

AN ARCHAEOLOGICAL SURVEY
OF THE
NORTH CAROLINA ZOOLOGICAL PARK

PREPARED BY THE RESEARCH LABORATORIES OF ANTHROPOLOGY
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INTRODUCTION

The concept of a North Carolina zoological park, developed over the past ten years, was made a reality in 1975 with the construction of the Interim Zoo in Asheboro, North Carolina. At that time, a superficial survey was conducted by the Archaeology Section of the North Carolina Department of Cultural Resources (Garrow 1975). During this one-day survey, four prehistoric sites and one historic site were recorded, with the recommendation that "a full scale archaeological survey of the zoo property should be completed and evaluated before any additional land disturbance is undertaken" (Garrow 1975:11). To fulfill this recommendation Mr. Peter Crolius, Executive Manager of the North Carolina Zoological Authority, contracted with the Research Laboratories of Anthropology, University of North Carolina at Chapel Hill, to undertake an archaeological survey of the entire North Carolina Zoological Park property.

Although the survey was conducted by Mr. Ralph Bunn and the author during the months of February and March, 1976, funding was not provided for the completion of the project until January, 1977. During the year between the time the survey work was completed and the report written, construction within the park has continued, destroying, altering, or covering sites. An on-the-spot check was conducted to note the extent of the damage to various sites and the resulting comments can be found

in the site description. Appreciation is expressed to Mr. Richard Cooper, North Carolina Zoological Park, for his cheerful donation of time and energy.

The purpose of the project was not only to locate sites of prehistoric and/or historic utilization, but also to assess the importance of these sites in terms of their potential for contributing additional knowledge concerning past lifeways. Unlike many natural resources, cultural resources (particularly archaeological sites) are nonrenewable, making the assessment of their importance and the recovery of data essential. Only recently have Americans begun to realize the importance of protecting the few remaining indications of the past as part of their own heritage. By contracting for an archaeological survey, the North Carolina Zoological Authority is ensuring that this heritage is preserved for future generations by either avoiding or salvaging significant sites.

This report details aspects of the environment which may have influenced occupation of the area, the methodology used for the recovery of the data, the analyses of the located sites and associated artifacts, and recommendations pertinent to the future development of the area. For the purpose of this survey, "site" is defined as any area where prehistoric or pre-twentieth century remains were located. Other terms will be defined as used.

Archaeological investigation in North Carolina dates back to the 1870's when the Valentine Brothers explored archaeological sites in the mountain area of North Carolina (Valentine Museum 1898), and the Bureau of American Ethnology started explorations in the Piedmont (Holmes 1884). A coordinated effort to determine the significance of the archaeological

potential of North Carolina was not begun until the 1930's when Joffre L. Coe, with other members of the Archaeological Society of North Carolina, began a state-wide survey (Coe 1934:11-14). It was, however, going to take close to 30 years for the complex record of past cultures to be worked out in any detail (Coe 1952, 1964) and the process is still continuing.

The best summary of the archaeology of Piedmont North Carolina is provided by Coe (1964) as a result of work undertaken at the Hardaway, Doerschuk and Gaston Reservoir sites. Four major cultural periods, covering a time span in excess of 20,000 years, are recognized for most of the southeast. The first period is termed Paleo-Indian and is characterized by small bands of nomadic hunters, a cooler and moister environment, and tool assemblages composed of basally thinned, side-notched projectile points, fluted, lanceolate-shaped projectile points, side scrapers, end scrapers, and drills. This period is evidenced only by the Hardaway Complex in North Carolina (Coe 1964:120), and dates from about 10,000 to 8000 B.C., contemporaneous with the Clovis Complex in the southwest (Coe 1975:personal communication).

The Archaic Period does not form a sharp break with the Paleo-Indian Period but is a slow transition characterized by a modern climate, an increase in population, and an increase in the diversity of material culture. The Palmer and Kirk Complexes show a gradual change from the Hardaway, but there is no evidence of diffusion or migration of new ideas from the outside. Projectile points become uniformly corner-notched and are frequently serrated. Bases are ground in the Palmer Complex with the trait declining in the Kirk Period. There is a

transition to broad-stemmed points in the Kirk Complex with some influence from the west late in time (Coe 1964:122). Later in the Archaic Period, projectile points break radically with tradition, exhibiting intrusions from the west (Morrow Mountain Complex) and later from the northwest (Guilford Complex) (Coe 1964:122-123). It was also during the late Archaic that a new technique of lithic manufacturing was introduced: stone polishing or grinding. Previously, only flaking had been known, which would produce a sharp, but fragile, edge. With ground stone, the edge, although not as sharp, was more lasting and durable. The first signs of atlatl weights also appear in the Archaic. These items were attached to atlatls, or spear throwers, for reasons not yet clear. The first stone (steatite) pottery was made during the Savannah River Phase (Coe 1964:123). The Archaic Period covered a span of close to 8000 years in North Carolina, from about 8000 B.C. to 500 B.C.

The Woodland Period begins by definition with the introduction of clay pottery. In some parts of the southeast, pottery was being made as early as 2500 B.C., but in North Carolina the first ceramics, called the Badin Series, date about A.D. 1 (Coe 1964:55). At the same time that pottery was introduced from outside North Carolina, large, triangular projectile points are also found. The Woodland Period is characterized by increased sedentism, horticulture, pottery, triangular projectile points, and increased social complexity (Coe 1964:124).

The Woodland Period is effectively divided into two phases: the Developmental and the Climatic (Coe 1952). The Developmental phase is marked by cord, fabric, and net impressed pottery, showing connections with the north. The Developmental phase lacks temple mounds, although

it lasts, in some areas of the Piedmont, up to the Historic Period. The Climatic phase is marked by complicated stamped pottery, and temple mounds (Pee Dee culture). This phase shows strong ties with the Mississippian and Lamar cultures to the south, but exhibits limited influence in North Carolina.

The Historic Period is marked by rapid expansion of white, colonial settlement, and the equally rapid decline of native American populations beginning about A.D. 1700. During this period there are numerous accounts of native customs, occasionally colored by European biases and imagination (Bartram 1940, Brickell 1968, Lawson 1967, and Lederer 1902). The first land grant for the Randolph County area is dated October 7, 1754, and was deeded to William Ellis by the Earl of Granville (Hughes 1976). Settlement progressed rapidly from that point on and Randolph County was separated from Guilford County in 1779. The county seat was established in Asheborough in 1796 (Corbitt 1950:179-180).

The archaeological research in Randolph County consists of a preliminary report on the possible location of the Keyauwee Indian village (Coe 1937), and an archaeological survey of the Randleman and Howard Mills Reservoir areas (Wilson 1975). However, much of the investigations in the surrounding counties of the central Carolina Piedmont can offer insight, and are useful for comparative purposes.

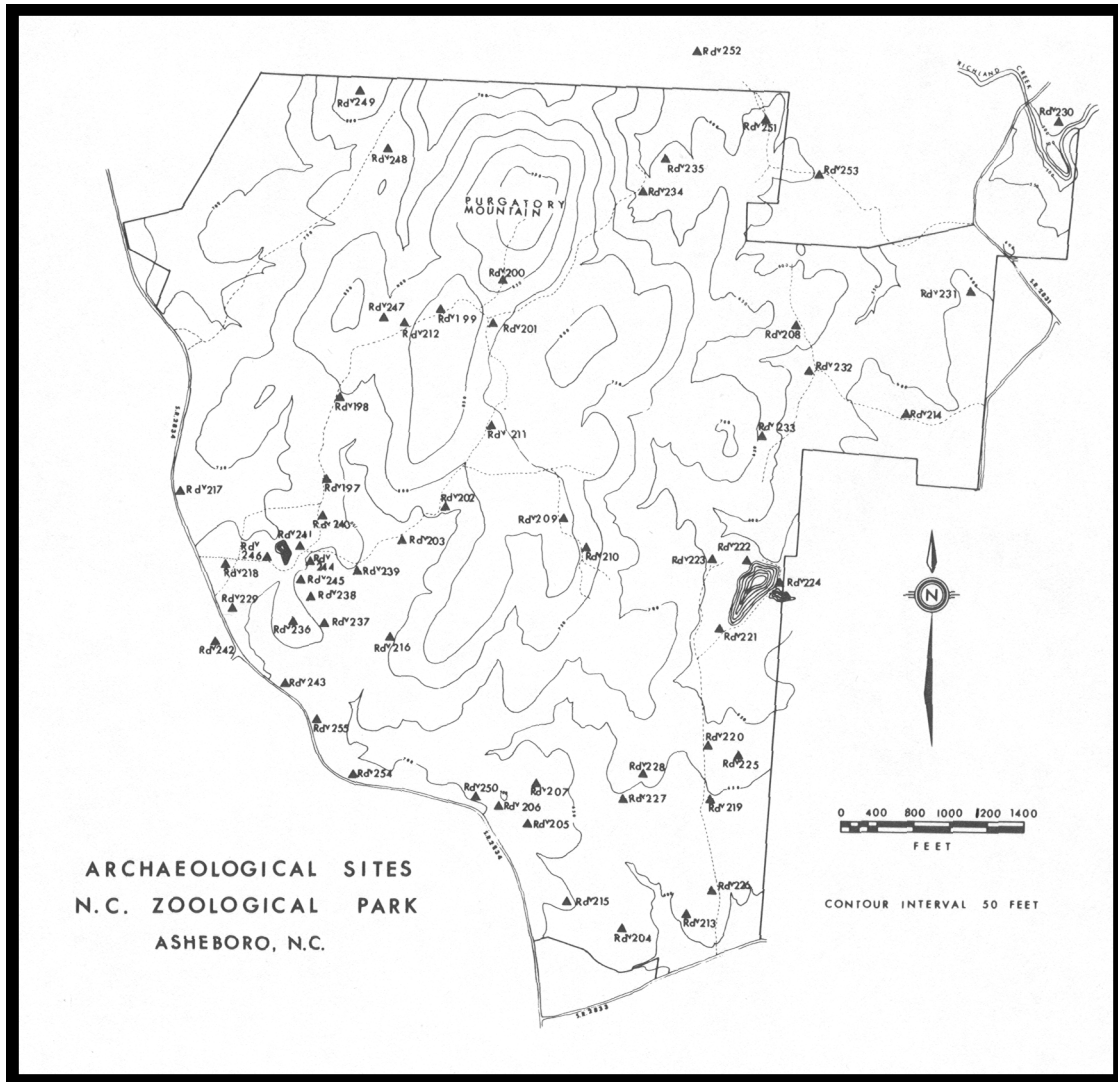


FIGURE 1

ENVIRONMENT

The North Carolina Zoological Park is located on a 1,371 acre tract of land in Randolph County, about 7.5 miles southwest of the city of Asheboro. The park property is bounded on the west by S.R. 2834, on the south by S.R. 2833, on the east by a line running about 2,000 feet west of S.R. 2831, and on the north by a line running from 2,000 to 1,000 feet south of Richland Creek. The most notable topographic feature within the park is Purgatory Mountain, having a maximum elevation of 941 feet ASL.

