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Keywords
Excavations, Oolenoy River, Dams, Watersheds, Pickens County, South Carolina, Archeology

Disciplines
Anthropology

Publisher
The South Carolina Institute of Archeology and Anthropology--University of South Carolina

Comments
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AN ARCHAEOLOGICAL SURVEY OF OOLENY WATERSHED PROJECT IN PICKENS COUNTY, SOUTH CAROLINA

by

Paul E. Brockington, Jr.
Research Manuscript Series 136

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This study was prepared under contract from the Soil Conservation Service, United States Department of Agriculture.

Prepared by the INSTITUTE OF ARCHEOLOGY AND ANTHROPOLOGY UNIVERSITY OF SOUTH CAROLINA September, 1978
I would like to thank several people who aided in completing this
project. Mr. Eric Neil assisted in the field and laboratory work;
Ms. Sandra Lee typed the final draft; Mr. Gordon Brown prepared the
photographs; and Mr. Darby Erd drafted the maps and prepared the
illustrations.

The Soil Conservation Service is also to be thanked for their
cooperation and patience during this project. In particular I would like
to express my appreciation to Mr. James Kesecker, Mr. Norman Shuler, and
Mr. Frank Killiam.
INTRODUCTION AND MANAGEMENT SUMMARY

As part of the work plan for the Oolenoy River Watershed, Pickens County, South Carolina a floodwater retarding and recreation structure has been proposed for Carrick Creek, Pickens County, South Carolina by the Soil Conservation Service of the United States Department of Agriculture. Carrick Creek is a tributary of the Oolenoy River, which flows into the South Saluda River and is a part of the Santee River Basin. The planned structure is denoted as Oolenoy Watershed Project 40 (United States Department of Agriculture 1970), and is shown in Figure 1.

Vegetation clearing, dam and spill way construction and normal pool inundation will affect approximately 50 acres, and may be destructive of any archeological sites that exist in the project area. To meet requirements of the National Environmental Policy Act of 1969, Executive Order 11593, the National Historic Preservation Act of 1966, and the Archeological and Historic Preservation Act of 1974, the Soil Conservation Service contracted in February 1977 with the Institute of Archeology and Anthropology to inventory and assess historic cultural resources within the project area and to develop a management plan to preserve and protect important data and resources.

Checks of existing records indicated that no archeological sites or other historic resources were known for the area; however, the project area had not been previously examined for archeological sites. Examinations of similar areas in the Piedmont have shown sites to be present on the floodplains, terraces, and hillslopes of small stream valleys, and sites were thus predicted for the project area.

Field investigations performed in March 1977 showed no sites to be present within the project area. This inability to find sites is probably explained as a result of site destruction by intensive farming and consequent erosion during the 19th and 20th centuries, and as a result of heavy sedimentation of the Carrick Creek bottomlands. Erosion on the slopes, combined with attempts at terrace farming in at least one area of the proposed project, probably destroyed evidence of archeological sites, if they were once present on the slopes and terraces forming the margins of the project area. Heavy erosion of the slopes blanketed the creek bottom lands with sediment and caused the creeks to aggrade, raising the water table. If sites once existed in the creek bottoms, they are now buried under several feet of sediment and lie below the present water table. Such conditions, while they make site discovery very difficult, lessen the adverse project effects to archeological sites.

This report describes in detail the methods and results of the inventory and assessment study, and presents an environmental and historic overview of the region as an aid to explaining the absence of discovered sites. No further survey or other archeological study of the project area is recommended.
ENVIRONMENTAL AND ARCHEOLOGICAL BACKGROUND

General Environmental Background

Modern anthropological and archeological research involves consideration of environment as a basic factor in human adaptation over time. The brief description of the environment presented below provides an introduction to basic variables considered important in understanding human settlement and subsistence in the area. This basic outline is adapted from studies of nearby areas by Brockington (1978a, 1978b).

The project area lies within the southernmost portion of the Southern Blue Ridge Province as defined by Fenneman (1938) and within the general cultural-natural Appalachian Summit Area defined by Kroeber (1963:95). The Blue Ridge Province is characterized by high mountains; among them is the highest peak in eastern North America—Mt. Mitchell (6,684 feet). While the project area is within this Blue Ridge Province, it is located very near the southern edge of the province overlapping in part the gradually changing interface with the rolling uplands of the Piedmont Province to the south (Fenneman 1938). Elevations within the project area are about 1,100 feet above sea level.

