significant in regard to any major significance category. Evidence from the 1980 testing program has revealed that the site is very shallow and extensively disturbed. Construction of a small water retention structure and other agricultural activities have greatly altered the context of archeological remains at the site. The site does not relate to the religious beliefs or mythology of any known ethnic group, nor does it relate to an important historic event or person. The site has very little visual manifestation which would make it significant to public education. The disturbed condition of the site makes it unlikely that data from the site would contribute in any consequential way to the solution of current research problems. Overall, the disturbance of 23SH106 by historic land modification has resulted in the site not meeting the criteria outlined in 36CFR800 for eligibility to the National Register.

It is recommended that only necessary construction, those projects which cannot be effectively located elsewhere, be planned at 23SH106. It is desirable to protect the site as much as possible, but not if it will jeopardize the success of other programs. The site has minimal significance in terms of contemporary archeology and does not meet the standards for eligibility to the National Register.

c. Summary

The 1979 and 1980 archeological investigations at 23SH93, 23SH94 and 23SH106 have produced a useful body of data about the prehistory of Ozark National Scenic Riverways. The research will contribute to our cumulative knowledge of regional archeology and will ultimately lead to a better understanding of past patterns of human adaptation. Although none of the sites which were studied are large and impressive, the information they contain has contributed to a more complex understanding of the past. Archeologists have learned that it is essential that all types of sites in a region be studied and understood, if the complete archeological record is to be interpretted correctly. Failure to study any aspect of past life, or to overemphasize particular segments of the archeological record, will likely result in an inaccurate reconstruction of cultural evolution and past behavior patterns.

Two of the three sites which were tested as part of this study have been found to lack the qualities necessary to be considered potentially eligible for the National Register. Both of the sites have been extensively disturbed by modern activities and the current pattern of cultural remains no longer reflect the prehistoric patterns which created the site. Although the sites do not appear to be eligible for the National Register of Historic Places, it has been recommended that additional ground disturbance be limited to only those projects and activities which are essential. The third archeological site investigated during this study has been evaluated to be potentially eligible for the National Register. The site seems to represent a single component Late Archaic camp that was occupied intermittently for short periods of time. It is the only site of this type currently recorded in the Ozark National Scenic Riverways.

This report has tried to emphasize that the National Park Service is directed by a major body of historic preservation legislation to actively protect archeological resources. The National Park system is one of the few places where significant archeological sites are protected for the benefit of future generations. As non-renewable records of the nation's cultural heritage, it is incumbent upon the National Park Service to recognize and actively participate in this role of stewards of the archeological record. If archeological sites cannot be protected and preserved within the National Park systems, it is unlikely that many intact sites will remain at the beginning of the next century.

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Appendix A: Laboratory Analyses of Lithic Materials

Lithic materials were initially sorted into four classes: lithic debris, chipped and ground stone tools, fire-cracked rock, and natural or unmodified rock. These classes of material were then further sorted into additional sub-groups, from which a variety of discrete and continuous observations were made and recorded. The analyses was conducted in a standardized manner to permit comparisons between the three sites. Natural or unmodified rocks were identified as lacking evidence of purposeful human alteration or modification which might have been the product of extreme heat. Fire-cracked rock included granitic and sedimentary rocks which appeared burned, fractured or oxidized as a result of being subjected to extreme heat. Angular shape without evidence of concidal fracture was a major criteria used in identifying fire-cracked rock, but color and texture were also used. Lithic debris consists of the cores and byproducts of chipped stone tool manufacture, while chipped stone tools include pieces which appear to have been deliberately shaped by percussion or retouch flaking. The following definitions were used during the laboratory analyses of lithic materials at sites 23SH93, 23SH94, and 23SH106.

Flake -a piece of chipped stone with a complete bulb of percussion and thin tapering edges at the margins

Proximal Flake - a broken flake with a complete bulb of percussion

Blade - a flake with roughly parallel sides which is twice as long as it is wide

Non-diagnostic shatter - chipped stone without a complete bulb of percussion, including chunky and blocky pieces as well as distal fragments

Primary Elements - lithic debris with 100% cortex on the dorsal surface

Secondary Elements - lithic debris with 1-99% cortex on the dorsal surface

Interior Elements - chipped stone debris with no cortex on dorsal surface

Cortex Platform - striking platofrm covered with cortex

Plain Platform - striking platform made upon a noncortex surface and lacks multiple flake scars resulting from platform shaping

Facetted Platform - striking platform with two or more visible flake scars

Bulb-only platform - crushed or absent striking platform associated with a bulb of percussion

Dorsal Flake Scar Count - the number of flake scars visible on the dorsal side of flake, or blade

Length - measured only on flakes and blades, consists of maximum dimension along the medial axis of a flake or blade

Width - maximum dimension measured at a perpendicular to the medial axis of a flake or blade

Thickness - a maximum dorsal-ventral dimension of lithic debris having a recognizable bulb of percussion

Weight - measured in grams