The entire park exhibits a steeply sloping, undulating topography which varies as much as 220 feet in elevation (N.C. Department of Natural and Economic Resources 1974:15). About 75% of the park has slopes in the range of 10 to 20%, while an additional 10% of the land has slopes greater than 20%. (Plate 1). This topography forms a complex system of ridges and valleys running southwest to northeast.

This rugged topography reflects the underlying volcanic rock types which, "are indicative of a pulsating volcanic cycle" (N.C. Department of Natural and Economic Resources 1974:16). This area is within the Slate Belt of the southern Piedmont extending from eastern Georgia across South Carolina and North Carolina and into southern Virginia (USDA 1939:1064). The term slate may apply to a variety of porphyritic, and nonporphyritic altered rocks (Fleming 1958) with colors ranging from dark grayish-black to light blue or green. These beds were laid down during Pre-Cambrian times (Bowman 1954:75) with deposition of greenstone magma following. During the late Paleozoic the older slates were folded,

and in the Triassic the area became disrupted by normal faults. Following the Triassic the only agent of alteration has been weathering, which has caused considerable erosion in some areas.

The park is predominated by felsic crystal tuffs, lithic crystal tuffs, and felsic flow rocks, with occasional outcroppings of quartz veins (N.C. Department of Natural and Economic Resources 1974:16-17). The various tuffs, being composed of volcanic ash and dust usually have poor fracturing ability, and are not readily suitable for flint-knapping (Hurlbert 1946:363). Within the park boundary, only one area was located which provided an acceptable source of raw material for flint knapping (Rd^v235).

Randolph County is within the Georgeville-Alamance Soil area (USDA 1939:1064), and the park itself is predominated by soils of the Georgeville and Tatum series (N.C. Department of Natural and Economic Resources 1974:17; Kirby 1976). The soils are derived from the weathering of fine-textured rocks and under forest residue (Kirby 1976:14, 24). Soils in this area have a silty loam texture, are low in organic matter, and medium to strongly acidic. The soils are dark grayish-brown to reddish-brown, about six inches in depth, and are underlain by a yellow-red to red clay subsoil. Bedrock may be from 3 to 5 feet below the surface, if it is not exposed.

The only major watershed in the vicinity of the park is Richland Creek, which touches the park along a 500 foot stretch. The flow of Richland Creek is 0.19 cubic feet per second (N. C. Department of Natural and Economic Resources 1974:21). There are a number of small creeks on the park property, most of which are spring fed, that are dry or unusable during portions of the year.

The potential natural vegetation of the Randolph County area is the Oak-Hickory-Pine forest, characterized by medium tall to tall forests of broadleaf deciduous and needleleaf evergreen trees (Küchler 1964). The area is also known as the Oak-Pine forest region (Braun 1950:259) which is generally co-extensive with the Piedmont (Plate 2). The extant vegetations of the park includes oak (Quercus spp.), and hickory (Carya spp.) as overstory trees and dogwood (Cornus florida), maple (Acer rubrum), and sourwood (Oxydendrum arboreum) as understory trees.

Cultivation has caused the destruction of small tracts of virgin timber and replacement of them with patchworks of fields, second-growth forest communities, and culled hardwood stands. The upland vegetation is interrupted by a band of bottomland forest along Richland Creek. Predominant species include river birch (Butula nigra), black willow (Salix nigra), cottonwood (Populus spp.) sycamore (Platanus occidentalis), and sweetgum (Liquidambar styraciflua) (Braun 1950:265).

Reconstruction of the vegetation for the period from 10,000 B.C. to A.D. 1500 is based on paleobotany and pollen analysis. Pollen analysis from sites in the Piedmont of South Carolina suggest forests of fir (Abies spp.), spruce (Picea spp.), and pine (Pinus spp.), during the early Pleistocene. The rolling uplands probably contained oak-hickory forests, while the protected slopes contained stands of mixed mesophytes (Braun 1950:471). During the terminal Pleistocene, Braun (1950:513) states, "nowhere far beyond the glacial boundary was the climate . . . sufficiently severe to displace occupying vegetation." Although the climate was slightly cooler and moister during the Paleo-Indian and



PLATE 1
View of rolling topography looking toward Rd^v228



PLATE 2
View of Oak-Hickory Forest showing extensive ground cover

Archaic Periods in the central Carolina Piedmont, the climate and potential resources were much as they are today. The stands of pine and pine-hardwood mixtures, representing various stages of secondary succession, are not recent developments and were common during the Pliocene-Pleistocene transition.

The effect of modern cultivation and land usage on the flora of an area is documented by an examination of early plat records along the Ogeechee River in Greene County, Georgia (DeVorse 1971). The comparison between tree species of the area noted on plats dating to the 1700's and today's coverage shows a 50% loss of hardwoods and a 300% gain of pines. The reversal of the original species composition may have had extensive influence on the fauna of the area. The original hardwood forest it seems would have provided a more attractive setting for various animals than the present forest cover. The original forest would also have provided significantly greater numbers of edible fruits and nuts.

The niches which are provided by the Oak-Pine forest, with the associated open spaces, make an ideal habitat for deer, and other mammals (such as rabbit) (Klein 1970:30). Although the current number of deer in the Randolph County area is very low (N.C. Department of Natural and Economic Resources 1974:24) the number may range up to 84 per square mile, with the optimal number being 40 per square mile (Shelford 1962:28). Deer was certainly one of the major food sources for the Indians, and Lawson (1709) lists 27 additional mammals and notes that many were utilized by the aboriginal inhabitants in the early 1700's.

The natural environment of the survey area would have been bountiful in terms of species diversity and numbers of flora and fauna in prehistoric times. Water sources, although not plentiful, would have been sufficient to support the various animals and wandering hunting bands. Sources for lithic manufacture are readily available in the area of Randolph County and one quarry site is located within the park boundaries.

The natural environment of the park places restrictions on the types of sites that are likely to be present and on the condition of the sites that are found. It was felt that Woodland sites were not going to be found because the park had no areas where agriculture could be practiced effectively with aboriginal methods. The steep slopes, low inherent soil fertility, and lack of available flood plain suggested that the sites recovered should date prior to A.D. 1000, when horticulture was increasing in importance. Those sites that were recovered would be found on ridges and knolls, and would have been subjected to continuous erosion (Coe 1964:6). Besides the fact that the natural rate of erosion in the Piedmont exceeds the rate of deposition, thus preventing sites from being preserved, the plowing and logging may have further damaged sites, making the discovery of any stratified sites unlikely.

METHODOLOGY

As previously mentioned, the environment places constraints on not only the types of sites found, and their condition once found, but also on the likelihood of finding sites at all. Of the 1,371 acres composing the park, 143 acres are open (10.4%), 100 acres are in pasture (7.3%) and 110 acres have the topsoil eroded or removed (8.0%) (N.C. Department of Natural and Economic Resources 1974:100-102). Over 81.6% of the park area is covered with leaf mold or grass (Plate 2). The problem of locating sites in heavily wooded or grassy areas has long plagued the archaeologist, and, despite numerous efforts at circumventing reality, no easy solution has yet been found.

The park was covered by foot surveys concentrating in 2 areas: roads or other areas of erosion and clearing, and ridge tops. Five principal ridge lines are found in the park property, all but one running southwest to northeast. These ridges were extensively explored as they seem to have been favorite areas for aboriginal encampments. Although a number of sites were located in the valley areas (particularly in the area of the Interim Zoo), the majority of the recorded sites were located on the ridge tops or on the slopes. The sites found on the slopes were probably clusters of material transported downhill as a result of severe erosion.

In forested areas where the investigator's knowledge suggested sites should be located, five-foot square areas of leaf mold were raked back every 20 feet, exposing the soil. In other areas, small test pits were excavated to expose the soil profiles. In most cases these profiles

suggested that erosion was so severe that if sites were present in the area, there would be no context to the material recovered.

The small size and low artifact density of the sites found generally permitted complete recovery of exposed material in less than half an hour. More elaborate intra-site sampling techniques were not necessary at any of the sites recorded during this survey. Each site was plotted on a sectional map of the park having a scale of 1:12,000. Information was also noted on local environmental conditions, and drawings were made of sub-surface testing.

Once in Chapel Hill the material from each site was washed, catalogued, and numbered (Accession Number 2313). A preliminary analysis of the material was conducted in April of 1976 with a more detailed analysis undertaken prior to the completion of this report. The material recovered from the sites located during the survey of the North Carolina Zoological Park is housed at the Research Laboratories of Anthropology, University of North Carolina at Chapel Hill.

SITES

"Site", for the purpose of this report, has been defined as any area where prehistoric or pre-twentieth century remains are located. This does not imply that the existence of aboriginal material at a particular location indicates the area was utilized by the Indians. In many cases, material recovered on a ridge slope obviously was eroding from its original location somewhat higher up. Similarly, the recovery of a single projectile point may indicate either where a poorly aimed spear landed, but was not recovered, or where a wounded animal died, but was not found by the pursuing hunters. In any case, a single projectile point does not allow the speculation that aboriginal activity took place at that location.

During the survey, 54 sites were recorded within the park boundary, and an additional four sites were recorded immediately adjacent to the park (Figure 1). Because many of sites have either been damaged by park construction to date or, although important, do not warrant further investigation, fairly complete site descriptions will be given. A more detailed artifact analysis will be given in the following section of the report.

Rd^v197

Location: The site is situated 200 feet north of the zoo compound gate in the western road leading to Purgatory Mountain. This area is 100 feet north of BMZ-21, at an elevation of 738 feet ASL.

Physical Dimensions: The site occurs on top of a slight rise, and has been exposed by severe erosion. Material covers an area about 50 feet by 20 feet, and a small stream runs about 200 feet east of the site. Subsoil is completely exposed with a thin covering of broomstraw and thorns.

Material Recovered: 10 flakes, and 7 chunks of raw material were recovered. No diagnostic material was found, but the site may represent the remains of a larger Archaic chipping station located on the adjacent ridge top.

Evaluation: It is doubtful that intact stratigraphy remains at this site, due to sheet erosion and road use. Although additional surface collections would certainly provide diagnostic material from the late Archaic, no further work is warranted at this site.

Rd^v198

Location: This site is situated 500 feet north of Rd^v197 on the west road leading to Purgatory Mountain, at an elevation of about 790 feet ASL. The area is 600 feet south of BMZ-22.

Physical Dimensions: The site is on the south slope of a large hill, and was found eroding from the road side. The site covers an area of about 40 by 20 feet, and is positioned 300 feet west of a small stream. Red clay subsoil is exposed and the vegetation is sparse hardwood and brush.

Material Recovered: 10 flakes and 7 chunks of raw material were recovered. No diagnostic material was found, but the site may represent the remains of a larger Archaic chipping station located on the adjacent ridge top.