The bedrock of the project area, and Pickens County in general, consists of a complex, folded series of metamorphic and metasedimentary rocks intersected by a number of plutonic intrusions (United States Department of Agriculture 1958:84). Granitic gneiss and hornblende gneiss are the most commonly occurring rocks in the project area, and they include small pockets of biotite, feldspar, and quartz (United States Department of Agriculture 1958:84-85).

This locally occurring quartz was used by prehistoric populations for manufacture of stone tools. Other rocks or minerals present in the area do not appear to have been directly utilized by prehistoric populations, although biotite (mica) from the general Blue Ridge area was a trade item during prehistoric times over much of eastern North America, and small quartz crystals were also apparently collected and traded (Willey 1966). Historic period people of European origin utilized native stone, especially granite and gneiss for construction purposes, and there has been limited, financially unsuccessful, mining for gold, talc, soapstone, and other minerals in the Oconee County area (Johnson 1959).

Dominant soils in the project area are Pacolet, Grover, and Hiwassee (United States Department of Agriculture 1970). These are moderately shallow to deep, well-drained soils. They are suitable for agriculture and for oak-hickory forest development, and are thus generally supportive of human occupation and exploitation of the area.

Climate within the project area is generally mild; the mean annual temperature is 56 degrees fahrenheit (United States Department of Agriculture 1970:3). Average annual precipitation for the area is about 71 inches (United States Department of Agriculture). Precipitation is fairly evenly distributed throughout the year; however, December and
August receive slightly greater amounts of precipitation than the other months. An average of about three inches of snow falls each year in the project area (United States Department of Agriculture 1958). Average frost-free growing seasons range from about 189 to about 203 days. In general, the climate is mild and is amenable to relatively high agricultural yield (especially corn) and to relatively larger populations of exploitable natural vegetation (United States Department of Agriculture 1958).

The project area's natural potential vegetation is deciduous forest dominated by oak. The project area can be considered part of Shelford's (1963:17-50) Northern and Upland Forest Region with a mixed oak-chestnut forest domination. Chestnut blight in the early 1900's has greatly reduced or eliminated this tree, and extensive timbering, primarily during the last 100 years, has acted to decrease hardwoods in favor of pine. Acorns, hickory nuts, and chestnuts were probably exploited heavily by prehistoric human groups of the area. In addition, these nuts were a very important food resource for populations of deer, turkey, bear, and other animals exploited by humans. A great variety of herbaceous plants is present in the area and many were used by prehistoric groups as food and for medicinal purposes (Mooney 1891:324).

Fauna in the project area include most eastern species of mammals, birds, and reptiles (Shelford 1963:23). Trout were once abundant in streams and rivers of the area, as were perch, bass, pike, sturgeon, and catfish (Shelford 1963:23). Probably most important to prehistoric groups were deer, raccoon, beaver, bear, rabbit, fox, squirrel, turkey, and various fish (Keel 1976:9, 207; Dickens 1976:202-203). Fur-bearing mammals were important for their hides as well as their food value, and animal bones were frequently fashioned into tools (Dickens 1976:203).

This general picture of the environment of the project area indicates resources and constraints present today and in the recorded past before encroachment of European colonization. Climate change over the last 25,000 years has been shown to have occurred, and to have produced significant variation in this environmental picture (Watts 1971; Whitehead 1973; Carbone 1974). Following, in general, Olafson (1971) and Bryson, Baerreis, and Wendlund (1970), four major climatic episodes can be defined for the southeast covering the last 25,000 years. These are (1) the full-glacial from 23,000 to 13,000 B.C., (2) the late-glacial from 13,000 to 8,000 B.C., (3) the post-glacial from 8,000 to 3,000 B.C., and (4) the recent period from 3,000 B.C. to the present.

During the full-glacial period temperatures were much lower than today, especially in winter, with relatively less annual precipitation. Vegetation in the project area was probably boreal, with spruce, pine, and fir species dominant. Faunal biomass was probably considerably lower than today. Small, isolated glaciers may have been present at high elevations in the general Blue Ridge area.