Evaluation: This site does not warrant further investigation.

Rd^v199

Location: The site is found on the road to Purgatory Mountain, about 400 feet west of BMZ-23, at an elevation of 865 feet ASL.

Physical Dimensions: The site is situated on the northwest slope of a hill, covering an area about 50 by 30 feet. The red clay subsoil with vein quartz is exposed, and the area is in hardwood and brush. The closest water source is more than 600 feet to the northwest.

Material Recovered: 7 flakes, 9 chunks of raw material, and 1 biface (Type IV? of silicified slate) were recovered. This site seems to be the remains of a late Archaic chipping station. Sites Rd^v199, 212, and 247 may all relate to the same activity.

Evaluation: The scattered nature of remains suggest that no further action be taken with this site. It is doubtful that intact stratigraphy could be found in this area.

Rd^v200

Location: This site is situated on the path to Purgatory Mountain, about 300 feet northwest of the main road, and 300 feet north-northeast of BMZ-23.

Physical Dimensions: The site was exposed by erosion in the area of a foot path leading to the top of Purgatory Mountain, and covers an area of about 30 by 30 feet. The erosion is moderate to severe, and has exposed the red clay subsoil. The area is bordered by hardwood forest, and the closest creek is 1,000 feet to the west.

Material Recovered: No diagnostic material was recovered, although 5 flakes and 4 chunks of raw material were found in the area. This probably represents a small chipping station.

Evaluation: No additional work is needed at this site.

Rd^v201

Location: The site is situated in the road at BMZ-23, about 50 feet southeast of the footpath up Purgatory Mountain. Elevation of the site is 850 feet ASL.

Physical Dimensions: The site covers an area of about 60 by 30 feet, and is on the east slope of the hill south of Purgatory Mountain. The erosion in the area is severe, and red clay subsoil is exposed. Hardwood forest surrounds the site, and the closest creek is 1,200 feet to the southeast.

Material Recovered: 3 flakes and one possible Guilford blade (weathered silicified slate) were found at this site. This material suggests a middle Archaic time frame.

Evaluation: Material was sparse at the site. It is doubtful that further reconnaissance would provide additional information. Therefore, further action is not necessary.

Rd^v202

Location: The site is about 900 feet north of the gate to the Interim Zoo, on the road to Purgatory Mountain at an elevation of 750 feet ASL.

Physical Dimensions: The site covers an area of about 80 by 30 feet, and is on the southern slope of the hill. A small creek runs about 200 feet east of the site. Erosion is moderate to severe, and red clay subsoil is exposed. The site is 425 feet north of Rd^v203.

Material Recovered: 3 flakes and 3 chunks of raw material were recovered from this site. No diagnostic material was found during the survey.

Evaluation: No additional work is felt to be necessary at this site.

Rd^v203

Location: This site is situated in the east road leading to Purgatory Mountain, 320 feet north of the gate to the Interim Zoo, at an elevation of about 740 feet ASL.

Physical Dimensions: The site covers an area of about 60 by 20 feet, and was found eroding from the road bed. Erosion in this area is moderate, but red clay subsoil has been exposed by road use. The area is covered with hardwoods and light brush. There are two creeks within 250 to 300 feet of this occupation.

Material Recovered: Recovered were 18 flakes, 12 chunks of raw material, and 2 bifaces. One biface, of porphritic felsite, was a Type II quarry blade; the other biface, of porphyritic rhyolite, was crudely shaped using percussion techniques. This site seems to date from the middle Archaic.

Evaluation: This site is located on a small terrace with a slight slope, and there is a chance that the site has not been severely eroded. For this reason, periodic surface collections should be made from this site, but otherwise no further action is presently necessary.

Rd^v204

Location: This site is situated 1,000 feet east of SR 2834 and 600 feet north of SR 2833. The elevation of the site is about 620 feet.

Physical Dimensions: The site was exposed by bulldozer cuts through low brush, but had previously been known by local collectors. The site may cover an area as large as 150 by 100 feet. Erosion is slight, but red clay subsoil is exposed. A small creek is located about 600 feet east of the site. Material was found on the southeast slope of the ridge.

Material Recovered: 69 flakes and 15 chunks of raw material were recovered from the surface survey. In addition, a Kirk stemmed projectile point of porphyritic rhyolite and a silicified slate biface were found. Five sherds were also recovered at this site: 3 were Early Developmental cord-marked and the remainder were too small for identification.

The sherds were tempered with crushed quartz, had a friable paste, and the cords had an S twist. This site was utilized intermittently from the early Archaic to the middle Woodland.

Evaluation: This site, due to the long span of occupation, and possibility of preserved features, warrants limited testing. It is one of the few Woodland sites recovered from this survey and more data from such a Developmental phase site is essential for understanding aboriginal utilization of the Randolph County area.

Rd^v205

Location: This site is 2,500 feet north of the intersection of SR 2834 and SR 2833, and about 400 feet east of SR 2834. The site has an elevation of 680 feet ASL.

Physical Dimensions: This site is situated on the southeastern slope of a ridge at the edge of the park property. An area of about 30 by 30 feet is covered with material, and a small creek runs about 500 feet to the east. This area was cleared by heavy equipment, and this activity has caused moderate erosion in the area. Vegetation in the area consists of broomstraw, and light brush.

Material Recovered: 17 flakes, 4 chunks of raw material, 1 rhyolite ovoid biface, and 1 weathered slate flake with light lateral retouch were recovered. In addition, 1 Developmental phase potsherd was found. The sherd was the bottom portion of a sand-tempered vessel which had an exterior surface treatment of simple stamping. This site may have had intermittent occupation during the Archaic and Woodland Periods.

Evaluation: This site has been impacted by the construction of a parking lot, and the site has been buried under about 3 feet of fill dirt.

Rd^v206

Location: This site is 2,800 feet north of the intersection of SR 2834 and SR 2833, and about 100 feet east of SR 2834. The site is at a maximum elevation of 701 feet ASL.

Physical Dimensions: This site is situated at the top of the same ridge as Rd^v205 and Rd^v250; and is about 200 feet northwest of Rd^v205. It is possible that these three sites date from the same occupation (Rd^v206 and Rd^v250 are separated by only 70 feet). Material from this site covers an area

of about 200 by 60 feet and a small creek is 600 feet to the northwest. This site has been cleared, and erosion is moderate due to the use of heavy equipment in the vicinity.

Material Recovered: 28 flakes, 2 chunks of raw material, 1 weathered slate flake with lateral retouch, and 1 ovoid biface made from weathered slate were recovered. The biface is ground smooth on both lateral edges, and the tip has been broken. The general size and shape of this artifact suggests it may have been an adz, a common tool during the Archaic and Woodland Periods, associated with wood working. The remains at this site, although not diagnostic, suggest this was a middle to late Archaic campsite.

Evaluation: Although the recovery of the one adz-like tool is intriguing, the site as a whole does not seem to warrant further investigation. This site has been impacted by the construction of a parking lot and could not be relocated.

Rd^v207

Location: This site is found in bulldozer cut G, 750 feet east of SR 2834, and 2,500 feet north of the intersection of SR 2834 and SR 2833. The site elevation is about 675 feet ASL.

Physical Dimensions: This site was exposed by a bulldozer cut constructing a heavy equipment road through the hardwoods east of Rd^v206, therefore the exact extent of the site cannot be determined. Material was found along a 30 foot section of the road, but it may be that only a portion of the site was found, or that material was dug with the soil. Soil in this area, which is on the east slope of a large hill, is yellow clay and erosion is moderate. A small creek is 400 feet north of the site.

Material Recovered: 4 flakes were all that was recovered. On this basis it is impossible to suggest a time period or function for this site.

Evaluation: Obviously, further work might provide additional, diagnostic artifacts. However, no additional work is suggested at this site due to the topography, which suggests that in situ remains are unlikely.

Rd^v208

Location: This site is found in a logging road 2,500 feet west of SR 2831, and approximately I mile north of the intersection of SR 2831 and SR 2833. The site elevation is 620 feet ASL.

Physical Dimensions: This site covers an area of about 60 by 50 feet; however, ground cover prevented a more accurate assessment of the size. Moderate erosion has exposed red clay subsoil, and the area is forested in hardwoods. The site is located on the southeast slope of a knoll, and is about 400 feet northwest of a small creek.

Material Recovered: 42 flakes and 6 chunks of raw material were recovered from this site, in addition to a slate Uwharrie projectile point, and the midsection of a Guilford projectile point made from a tuff. Also recovered were an ovoid biface of porphyritic rhyolite, and a triangular blade of weathered silicified slate. This site was probably a middle Archaic camp, although the Uwharrie is a late Woodland projectile point.

Evaluation: The presence of both middle Archaic (Guilford) and late Woodland (Uwharrie) material suggests that periodic surface collections are warranted at this site, but no testing is deemed necessary at this time.

Rd^v209

Location: The site is situated on both sides of the dirt road (south fork) branching off from the east Purgatory Mountain road. The elevation of the site is 815 feet ASL.

Physical Dimensions: The extent of this site could not be accurately determined due to ground conditions, but covers at least a 20 by 40 foot area. The site is in excess of 1,500 feet east of the nearest water, and is situated on the southeast slope of a small knoll. Rd^v210 is about 400 feet further south. There is slight erosion, exposing the red clay subsoil.

Material Recovered: 24 flakes were found at this site, but no finished tools were recovered. This site probably represents a small chipping station.

Evaluation: Additional work at this site is not necessary.

Rd^v210

Location: This site is situated 400 feet southeast of Rd^v209 at an elevation of 800 feet.

Physical Dimensions: This site is similar to Rd^v209, and may represent material washed from the higher elevations. Material was found within an area of about 20 by 10 feet.

Material Recovered: 5 flakes were all the material recovered despite extensive ground survey and subsurface testing. No diagnostic material was recovered.

Evaluation: No additional investigation of this site is warranted, due to the lack of material initially recovered, and to a topographic situation which does not favor the preservation of in situ remains.

Rd^v211

Location: This site is found on both sides of the east road leading to Purgatory Mountain, 1,500 feet north of the Interim Zoo gate. The site elevation is 810 feet ASL.

Physical Dimensions: Severe erosion along the road has exposed red clay subsoil. The site covers an area of 60 by 40 feet, and is situated on the east slope of a ridge. The nearest creek is over 1,200 feet south of this site.

Material Recovered: 7 flakes were recovered without associated tools.

Evaluation: No additional work is deemed necessary at this site.

Rd^v212

Location: This site is situated on both sides of the west road leading to Purgatory Mountain, 400 feet northeast of BMZ-22, and 750 feet northeast of Rd^v198. The site is at an elevation of 830 feet ASL.

Physical Dimensions: The site, on the south slope of a major ridge, extends for about 30 feet along the road side. Although the area around the road to the north and south was open, the site does not seem to extend far in any direction. The nearest creek is 400 feet to the southwest.

Material Recovered: 5 flakes, 1 chunk of raw material, and 1 Guilford projectile point base of weathered slate were found. This material suggests that the site may have been a middle Archaic campsite or chipping station.

Evaluation: It is doubtful that additional survey work at this site would add significant knowledge--no further work is recommended.

Rd^v213

Location: This site is situated in a pasture, 500 feet north of SR 2833, and 1,400 feet northeast of the intersection of SR 2833 and SR 2834. This site is at an elevation of 605 feet ASL, and is about 500 feet northwest of BMZ-4.

Physical Dimensions: The site is in open pasture on the east side of a small creek. Material was found in a bank created by barrow activities. The reddish-brown humus is .4 foot deep, followed by a red clay subsoil. Erosion in the area is slight, although the barrow pit has disturbed the site. An area of about 30 by 30 feet contained the material recovered.

Material Recovered: 5 flakes were found during the survey. No diagnostic material was evident.

Evaluation: This is another unproductive, late Archaic lithic site. Further investigation would probably not be worthwhile.

Rd^v214

Location: This site is on both sides of an unnamed dirt road 1,000 feet west of its intersection with SR 2831. The site is at an elevation of 620 feet ASL.

Physical Dimensions: This site was exposed by the cutting of a logging road in the vicinity, and seems to cover an area of about 60 by 20 feet. The nearest creek is over 1,500 feet north of the site, and erosion has exposed red clay subsoil in some areas.

Material Recovered: In addition to the 13 flakes recovered from the site, a Savannah River Stemmed projectile point midsection, made from tuff, was found. This site probably represents a temporary camp or chipping station dating to the late Archaic.

Evaluation: No additional work is recommended at this site.

Rd^v215

Location: This site is situated 400 feet east of SR 2834, and 1,200 feet north of the intersection of SR 2833 and SR 2834. The site is intermediate between Rd^v206 and Rd^v204, at an elevation of 655 feet ASL.

Physical Dimensions: This area has been severely disturbed during clearing, and is located on the eastern edge of a slope which has increased subsequent erosion. The material recovered was concentrated in an area about 20 by 30 feet, although the site may have been larger (flakes were found in an area about 100 by 80 feet). The nearest creek is 1,200 feet to the southeast.

Material Recovered: During the survey, 17 flakes were recovered from this site, but no diagnostic material was found. This site probably represents a small chipping station.

Evaluation: This site has been badly eroded and the likelihood of any material remaining undisturbed or in situ is nil. Therefore, additional work would not prove worthwhile.

Rd^v216

Location: This site is situated in the area of an old logging road, about 100 feet south of the west road leading to Purgatory Mountain and Rd^v203. The elevation of the site is 740 feet ASL.

Physical Dimensions: The site is on the southwest slope of a major ridge, and is 200 feet east of a creek. The erosion in the area is slight, and a soil profile shows the build-up of a .3 foot deposit of reddish-brown humus, overlying a yellow clay subsoil.

Material Recovered: The only material recovered from this site is the midsection of a Kirk projectile point made from weathered silicified slate. Although the area was carefully examined, no further cultural material could be recovered.

Evaluation: This site was extensively investigated at the time of the survey because of the recovery of an Early Archaic projectile point; however, no additional artifacts were recovered and, obviously, no additional work is required.

Rd^v217

Location: The site is found on the east side of SR 2834, 500 feet north of the entrance to the Interim Zoo. The site is at an elevation of 710 feet ASL.

Physical Dimensions: This site is on the right (north) bank of a small creek, and part of the site has been damaged by grading in the road right-of-way. It was not possible to determine the extent of the site.

Material Recovered: Only 1 flake was found at this site.

Evaluation: No additional work at this site is needed.

Rd^v218

Location: This site is on top of the knoll off SR 2834, in front of the park office. The elevation is 772 feet ASL, but grading for the parking lot has altered the terrain.

Physical Dimensions: This site covers an area of about 180 by 150 feet and is one of the largest sites within the park. The nearest creek is about 600 feet north of the site. This area has been altered extensively by park construction, but much of the site is undisturbed. These undisturbed portions are covered with grass, and erosion is slight.

Material Recovered: This site produced 114 flakes, 3 Savannah River Stemmed projectile points made of weathered slate, 1 Type II blade of porphyritic rhyolite, 1 Type III blade of porphyritic rhyolite, the base of an ovoid biface of porphyritic rhyolite, and a weathered silicified slate, and a notched flake with lateral retouch. This site is an extensive late Archaic (Savannah River) encampment.

Evaluation: Although this area has been disturbed by construction, the material recovered from the site warrant further investigation of the area. Additional, periodic surface collection is recommended. Further impact on this site should be avoided if possible.

Rd^v219

Location: This site is on both sides of a dirt road about 1,000 feet north of its intersection with SR 2833. The area, in pasture, is at an elevation of 650 feet ASL.

Physical Dimensions: This site covers an area about 30 feet along the dirt road, and is 400 feet northwest of a small creek. The erosion is slight due to the ground cover and flat ground. The soil is a brown, sandy clay overlying a yellow clay subsoil.

Material Recovered: The only material recovered from this site is the midsection of a Type III blade made of porphyritic felsite. This type of quarry blade is frequently associated with the Savannah River Complex (Coe 1964:51), thus this may be a late Archaic site.

Evaluation: Additional work at this site would probably yield little additional knowledge; no further work is suggested.

Rd^v220

Location: This site is situated on the west slope of a knoll, about 500 feet north of Rd^v219. The elevation of the site is 660 feet ASL.

Physical Dimensions: Heavy grass cover obscures most of this site, but it runs for about 35 feet along the dirt path in the pasture. The site is located on the bottom of the east slope of a small knoll, where erosion is slight to moderate.

Material Recovered: 5 flakes and two bifaces were found at this site. One biface, of quartz, was a leaf-shaped blade similar to the Type II blades, the other was a silicified slate Type III blade. This site seems to be in the same time frame as Rd^v219--late Archaic.

Evaluation: No further work is recommended.

Rd^v221

Location: Rd^v221 is situated 3,500 feet north of SR 2833 at the southwest end of a man-made lake, and 1,200 feet north of Rd^v220. The site is at an elevation of 615 feet ASL.

Physical Dimensions: Material is eroding from gullies at the southwest end of the lake, and this site may cover an area about 50 by 40 feet. The topography, and local environs are similar to those reported for Rd^v219 and Rd^v220.

Material Recovered: Only 8 flakes were recovered from this area; hence, no statement on probable cultural affiliation or function of this site can be made.

Evaluation: No further work is recommended at this site.

Rd^v222

Location: This site surrounds the northwestern end of the lake, and is 500 feet north of Rd^v221. The elevation of the site is 615 feet ASL.

Physical Dimensions: Material was found eroding from the ridge surrounding the northwest corner of the man-made lake. Most of this site has been destroyed by the construction of the lake and the associated dikes. The closest creek is about 400 feet to the north. Erosion is moderate to severe, exposing red clay.

Material Recovered: In surface collections from this site, there are 79 flakes, 11 chunks of raw material, 3 projectile points (1 Kirk Stemmed, 2 Guilfords) and 10 bifaces. This material suggests an Early to Middle Archaic occupation.

Evaluation: It appears that this site is eroding from further up the ridge, but due to extensive damage to the site area it is probably not profitable to undertake further investigation at this site.

Rd^v223

Location: This site is situated at the north end of the farm road intersecting with SR 2833, 400 feet west of Rd^v222. The site elevation is about 635 feet ASL.

Physical Dimensions: The site is exposed by moderate erosion, and may cover an area of about 60 by 40 feet. This site is found on the east slope of a large ridge line, and is separated from Rd^v222 by a grassy stretch in which no artifacts were located. The nearest creek is 400 feet to the north.

Material Recovered: 4 flakes were the only material recovered from this site, thus no statement is possible regarding its cultural identity.

Evaluation: The material observed indicates that repeated survey would probably not be worthwhile.

Rd^v224

Location: This site is found on the southeastern shore of the large man-made lake at the end of the farm road intersecting with SR 2833, and about 1,000 feet northeast of Rd^v221. The site is at an elevation of 610 feet ASL.

Physical Dimensions: The site dimensions were difficult to determine due to heavy ground cover, but probably do not exceed 20 by 30 feet. Most of this site has been destroyed by the construction of the two man-made lakes, and the roadbed between them. Erosion is moderate to severe, and a soil profile showed that only .2 foot of brown sandy clay soil was present, followed by a red clay subsoil.

Material Recovered: The only material found at this site was 2 flakes. No statement concerning the site's cultural identity is possible.

Evaluation: The lack of material and the construction of the two manmade lakes do not indicate that further investigations at this site is necessary.

Rd^v225

Location: This site is found at the top of a small knoll in the pasture, 300 feet to the east of the farm road intersecting with SR 2833. The site is 600 feet northeast of Rd^v219, and is at an elevation of 670 feet ASL.

Physical Dimensions: The site is covered with grass, and was found through subsurface testing. Humus extends down about .2 foot and is overlying a yellowish-red clay subsoil. It is possible that Rd^v220, at the foot of the knoll, may be related to this site. The knoll, and the associated site, covers an area about 60 by 60 feet. The nearest water source is a small creek, 900 feet to the south.

Material Recovered: Three flakes were found at this site, but no material was recovered which would allow a definitive statement regarding the time period or function of this site. Its location suggests a temporary Archaic campsite.

Evaluation: It is doubtful that additional survey work would provide more information. This site location, situated on top of a knoll, would not be conducive to contextual preservation.

Rd^v226

Location: This site is situated on both sides of a dirt farm road, 600 feet north of its intersection with SR 2833, and 350 feet northeast of Rd^v213. The elevation of this site is 605 feet ASL.

Physical Dimensions: The site covers an area about 40 feet along the farm road, and an indefinite distance to either side of the road. Erosion in this area is moderate, exposing a yellow clay subsoil. A creek is located about 50 feet to the east.

Material Recovered: During this survey, 14 flakes and one triangular silicified slate biface were recovered. This site may represent an Archaic chipping station.

Evaluation: This is another unproductive lithic site of probable late Archaic affiliation--no additional work is recommended.

Rd^v227

Location: Rd^v227 is found 900 feet west of Rd^v219, in the forest north of SR 2833, and west of the farm road intersecting with SR 2833. The site is on the south slope of a ridge, at an elevation of 650 feet ASL.

Physical Dimensions: This site was exposed by bulldozer cuts, and is surrounded by hardwood forest and light brush. Erosion is slight in areas not exposed, and the site may cover an area 100 feet in diameter. The nearest creek is 400 feet to the south.

Material Recovered: During the survey only 2 flakes were found at this site, although the material at Rd^v228 may be from the same site.

Evaluation: The paucity of material observed indicates that additional survey would not be worthwhile.