The late-glacial episode shows evidence for a shift from a boreal forest type to a general northern hardwood type. Oak, chestnut, and hickory were dominant by the end of the period.

From about 8,000 to 3,000 B.C. oak-hickory and oak-chestnut forests
reached their maximum development. Higher temperature and lower precipitation than today are hypothesized to generally characterize this period, but data from the Southeast in particular, are lacking. Present-day faunal communities probably became dominant early in this episode.

The recent climatic episode is hypothesized to be characterized by a general increase in precipitation and decrease in temperature. Within the upper Piedmont and lower Southern Blue Ridge areas, however, there was probably little change in vegetation patterns except for possible replacement of chestnut by hickory in the upper Piedmont. There may have been some shrinkage in deciduous forest areas or in productivity, as has been hypothesized for the Coastal Plain and lower Piedmont of the Southeast.

**Archeological Background**

This section is presented primarily for the non-archeologist to provide an understanding of the basic prehistoric and historic sequence for the project region and of the on-going research objectives of regional archeological studies. This summary has been adapted from a recent study by Brockinton (1978a) of an area bordering Lakes Keowee and Jocassee in Oconee County near the project area.

Earliest evidence of human occupation of the Appalachian Summit area indicates that man was present at least by 10,000 B.C. (Williams and Stoltman 1965:669-683; Holden 1966:81; Keel 1976:17). The environment of the project area at that time would have been boreal, with a much lower biomass available for human exploitation than today. Indications are that the general Summit area was very sparsely occupied during this time. Artifacts dating to the post-glacial episode are somewhat more numerous in the Appalachian Summit (Keel 1976:17), but indicate very limited use of the area until perhaps 4-5,000 B.C. when numerous small campsites began to be established (Holden 1966). Although detailed data are lacking, Keel (1976) and Dickens (1976) suggest for the Appalachian Summit area the beginnings, at about 1,000 B.C., of a shift toward a more sedentary, riverine subsistence-settlement system.

This expansion after 5,000 B.C. of human occupation over the general Summit area is correlated in time with the expansion of the deciduous forest. It may be hypothesized that prehistoric groups moved into the area at that time and developed a subsistence-settlement system efficient for exploitation of the floral and faunal resources of the newly developed oak-hickory-chestnut forest. A slight change in the environment after 3,000 B.C. may have decreased forest productivity and this, in conjunction with increased population and increasing reliance on agriculture, led to a shift toward riverine settlement concentration.

The detailed development and testing of hypotheses related to these generalized patterns depend on future problem-oriented research in the region. Presentation of such generalized hypotheses, however, allows the development of preliminary criteria of site significance and the formulation of a basic fieldwork and analytical plan.

A general cultural-historical sequence has been formulated for the prehistoric eastern United States (Griffin 1952; Willey 1966). This
general sequence has been refined and developed in more detail for the Southeastern Piedmont and Appalachian Summit areas by Coe (1964), Wauchope (1966), Keele (1976), and Dickens (1976). Table 1, following Coe (1964), Keele (1976:16-19), and Dickens (1976:9-15), presents this basic sequence as it might be expected to occur within the project area along with brief descriptions of general characteristics.

Unpublished research by John Combes (notes on file, Institute of Archeology and Anthropology) in the Keowee, Whitewater, and Toxaway River valleys near the project area identified Early Archaic period and later components corresponding to the basic sequence presented in Table 1. Most of the sites found and studied by Combes are of the Mississippian period and represent relatively stable villages that were economically dependent, at least in part, on maize agriculture. Information available on these sites provides little data useful in formulating a pattern of upland exploitation by human groups during this period. At the Warren Wilson site in Buncombe County, North Carolina, Mississippian period features contained, in addition to cultigens, evidence of wild plant products such as hickory nuts, acorns, walnuts, and butternuts (Dickens 1976:204). The relative amount of these wild plant products indicates their importance to the diet; it is probable that generally similar populations in the Keowee, Whitewater, and Toxaway River valleys to the south were also dependent in part on such foods. These wild plant products, along with deer, turkey, and small mammals, were probably gathered in upland areas, indicating exploitation of that zone, as well as the potential for finding evidence of small hunting and gathering camps dating to the Mississippian period within the project area.