Rd^v228

Location: This site is situated 150 feet northeast of Rd^v227, and 600 feet west of Rd^v219, at an elevation of 660 feet ASL.

Physical Dimensions: This site may be part of Rd^v227, and was found by bulldozer activity. The area between Rd^v227 and this site was sterile.

Material Recovered: The only material found was a fragment of an ovoid biface made from weathered silicified slate. The biface was too fragmentary to determine its exact shape, but it seemed to be either a Type I or II.

Evaluation: This site may be the northeastern extreme of Rd^v227, but even the material from both sites combined does not suggest this site warrants further study.

Rd^v229

Location: This site is situated on the south slope of a knoll bordering SR 2834, about 1,000 feet south of the main park entrance, and 600 feet south of Rd^v218. The elevation is 755 feet ASL.

Physical Dimensions: This is a large site, covering an area about 200 by 150 feet and may be related to Rd^v218. The closest creek is 700 feet north of the site. The topography has been modified by the construction of the Interim Zoo, and by road grading along the western perimeter of the site. The area has a grass cover, and there is little traffic on the site.

Material Recovered: 52 flakes, 2 bifaces, and 2 projectile points were recovered from this site. The projectile points were both Savannah River stemmed, both made from porphyritic felsite. One was intermediate between the blade form and the finished point. The bifaces were both made from weathered slate, one was an ovoid blade, the other was the midsection of a fragmentary biface.

Evaluation: This large site, situated on a gradual southern slope, may have some stratigraphy. The quantity and variety of material suggests that additional investigation may be required. If the area is not to be impacted by further park construction, periodic surface collections at the site will be sufficient. Otherwise, limited testing is deemed necessary.

Rd^v230

Location: This site is situated in a field on the north bank of Richland Creek, 4,000 feet southeast of SR 2831. The site is off park property.

Physical Dimensions: Material was located in a plowed field covering about 1½ acres, but was concentrated at the eastern end of the clearing. This area was investigated due to its good location and proximity to the park.

Material Recovered: During the survey, 17 flakes, 1 Randolph projectile point made from silicified slate, and a nuttingstone were found. One fabric-impressed, crushed quartz tempered potsherd was recovered from this site. This area may have been a Woodland campsite.

Evaluation: This site is not on park property, hence no further work is recommended. However, should this property eventually be annexed into the park, limited testing of this site would be necessary.

Rd^v231

Location: Rd^v231 is found on top of a knoll 600 feet west of SR 2831, in a large field. The site elevation is 600 feet ASL.

Physical Dimensions: This site was discovered by using subsurface testing on a knoll in a grass covered field. The area has not been plowed in the last 5 years, as evidenced by the second growth. The reddish-brown clay loam extends down about .2 foot, followed by a red clay subsoil. The closest creek is about 900 feet to the west.

Material Recovered: Only 6 flakes were found, despite numerous tests in the area. On this basis, it is impossible to suggest a time frame for this site.

Evaluation: Due to the lack of material recovered and the lack of soil deposition, it is doubtful that additional work at this site would be useful.

Rd^v232

Location: This site is found 1,000 feet west of Rd^v214 on the left (south) fork of a dirt road intersecting with SR 2831. The site elevation is about 575 feet ASL.

Physical Dimensions: This site was noticed due to flakes eroding from the road bed, and is about 50 feet from a small creek. The site covers an area about 50 by 50 feet, and is vegetated with hardwoods and light brush.

Material Recovered: 1 flake and 1 biface fragment of porphyritic felsite were recovered. This site probably is an Archaic chipping station.

Evaluation: No additional work is warranted at this site.

Rd^v233

Location: This site is situated on the eastern slope of a large ridge, about 800 feet southwest of Rd^v232, and 2,400 feet west of SR 2831. The elevation range of the site is from 650 to 625 feet ASL. Associated stone foundations are located 200 feet to the east at an elevation of 575 feet ASL.

Physical Dimensions: This site consists of more than a dozen large pits with an associated stone foundation at the bottom of the hill. Local legend says that these pits are the remains of a gold mine operated in the late 1800's. The location of this site corresponds well to the location of the Goliham and Smith mine as reported by Carpenter (1972:29). This site probably represents the remains of vein mines, where gold, frequently found associated with vein quartz, was mined from open pits (Hunt 1844).

Evaluation: This historic site is not unique, but it does have direct ties with the development and history of Randolph County. Although no further investigation of this site is needed, it should be protected from destruction by any future park construction.

Rd^v234

Location: Rd^v234 is found about 2,000 feet from Rd^v201, along a dirt road circling the northeast slope of Purgatory Mountain. The site elevation is 635 feet ASL.

Physical Dimensions: Material was found in a 30-foot area eroding from a logging road. Erosion in this area is moderate to severe, and this isolated find may be related to Rd^v235. There is a small creek separating Rd^v234 and Rd^v235.

Material Recovered: The only material recovered was a possible Type II blade made of porphyritic rhyolite.

Evaluation: No additional work is warranted at this site.

Rd^v235

Location: This site is situated on the western slope of a ridge to the east of Purgatory Mountain, and is about 500 feet northeast of Rd^v234. The mean elevation is 620 feet ASL.

Physical Dimensions: This site covers an area of about an acre on the side of this ridge. Material was found on the surface, but erosion is very slight, and the area has a heavy cover of hardwood and pine. The closest creek is about 100 feet to the northwest. There are small outcroppings of tuff, felsite, rhyolite and slate.

Material Recovered: Material is found all over this area and during the survey, 102 flakes, 149 chunks of raw material, and 12 bifaces were collected. Of this material, there was 1 Guilford blade of silicified slate, a Type II blade of porphyritic felsite, 3 triangular blades of tuff, 1 ovoid biface with evidence of heavy utilization around all edges, and 6 other ovoid biface fragments. This site was a major Archaic quarrying area. Debitage (waste flakes) is very heavy, and there are a number of unfinished or discarded bifaces at this site.

Evaluation: This is perhaps the most important site on the park property, as it is the scene of fairly substantial quarrying activity. This site should be protected from any future construction in the area. It is not necessary for further work to be conducted at the site at the present time.

Rd^v236

Location: This site is situated 850 feet southeast of the main entrance to the park, along an access road which runs beside the giraffe and zebra paddocks.

Physical Dimensions: Rd^v236 has been exposed by the Interim Zoo clearing, and may originally have been larger than the 100 by 100 foot area now remaining. The site is on the top of a small knoll, and the entire area is in grass or has been graveled for road bed. The closest creek is about 900 feet to the southeast.

Material Recovered: Recovered were 85 flakes, 4 chunks of raw material, 1 end scraper of silicified slate, 5 projectile points, 4 bifaces, and 1 used flake. The projectile points consist of 1 weathered slate Palmer Corner-Notched, 3 Guilford points made from weathered slate, and the tip of a Savannah River Stemmed point also made from weathered slate. The used flake had retouched along two edges, and was made from a silicified slate. The bifaces include 1 made from a large percussion flake, 1 ovoid-shaped blade, 1 Savannah River Stemmed preform made from a weathered slate, and 1 porphyritic felsite fragmentary blade. This site dates from the early to late Archaic, and probably represents repeated campings at the same location.

Evaluation: This is a fairly substantial site that has previously been damaged by Interim Zoo construction. Limited subsurface testing suggested that features may still be present, although the site is situated on top of a knoll. Insofar as reasonably possible, this site should be protected from further destruction. In the event that this is not possible, limited testing would be warranted.

Rd^v237

Location: This site is situated 1,400 feet southeast of the main entrance to the park, along the access road running beside the wildebeest paddock, and 275 feet southeast of Rd^v238. The elevation of the site is about 755 feet ASL.

Physical Dimensions: The construction of the access road exposed this site, covering an area of about 50 feet. The vegetation in the region is brush with small trees, but the erosion is moderate to severe due to the road. The nearest creek is 600 feet to the south.

Material Recovered: 5 flakes and 1 Type II biface of porphyritic rhyolite were found during the survey. The site probably represents a short period encampment during the Archaic Period.

Evaluation: No further work is necessary at this site as further investigation would have dubious results.

Rd^v238

Location: Rd^v238 is 1,200 feet east of the main park entrance, and in the vicinity of the rest area, east of the wildebeest and ostrich paddocks. The site is 275 feet north of Rd^v237 and at an elevation of 730 feet ASL.

Physical Dimensions: This area has been extensively disturbed by the construction of the access road, rest area and landscaping. A small creek runs about 200 feet east of the site, and the area is grassed over. It may be that Rd^v237, Rd^v238, and Rd^v245 represent numerous short term occupations along the eastern slope of the ridge line running southeast-northwest in this area.

Material Recovered: Recovered from this survey were 4 flakes, and 1 weathered slate Savannah River Stemmed projectile point. This site dates to the late Archaic.

Evaluation: This site is a small, eroded Archaic camp, similar to others located on park property. It is doubtful that material is in a primary context. No further work is recommended.

Rd^v239

Location: Rd^v239 is found 1,600 feet east of the main park entrance, and southeast of the buffalo paddock. The site is at an elevation of 750 feet ASL, and is 275 feet northeast of Rd^v238.

Physical Dimensions: The site is situated on the east and south slopes of a small ridge, and has been exposed by access road construction. The area is in light grass, and is about 200 feet east of a small creek.

Material Recovered: 9 flakes, a porphyritic felsite biface fragment, and a porphyritic rhyolite flake with light lateral re-touch were all the material found at this site. No firm estimate of the period or function of this site is possible.

Evaluation: The topography of this site is similar to Rd^v238, and it is felt that additional work is not needed.

Rd^v240

Location: This site is situated in the area north of the buffalo paddock, and inside the rear gate of the security fence, about 200 feet south of Rd^v197. The site, at an elevation of 770 feet ASL, is at the south end of a ridge.

Physical Dimensions: The site was exposed by erosion resulting from road use, and the surrounding area is covered with low grass and broomstraw. The site is about 400 feet west of a small creek. This may be a continuation of Rd^v197, which occupies the same ridge top. Subsurface testing suggests the site covers an area of about 100 by 80 feet.

Material Recovered: Recovered were 17 flakes, 1 side scraper of silicified slate, 1 silicified slate flake exhibiting steep retouch, and a Savannah River Stemmed projectile point made from porphyritic felsite. This site is probably a late Archaic campsite.

Evaluation: This site, similar to Rd^v197, does not warrant further investigation.

Rd^v241

Location: This scatter of material was found 425 feet southwest of Rd^v240, and between the buffalo paddock on the east and the duck pond on the west. The site is at an elevation of 755 feet ASL.

Physical Dimensions: This site is on the southern slope of a ridge running to the north, and covers an area of about 50 by 50 feet. Erosion in the area is light, and the ground cover is grass. Little landscaping has been done in this area, although a gravel road may have affected the eastern part of the site. The nearest water source is a small creek 800 feet to the east.

Material Recovered: 6 flakes, and a weathered slate biface were found during the survey. The biface has badly crushed edges, indicating heavy use. No firm statement can be made concerning the cultural affinity of this site, although it is probably an Archaic chipping station.

Evaluation: This site has not been heavily affected by Interim Zoo construction, but the light scatter of remains does not suggest a site significant enough to cause additional investigation.

Rd^v242

Location: Rd^v242 is situated on the west side of SR 2834, about 200 feet south of the main park entrance. The site is at an elevation of 670 feet ASL.

Physical Dimensions: This site is in a cultivated field on the top of a small knoll, just outside park property. The area has been under cultivation for a number of years and the soil is a reddish-brown sandy clay. Most of the material is concentrated in a 100 by 80 foot area at the northern edge of the field. The closest creek is about 1,000 feet to the southeast.

Material Recovered: In addition to the 88 flakes and 2 chunks of raw material recovered from the site, there were 6 projectile points, 1 used flake, and 1 hammerstone. The projectile points include 1 Palmer Corner-Notched, 1 Kirk Stemmed, 1 LeCroy, 1 Guilford, 1 Savannah River Stemmed midsection and 1 Halifax, most being either (weathered) slate or porphyritic rhyolite. The used flake had been retouched along 2 edges and was also notched. The hammerstone was made from a metamorphic sandstone and had been used as an abrader. The site has seen occupation since the early Archaic, at least to the end of the Archaic Period.

Evaluation: This site is not presently owned by the North Carolina Zoological Authority, and no further work is recommended. If the land should eventually be brought into the park, limited testing would be in order prior to any construction.

Rd^v243

Location: This site is on the north side of SR 2834, 1,800 feet south of the main park entrance. The site is at an elevation of 750 feet ASL.

Physical Dimensions: Material was found eroding from the banks of the road, just past the end of the hard pavement. Part of the site has been destroyed by road construction, and the remaining area is undergoing severe erosion exposing yellow clay subsoil. The nearest creek is 300 feet to the north.

Material Recovered: Recovered from this site were 24 flakes, but no diagnostic material. It is not possible to identify the cultural period to which this site belongs.

Evaluation: Due to the topography of the ground, which is not conducive to intact site preservation, and the destruction caused by road grading, no further work is recommended at this site.

Rd^v244

Location: Rd^v244 is situated on the east slope of the knoll the Interim Zoo is built on, at an elevation of 750 feet ASL. This site is 100 feet south of Rd^v241, and 150 feet north of Rd^v245.

Physical Dimensions: This area has been disturbed by the Interim Zoo construction, and is presently in grass. The site may be associated with Rd^v245. The nearest creek is 800 feet to the east.

Material Recovered: The only material recovered was a single utilized flake with steep retouch along one side. This site probably dates to the Archaic Period.

Evaluation: No additional work will be needed at this site.

Rd^v245

Location: This site is situated 100 feet south of Rd^v244, and 150 feet southeast of the duck pond. The elevation of this area is 745 feet ASL.

Physical Dimensions: The site covers an area of about 70 by 70 feet, and has been affected by access road construction. Sites Rd^v244 and Rd^v245 are probably the sites, which have been bifurcated by the road. If this is the case, material is concentrated in the southern (or downhill - Rd^v245) portion of the site.

Material Recovered: 27 flakes, 1 chunk of raw material, 1 end scraper of porphyritic rhyolite, and 1 ovoid weathered slate biface with heavy use, evident on one edge, were found. This is probably an Archaic campsite.

Evaluation: This site produced a number of typically Archaic artifacts, but additional collecting might produce more diagnostic material. This is a "low priority" site, but it should be periodically collected.

Rd^v246

Location: This site is situated 30 feet southeast of the park information building, and south of the tortoise house. The elevation of this site is 765 feet ASL.

Physical Dimensions: This area of the park has been impacted by the construction of the Interim Zoo and the site, although grassed over, has been exposed in areas of erosion. The site covers an area about 90 by 40 feet. The nearest creek is 500 feet to the northwest.

Material Recovered: The surface survey of this site produced 27 flakes, but no artifacts or diagnostic material.

Evaluation: Although continued surface collecting of this site might produce additional material, and possibly diagnostic tools, such work would probably not be worthwhile. No further work is recommended at this location.

Rd^v247

Location: Rd^v247 is 200 feet north of the west road leading to Purgatory Mountain, about 200 feet north of Rd^v212. The site elevation is 790 feet ASL.

Physical Dimensions: Tree cutting and bulldozing exposed this small site in the saddle of two ridges. This area is partially covered with hardwoods and light brush, and is 100 feet south of a small creek. This site is probably a continuation of Rd^v212, although subsurface testing between the two sites did not yield any aboriginal material.

Material Recovered: The material recovered from this site consists of 1 flake and a roughly flaked triangular biface. If this site is the northern limit of Rd^v212, it is a middle Archaic camp.

Evaluation: As with Rd^v212, it is not felt that additional work at this site would substantially increase our knowledge.

Rd^v248

Location: This site is situated on the southern slope of a small mountain to the northwest of Purgatory Mountain, about 2,200 feet north of Rd^v212. The elevation is about 776 feet ASL.

Physical Dimensions: This site consists of a 12 by 9 foot pile of charcoal, about 18 inches deep, and a stone-lined pit, measuring 5 by 2 by 1 feet, running perpendicularly from the charcoal. The site is isolated, although an old logging road runs about 50 feet to the north. The nearest creek is about 400 feet to the east, and the area is heavily forested in hardwoods. Analysis of the charcoal collected from the pile shows at least 1 softwood (Pinus sp.) and 3 hardwoods (Quercus sp., Carya sp., and Liquidambar styraciflua) were burned. This site resembles a charcoal kiln, although the purpose of producing charcoal at this isolated location is not understood, nor is the stone basin (Combes 1974).

Evaluation: This historic site has a possible function of charcoal production and may have been used into the mid-1900's. Similar sites are elaborately documented, both archaeologically and historically. It is not felt that this site warrants any special attention and further work is not required.

Rd^v249

Location: Rd^v249 is situated 600 feet north of Rd^v248 at the summit of a small mountain to the northwest of Purgatory Mountain. The site elevation is 832 feet ASL.

Physical Dimensions: This site was discovered by subsurface testing, but its exact size was not determined. The area is heavily wooded, and the soil profiles reveal a humus layer of .3 foot overlying a yellow clay subsoil. The nearest creek is at the base of the mountain, to the east about 1,000 feet.

Material Recovered: Recovered were 3 flakes. No determination of site function or age could be made.

Evaluation: No further work is suggested for this site, due to the unlikelihood of material being found in context. The location of this site also makes further work prohibitively difficult.

Rd^v250

Location: This site is situated about 100 feet northwest of Rd^v206, 50 feet east of SR 2834. The site elevation is 695 feet ASL.

Physical Dimensions: The site is at the base of a slight rise, and may be associated with Rd^V206. The area was exposed, and most of the top soil removed by heavy equipment. The nearest creek is 600 feet northwest of the site.

Material Recovered: 6 flakes, 1 weathered slate ovoid biface, and 1 Yadkin eared-variety projectile point were recovered. The Yadkin point suggests a Woodland occupation, although no pottery was found at this site.

Evaluation: No further investigation of this site is warranted, based on the topographic situation and type of material thus far recovered.

Rd^V251

Location: The site is situated on a logging road 2,800 feet northwest of its intersection with SR 2831. The site elevation is 610 feet ASL.

Physical Dimensions: Material was found eroding from both sides of the dirt road for a distance of about 50 feet. The surrounding area is forested with hardwoods, and erosion is moderate. The nearest creek is 900 feet to the northwest.

Material Recovered: 9 flakes and a Type III blade of weathered silicified slate were recovered from this site. On the basis of this information, the site probably is an Archaic campsite.

Evaluation: This small Archaic lithic site has not demonstrated the need for further investigation.

Rd^V252

Location: This site was found 1,000 feet northwest of Rd^V251 in an open field. The ground slopes gently off to the east, and the site elevation is about 575 feet ASL.

Physical Dimensions: The site was found in a cleared field covering about half an acre. The nearest creek is located 400 feet to the south. The soil profile reveals a reddish-brown clay loam for .3 foot, followed by a red clay subsoil. This site is outside property currently held by the North Carolina Zoological Authority.

Material Recovered: 7 flakes, and 1 Guilford projectile point preform were found. The site dates to the middle Archaic Period, and may have been a temporary campsite.

Evaluation: This site, located outside the present park boundary, may provide contextual information, but no further work is recommended. If the site is to be impacted by future park development, periodic surface collections are recommended.

Rd^v253

Location: Rd^v253 is situated about 800 feet toward SR 2831 from Rd^v251. The ground slopes to the east and southeast, and the elevation of the site is 600 feet ASL.

Physical Dimensions: The site is in a plowed field covering about 2 acres, and is bisected by a dirt road. The soil profile is similar to that at Rd^v252, and material is concentrated in the east central portion of the field, to the south of the dirt road. There are 2 creeks in the vicinity, one to the west, and the other to the south, both about 400 feet distant. There is an old mud cribbed log cabin standing on the southern portion of the site, but no historic material was recovered. This site is not currently on park property.

Material Recovered: Recovered were 65 flakes, 4 used flakes, and 8 bifaces. The used flakes all had evidence of lateral retouch and one had been heavily battered. The bifaces were ovoid, Type II, Type III or fragmentary. From this evidence it seems that the site dates to the Archaic Period and was a campsite.

Evaluation: No further work is necessary at this site, although if it is eventually brought into the park, limited testing might be necessary, based on more extensive surface collections.

Rd^v254

Location: Rd^v254 is situated on both sides of SR 2834 about 1,400 feet south of Rd^v243, and about 1,600 feet west-northwest of BMZ-6, at an elevation of 730 feet.

Physical Dimensions: Material was found eroding from the road banks and had been exposed by recent grading activity. The nearest water source is 500 feet to the north.

Material Recovered: 35 flakes were the only material recovered, and no statement can be made concerning the cultural relationship of the site.

Evaluation: The condition of this site is similar to that of Rd^v243. For that reason, and the paucity of material, it is not felt that additional work is needed.

Rd^v255

Location: This site is 400 feet southeast of Rd^v243, and 900 feet north of Rd^v254, on SR 2834. The site elevation is 740 feet ASL.

Physical Dimensions: This site was found eroding from the road banks and, as with Rd^v254, was extensively damaged by right-of-way grading and ditching. Erosion is moderate to severe.

Material Recovered: Recovered were 2 flakes and 2 chunks of raw material. No diagnostic material was found.

Evaluation: The condition of this site is similar to that of Rd^v254. For that reason, and the paucity of material, it is not felt that further work is necessary at this site.

ARTIFACTS

The artifacts from various sites have been briefly discussed in the site section of this report and are summarized in Table 1. Coe (1964) has typed the majority of the various tools described from this survey, and the interested reader is referred to that source for additional information.