Extensive gathering of wild plant products in upland zones probably also occurred during the Woodland and Archaic periods (Caldwell 1958; Sears 1964; Willey 1966; House and Ballenger 1976). Data indicating subsistence practices by groups near the project area were recovered at the Wild Cherry site (38PN22) in the Keowee River Valley (notes on file, Institute of Archeology and Anthropology). At 38PN22, a probable Late Woodland campsite, several hearths and storage pits were found. One of the storage pits contained more than 60 pounds of charred acorns, indicating extensive gathering of these by the group occupying the site. Temporary camps or extractive stations in the uplands might thus be expected to be a part of a Late Woodland settlement pattern. Evidence of such camps may or may not be recoverable archeologically, depending primarily on whether or not stone tools or pottery were manufactured, modified, or used there. Holden (1966) reports evidence in Transylvania County, North Carolina, just to the north of the project area, of small scatters of stone and pottery artifacts in upland areas, which may represent such temporary camps during the Archaic and Woodland periods. Clearly, the possibility of discovering such sites exists in the project area.

Sites other than such small, temporarily occupied camps might also be predicted for the project area. Brooks (n.d.) hypothesized the establishment of seasonal base camps in the piedmont inter-riverine upland zone during the Middle Archaic period. Such base camps would in turn involve a network of more temporary extractive stations and be designed to exploit deer, as well as acorns, hickory nuts, and other wild plant products as these become available in the uplands during the fall and early winter.
## TABLE 11

### ARCHEOLOGICAL SEQUENCE EXPECTED IN THE PROJECT AREA*

<table>
<thead>
<tr>
<th>Date</th>
<th>Period</th>
<th>Phase</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.D. 1,900</td>
<td></td>
<td>19th Century</td>
<td>Replacement by European-American homesteads and farms.</td>
</tr>
<tr>
<td>A.D. 1,820</td>
<td>Euro-American</td>
<td>(Late) Qualla</td>
<td>Europeanization of native technology, economy, and settlement patterns.</td>
</tr>
<tr>
<td>A.D. 1,650</td>
<td>Mississippian</td>
<td>(Early) Qualla</td>
<td>Distinctive stone tools; distinctive pottery; sedentary villages, platform mounds; maize, bean, squash agriculture with hunting, and gathering.</td>
</tr>
<tr>
<td>A.D. 1,450</td>
<td></td>
<td>Pisgah</td>
<td>Distinctive projectile points; ground stone tools; soapstone vessels; distinctive ceramics; sedentism more evident; hunting, gathering, and some horticulture.</td>
</tr>
<tr>
<td>A.D. 1,000</td>
<td></td>
<td>Connestee</td>
<td>Distinctive projectile points; ground stone tools; soapstone vessels; distinctive ceramics; sedentism more evident; hunting, gathering, and some horticulture.</td>
</tr>
<tr>
<td>A.D. 300</td>
<td>Woodland</td>
<td>Pigeon</td>
<td>Distinctive projectile points; ground stone tools; soapstone vessels; hunting and gathering.</td>
</tr>
<tr>
<td>200 B.C.</td>
<td></td>
<td>Swannanoa</td>
<td>Distinctive projectile points; ground stone tools; soapstone vessels; hunting and gathering.</td>
</tr>
<tr>
<td>800 B.C.</td>
<td></td>
<td>Otarre</td>
<td>Distinctive projectile points; ground stone tools; soapstone vessels; hunting and gathering.</td>
</tr>
<tr>
<td>2,000 B.C.</td>
<td>Archaic</td>
<td>Guilford</td>
<td>Distinctive projectile points; hunting and gathering; large increase in number of sites.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Morrow</td>
<td>Distinctive projectile points; hunting and gathering.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mountain</td>
<td>Distinctive projectile points; hunting and gathering.</td>
</tr>
<tr>
<td>6,000 B.C.</td>
<td></td>
<td>Stanly</td>
<td>Distinctive projectile points; hunting and gathering.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kirk</td>
<td>Distinctive projectile points; hunting and gathering.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Palmer</td>
<td>Distinctive projectile points; hunting and gathering.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hardaway</td>
<td>Distinctive projectile points; hunting and gathering.</td>
</tr>
<tr>
<td>10,000 B.C.</td>
<td>Paleo-Indian</td>
<td>Clovis</td>
<td>Fluted projectile points; nomadic hunting (possibly of now-extinct animals) and gathering of wild plants.</td>
</tr>
</tbody>
</table>