Projectile points are, for the purpose of this study, considered to be finished artifacts, which usually have bifacial flaking, and a pointed distal end. Usually, as the term implies, they were used as heads for missiles, either an "arrow head" or a "spear head." However, some were more likely used as knives or all-purpose tools (particularly the Savannah River Stemmed points). The types used in this report conform to those established by Coe (1964) with one exception (LeCroy point, which is typed by Broyles [1971]).

Biface is a large category that includes at least two distinct types of artifacts: large bifacially flaked tools utilized for heavy work and "quarry blades." Quarry blades make up the majority of bifaces recovered during this survey and are felt to have been the item intermediate between the raw material and the finished artifact. Usually, quarry blades were not used as a tool, but were only meant to be a roughed out form of some preconceived artifact that would have final form brought out at a later date (Coe 1964:50). Many of the quarry blades recovered evidenced lateral snap, which results "when a substantial blow is imparted to a rock whose mass is not adequately

supported to absorb shock" (Purdy 1975:134). This break is usually caused during production of the blade or the final artifact, although it can also be caused by heavy use.

Coe (1964:50-51) defines seven types of quarry blades, with three types composing a majority of the blades found at Doerschuk. During this survey, the majority of the blades could be placed in either Coe's Type II or Type III. Type II blades are crudely chipped, parallel sided bifaces with rounded bases. Type III blades are more precisely shaped triangles with flat bottoms. The Type III blades were found by Coe (1964:51) to be intimately associated with the Savannah River Complex.

Virtually, all of the bifaces (including the blades) were roughly shaped using percussion methods. This technique of manufacture, which produces numerous large flakes, has little to do with the conservation and/or availability of resources. The percussion technique was systematically utilized by most flint knappers during the Archaic Period.

The term scraper applies to an artifact exhibiting unifacial flaking. This type of chipping produces a steep angle ("steep retouch") which is effective for smoothing or scraping. Three types are observed in the material from this survey: end scrapers, which have the retouch on the end and corners of the flake, side scrapers, which have steep retouch or wear along the edge of the flake, and oval scrapers, which are oval-shaped flakes that have received retouch along most of the edges. Scrapers are found throughout the Archaic Period, but Coe

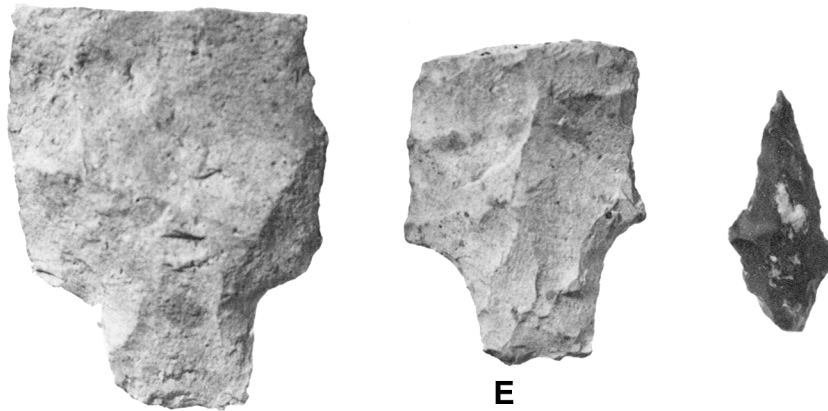
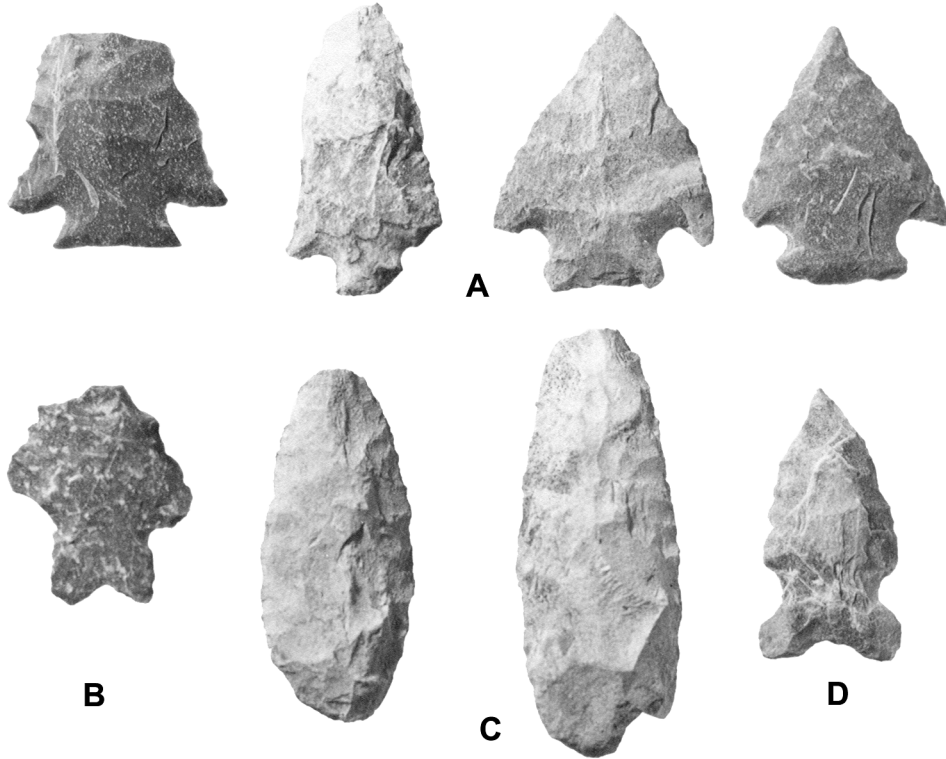


PLATE 3

Projectile Points. A. Palmer Corner-Notched (first and second from left), Kirk Corner-Notched. B. LeCroy. C. Guilford. D. Halifax. E. Savannah River Stemmed (first and second from left), Randolph.

(1964:51) suggests that they occur with greatest frequency during the middle Archaic, and "become virtually extinct with the close of the Archaic period."

Very few notched flakes were found, but when they did occur, it was on a flake that showed heavy use in other areas as well. A notched flake, or spokeshave, is a unifacially retouched flake with a concave edge. These tools were frequently used to scrape, shave, or shape items of wood.

Utilized flakes form a broad category of generally unifacially flaked chips that exhibit some sort of use, as evidenced by steep retouch, wear, or abrasion. These are flakes that the aboriginal craftsman removed from a core and used as a tool, generally without further modification.

Hammerstones were found in surprisingly small numbers for an area of so much lithic activity. Cobbles which showed evidence of battered surfaces were placed in this category, and it may be that such tools were lost in the large amounts of rocks indigenous to this locality. In addition to cobbles used as instruments to flake other tools, they were frequently used as abraders and as anvils. One "nuttingstone" was recovered from the survey area; this item is a large piece of sandstone with a deeply pecked depression on one flat face.

Normally, pottery is the most sensitive indicator of culture change; however, only five sherds were found during this survey, severely limiting their usefulness as chronological indices. All of the sherds are tempered with sand or crushed quartz, and the

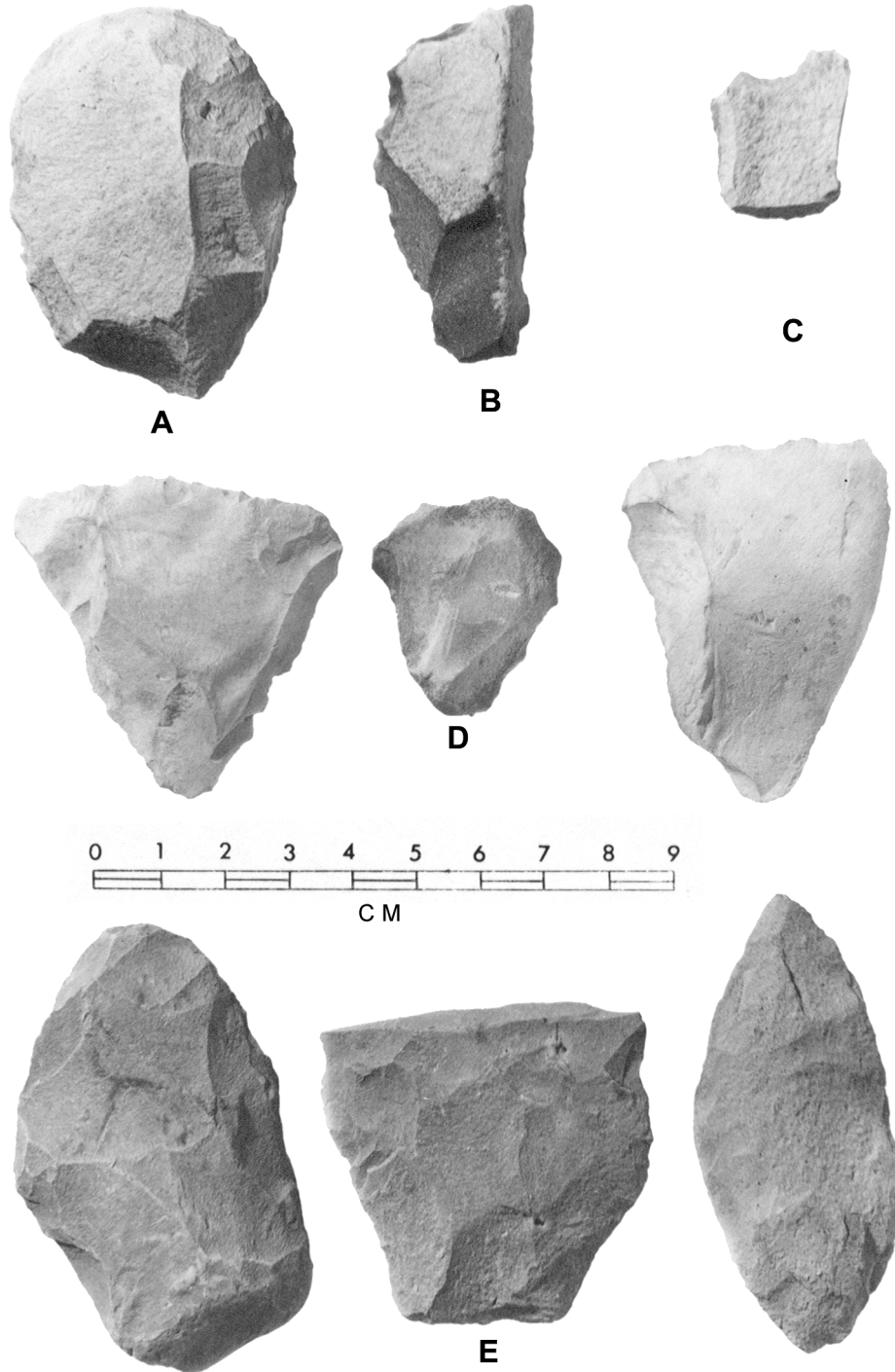


PLATE 4

Lithic Artifacts. A. End scraper. B. Side Scraper. C. Notched Flake. D. Utilized Flakes (wear and steep retouch). E. Type II Quarry Blade (first from left), Savannah River Stemmed preform (second from left), Guilford preform (first from right).

identifiable surface treatment is simple stamping, cord marking or fabric impressing. All of the sherds fall into the period known as Developmental (Coe 1952:303).