* After Coe (1964) Keel (1976), and Dickens (1976).
Brooks (n.d.) also postulates a general movement back to the riverine zone to exploit fish, migratory waterfowl, and floodplain plant resources available from late winter through the spring and summer to early fall. If this general hypothesis for settlement-subsistence organization during Middle Archaic times is correct we would expect somewhat larger, archeologically recoverable sites in the uplands dating to the Middle Archaic period.

Prehistoric archeological sites not related to subsistence or habitation activities might also occur within the project area. Little is known of burial practices of prehistoric groups present in the general area. While indications are that, within the Appalachian Summit region, burial during the Mississippian period was in and near stable, riverine villages (Keel 1976:213-232; Dickens 1976:131-132), Woodland and Archaic burials are not known. General sources for eastern North America and the Southeast (Willey 1966; Sears 1964) indicate a wide variety of burial practices over space and time. It is possible that during the Woodland period, small burial mounds similar to those found in the Midwest, and especially well-documented for Illinois (Willey 1966), were placed in upland areas near riverine villages.

The character of Historic period, European-American archeological sites that might be predicted for the project area is not well known. First settlement began in 1761 with the establishment of Fort Prince George in the Keowee River Valley adjacent to the project area (Oliphant 1964). Several wars with the Cherokee were fought in the late 1700's using Fort Prince George as a base although its primary function was that of a trade outpost to protect British-American interests among the Cherokee. In the early to mid 1800's small settlements were established in the area and were probably restricted to the river valleys. The uplands of northern Pickens County have never been extensively farmed, but commercial timbering in the area began in the late 1800's. Historic sites that might occur in the project area include early settler cabins and stills, as well as specialized, temporary camps or activity centers associated with timbering.

Any well preserved archeological sites discovered in the project area could add significantly to our understanding of prehistoric and historic occupation and use of the region. Data regarding site size and function are at this time most critical. Especially important would be data that would allow placement of the site's use in specific seasons of the year. Such data is essential to understanding the settlement system utilized by past populations. Site function is best inferred, at this time, by an analysis of the frequency of different types of artifacts; such frequencies are most reliable when a large sample of artifacts can be collected. Also important in inferring site function are estimates of site size and the patterns of artifact dispersion within the site. Data regarding seasonality of a site are very rare. Such data would include the presence or absence of different plant and animal remains; these are usually preserved only in a charred state within a hearth or other fired area. Of critical importance then would be discovery of hearths or other fired features. Such features may also produce material datable by radiocarbon analysis, and thus assume even greater importance.
Sites containing artifacts diagnostic of specific cultural-historical time periods because of their style of manufacture could also be very significant, in terms of both confirming the general cultural-historical sequence for the region and dating specific types of sites (and perhaps, thus, specific settlement-subsistence patterns) to certain time periods. In addition to cultural-historical and settlement-subsistence data, artifacts providing evidence of the existence and nature of inter-regional trade networks would be significant. Patterns of occurrence of exotic materials would be important in formulating specific hypotheses about inter-regional trade.

The recognition of these data classes as potentially providing significant information aided in the formulation of a plan for the survey fieldwork. This plan is discussed in the next chapter.

**Impacts to Archeology of Historic Land Use**

The cotton agricultural system employed in the Piedmont in the 19th and early 20th centuries resulted in tremendous erosion (for more detailed discussion see Trimble 1974). Cotton was planted in rows generally running down slopes to obtain better drainage necessary because of the clay substrate underlying the top 8-10 inches of soil. The heavy and sudden rains characteristic of the South Carolina Piedmont resulted after just a few years in complete loss of soil and formation of large gullies on the gentle hillslopes. Investment in terracing and contour farming was not profitable because of the high value of cotton in relation to the low value of land during the early 1800's. In addition, other crops, such as legumes which could have reduced erosion and allowed new soil to form, brought such low prices that it was not economical to plant them in the short run. It was more profitable to farm an area intensively until the soil was exhausted or eroded and then buy, clear, and plant new land. Abandoned land continued to erode.