The largest artifact category is that of flakes. Very little need be said about this group, other than that it is the waste product of the flint knapping process. It has already been mentioned that tools can, and often are, made from this waste, but normally the desired end product is not a pile of flakes.

TABLE I

Artifacts Recovered During the Survey of the
North Carolina Zoological Park

Site	CSPP	Biface	Scraper	Notched Flake	Utilized Flake	Hammerstone	Potsherd	Flakes
197								10
198								10
199		1						7
200								5
201		1						3
202								3
203		2						18
204	1						5	69
205		1			1		1	17
206		1 (adz?)			1			28
207								4
208	2	2						42
209								24
210								5
211								7
212	1							5
213								5
214	1							13
215								17
216	1							
217								1
218	3	3		1				114
219		1						
220		2						5
221								8
222	3	10						79
223								4
224								2
225		1						3
226		1						14
227								2
228		1						
229	2	2						52
230	1					1	1	17
231								6
232		1						1

TABLE I (cont'd)

Site	CSPP	Biface	Scraper	Notched Flake	Utilized Flake	Hammerstone	Potsherd	Flakes
234		1						
235		12						102
236	5	4	1		1			85
237		1						5
238	1							4
239		1			1			9
240	1		1		1			17
241		1						6
242	6				1	1		88
243								24
244					1			
245		1	1					27
246								27
247		1						1
249								3
250	1	1						6
251		1						9
252	1							7
253		8			4			65
254								35
255								2

Note: no material was recovered from Sites Rd^v233 and Rd^v248.

SUMMARY

Prior to this survey, construction of the Interim Zoo (Phase I) impacted a number of large Archaic sites, and construction since then (Phase II development) will impact additional sites. The site density (see Figure 1) in the areas of the Interim Zoo and the African Exhibit (Phase II) is not simply an illusion resulting from large scale ground clearing, but is a reflection of heavy aboriginal utilization of flat lowlands.

In the area of the Interim Zoo impacted by construction there are 10 sites, of these 2 sites are worthy of additional surface collecting, and one site should be protected from further damage. Rd^v218 in the vicinity of the parking lot and south of the Interim Zoo offices, has been damaged by clearing and grading activities. At one time it was probably a fairly major site, however, it is doubtful that enough remains to warrant salvage excavations (Plate 5). Rd^v229 is south of the Interim Zoo and borders SR 2834. The area is in heavy grass which obscures material. This site is on a slope which precludes the possibility of stratigraphy; in any event, this area is stabilized, and only periodic surface collecting is necessary. The third site, Rd^v236, is located in the vicinity of the giraffe barn. These remains are situated on top of a small rise, and were exposed by work associated with an underground electric cable. This site, due to its location, may have stratigraphy, and all efforts should be made to preserve it. At the present time, this occupation area is not endangered.

Figure 2 shows the location of 7 sites which have been destroyed by Phase II development. Fortunately, this survey did not indicate that these sites merited additional study. Sites Rd^v204 and Rd^v215 have not been disturbed by construction activity to date. While Rd^v215 seems to be a shallow site and does not warrant additional work, Rd^v204 seems to be a more prolific site that has produced small amounts of Developmental material (Plate 6). Rd^v204 is about 50 feet south of the construction area, and although it will not be damaged by immediate building activity, it may be impacted by landscaping or by being in an area of open public access. This site should be tested. Such work would probably be limited to the excavation of several five foot squares to determine if in situ remains are present. Following that the site should be periodically surface collected.

Four sites fall outside the area of Phase I and II activity. Two of these sites require additional surface collecting (Rd^v203 and Rd^v208) although neither is in immediate danger, and investigation may proceed in a leisurely manner. The other two sites are, like Rd^v236, worthy of continued protection. Rd^v233 is the gold mine located on park property, and Rd^v235 is a large aboriginal quarry site. Future planning should note the location of these sites and proceed accordingly. It should be noted that sites can be damaged as heavily by being placed in the path of frequent activity as by being in areas of construction.

Piedmont North Carolina was the scene of much aboriginal activity, and the sites located at the North Carolina. Zoological Park are representative of the artifact-settlement pattern of this geographic province.

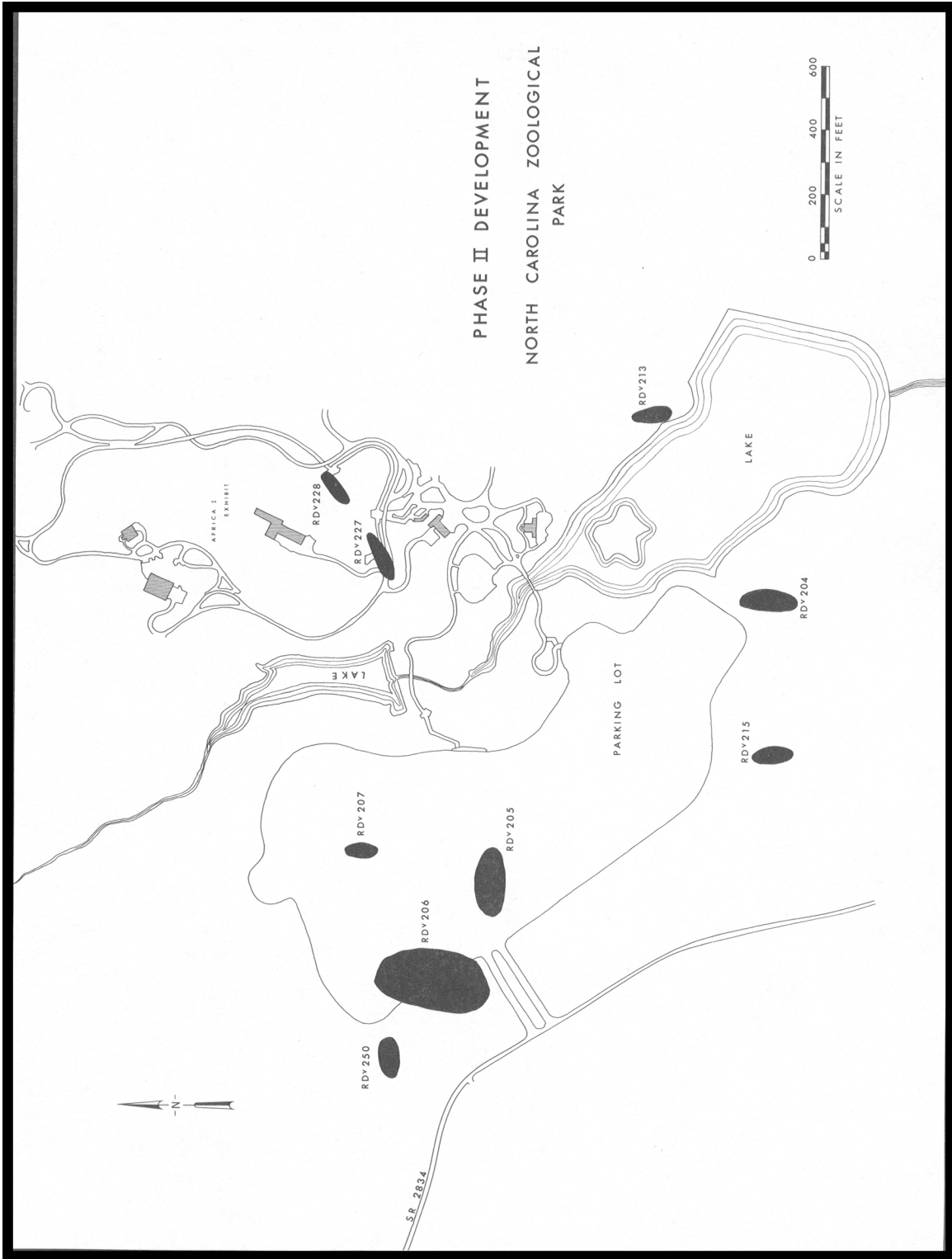


FIGURE 2



PLATE 5
Rd^v218, situated on top of a small knoll, looking
east from SR 2834



PLATE 6
View of Rd^v215 and Rd^v204, looking to the
west from SR 2834

There are probably sites which have gone undiscovered; this is inevitable when most of the survey area is wooded. However, it is believed that the survey techniques were such that, not only has this problem been minimized, but that no site of major significance has gone unrecorded. As additional areas of the park are cleared prior to construction, superficial survey may be made. The Research Laboratories of Anthropology will continue to maintain a vital interest in the area of the North Carolina Zoological Park, and will continue investigations in that area.

TABLE II

Summary and Evaluation of N. C. Zoological Park Sites

Site	Major Cultural Components	Recommendation
197	Archaic (?)	No further action
198	Archaic (?)	No further action
199	Archaic (?)	No further action
200	Archaic (?)	No further action
201	Middle Archaic	No further action
202	?	No further action
203	Middle Archaic	Additional surface collecting
204	Early Archaic to Developmental	Limited testing
205	Archaic to Developmental	No further action
206	Archaic	No further action
207	?	No further action
208	Middle Archaic to Developmental (?)	Additional surface collecting
209	?	No further action
210	?	No further action
211	?	No further action
212	Middle Archaic	No further action
213	Middl ?	No further action
214	Late Archaic	No further action
215	?	No further action
216	Early Archaic	No further action
217	?	No further action
218	Late Archaic	Additional surface collecting
219	Late Archaic	No further action
220	Late Archaic (?)	No further action
221	?	No further action
222	Early - Middle Archaic	No further action
223	?	No further action
224	?	No further action
225	?	No further action
226	Archaic (?)	No further action

TABLE II (cont'd)

Site	Major Cultural Components	Recommendation
227	Ar ?	No further action
228	?	No further action
229	Late Archaic	Additional surface collecting
230	Late Developmental	Not on park property
231	?	No further action
232	?	No further action
233	Historic	Worthy of protection
234	?	No further action
235	Middle Archaic	Worthy of protection
236	Early to Middle Archaic	Worthy of protection/ limited testing
237	?	No further action
238	Late Archaic	No further action
239	?	No further action
240	Late Archaic	No further action
241	?	No further action
242	Archaic	Not on park property
243	?	No further action
244	?	No further action
245	Archaic (?)	Additional surface collecting
246	?	No further action
247	?	No further action
248	Historic	No further action
249	?	No further action
250	Developmental (?)	No further action
251	Archaic (?)	No further action
252	Middle Archaic	Not on park property
253	Archaic (?)	Not on park property
254	?	No further work
255	?	No further work

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