Erosion of upland soils quickly clogged the streams and rivers of the Piedmont with large sediment loads. Large rainstorms produced great runoff and major flooding occurred. This flooding, combined with direct hillslope erosion, covered the rich soils of the stream and river bottoms with up to several feet of silt with low productivity. Increased sediment loads caused the streams and rivers of the Piedmont to aggrade, aggravating the flooding problem and causing a dramatic rise in the water table in stream valleys. Swamps were created in many of these stream valleys. Figure 2, after Trimble (1974) shows this development in a typical Piedmont stream valley.

The erosion of the uplands and sedimentation of the stream and river bottoms had dramatic effects not only on the agricultural productivity of the region as discussed in the preceding section but also on the archeological record. This archeological record had been preserved in the soil for at least 10,000 years within minimal disturbance. During the 1800's, however, upland erosion dislocated and deflated artifacts and destroyed features indicative of past construction and other activities.
A. PRIOR TO EUROPEAN SETTLEMENT

B. AT THE TIME OF EUROPEAN SETTLEMENT

FIGURE 2. Erosion and sedimentation sequence in a Piedmont valley (after Trimble 1974).
FIGURE 2 (continued). Erosion and sedimentation sequence in a Piedmont valley (after Trimble 1974).
Sedimentation of stream bottomlands covered over archeological deposits with up to several feet of silt and slopewash. While this sedimentation blanket may protect archeological deposits, it biases our understanding of them because it makes sites extremely difficult to detect, or to study if discovered.

Changes in agricultural practices and a shift to livestock and timber production as well as manufacturing have greatly decreased erosion in the Piedmont since the early 1900's and the region is recovering economically; however, the damage and biases introduced to the archeological record cannot be changed. It is incumbent upon the archeologist, therefore, to search for areas within the Piedmont where erosion was not so dramatic and where effects on the archeological record are minimal. Such minimally affected areas, and the archeological sites within them, are thus extremely significant to understanding the cultural heritage of the region.
SURVEY METHODS

Before fieldwork on the survey began, early maps and documents were thoroughly checked for the presence in the project area of known historic and archeological sites. The National Register of Historic Places was consulted, and no sites were found to be listed, or determined to be eligible for listing, for the project area. In addition, discussion with the staff of the State Historic Preservation Officer indicated that no sites were presently under consideration for nomination to the National Register. The Statewide Archeological Inventory, maintained by the State Archeologist and the Institute of Archeology and Anthropology was also consulted. No sites were known for the project area.

Pickens District, including the project area, is shown by Robert Mills (1965) in his Atlas of South Carolina that was originally published in 1825. No sites were indicated on this map for Carrick Creek.

Although no sites were already on record or indicated by early maps for the project area, previous work in the region discussed above showed a strong possibility that undiscovered sites may exist. A strategy was developed for field investigation to meet the following goals.

(1) Estimation of the extent, nature, and temporal placement of archeological resources in the project area.

(2) Evaluation of the impact of historic land use on the archeological record in the project area.

(3) If sites are found, estimation of their significance to regional archeological research by gathering data relevant to the following problem domains:

(a) testing of settlement-subsistence patterns hypothesized by House and Ballenger (1976) and Brooks (n.d.);
(b) testing and refinement of culture history sequences developed by Coe (1964), Keel (1976), Dickens (1976) and others;
(c) identification and analysis of raw materials used for prehistoric stone tool manufacture (following House and Ballenger 1976);
(d) investigation of early historic settlement patterns in the inter-riverine Piedmont, particularly following the approach used by Lewis (1975) to test for patterns indicating a frontier adaptation.

(4) Testing and evaluation of site discovery techniques designed for wooded and grassed areas with minimal ground surface visibility.

Site discovery methods used involve basically inspection of the ground surface for artifacts and archeological features and excavation of subsurface tests where the surface is obscured by vegetation or where
archaeological deposits may be buried. It was expected that within the project area pasture and woods would predominate, and reliance would have to be placed on subsurface testing rather than surface examination. This proved to be the case. Accordingly, a plan was devised and implemented involving the regular spacing of subsurface tests over the project area. Subsurface tests 1 foot square were placed approximately every 100 feet along transects of the valley (see Figure 1). In addition to subsurface tests along transects all visible ground surface was carefully examined for artifacts, and the Carrick Creek stream banks were inspected at various intervals. Areas subjectively judged to have a high probability of site occurrence, such as elevated knolls within the stream bottom, were isolated and inspected. The systematic subsurface testing program, in addition to providing for sites discovery, allowed the evaluation of potential impact to the archaeological record by historic land use.
SURVEY RESULTS

Effectiveness of Field Techniques

Field techniques employed are thought to have been effective in providing an adequate sample of potential sites within the project area. The entire project was covered on foot, and all ground surface visible was examined for the presence of artifacts. Such visible ground surface, however, was extremely restricted within the project area, and limited to only a few areas where trees had recently been timbered or had overturned. Opportunistic surface examination thus had limited value in the project area. Probably over 95% of the project area was vegetated, with a thick mat of pasture covering about 3/4 of the area and mixed pine, bottomland hardwood and shrubs, and leaf and needle litter the other 1/4.

Excavation of subsurface tests along transects has recently been increasingly employed as a site discovery method for surveys of vegetated areas (see Brockington n.d.; Brooks 1977; Taylor and Smith 1978; Brooks n.d.; Green and Brooks 1978; House and Ballenger 1976; South and Widmer 1976; Chartkoff 1978; Lovis 1976). Transects are an effective and efficient sampling technique for locating sites and, once located, for defining their extent and internal characteristics (see especially South and Widmer 1976; Chartkoff 1978). There is a problem, however, in estimating what is not found by use of such methods during surveys. Relevant variables to this problem are the spacing between transects, their orientation, spacing and size of subsurface tests along the transects, as well as artifact density and configuration within sites. Although many sites are found using small subsurface tests along transects, House and Ballenger (1976) and Brooks (n.d.) postulate that these may be lucky finds and that tests one meter square or smaller may not yield a single artifact even though placed within one of the relatively numerous, small, low density lithic scatters common in the Piedmont. This problem must remain unresolved until experimental and carefully controlled studies are undertaken. Until that time we can be confident that large sites with relatively high artifact density will be discovered. The 1 foot square tests used during this survey are thought to be adequate to locate high and moderate density sites. If such sites were present, they should have been detected during the survey.

A problem with small subsurface tests as a site discovery technique was evident in the project area, however. Such small tests are not efficient for detecting deeply buried sites or sites located under the present water table. As will be discussed in the section below, most of the project area is covered by the sedimentation generally characteristic of Piedmont bottomlands described above.
Potential Impact Within the Project Area of Historic Erosion

Subsurface tests showed that the bottoms of Carrick Creek valley were heavily silted over. Undifferentiated light brown clayey silt extended from the surface to about 3 feet near the creek and to at least about 2 feet near the margins of the bottomland. It is not known how much farther these relatively recent deposits extended as ground water was consistently encountered at 4 feet or less below the surface. These conditions are undoubtedly the result of the erosional processes described above resulting from historic land use practices.

Although it was quickly discovered during the fieldwork that there was little chance of discovering potential sites buried under such sediment and lying below the present water table, subsurface tests were continued to monitor the extent of the sediment and to locate potential historic remains that may have been more recently covered. No sites were located, however.

Potential for site discovery was thus limited to the margins of the project area. Investigation of these areas showed them to be severely eroded or disturbed by construction of agricultural terraces. Subsurface testing showed no undisturbed soil profiles.

Conclusions

No archaeological sites were located in the proposed Oolenoy Watershed Project 40. Surface examination and subsurface testing were sufficient to indicate that little potential exists for site discovery in the project area. If sites once existed on the slopes and terraces of the project area, they have been destroyed by past erosion and agricultural terrace construction. If sites exist in the creek bottomlands, they are deeply buried and lie under the present water table. While these sites are difficult to locate or study, they should, if they exist, suffer little adverse effect by inundation. Therefore, no further archaeological study is recommended before construction of Oolenoy Watershed Project 40.
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