CULTURAL RESOURCES OVERVIEW OF THE SUMTER NATIONAL FOREST

Francis Marion and Sumter National Forests
CRM Report 06-07

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Foreword

This cultural resources overview of the Sumter National Forest is the culmination of almost thirty years of cultural resources investigations on the forest. It contains the results of the hard work and ideas generated by the many archeologists who have worked on the forest and in surrounding area beginning in the early twentieth century. The document summarizes what we know about cultural resources on the Sumter National Forest and provides a framework for future research and cultural resource management. Robert Benson and Southeastern Archeological Services, Inc. have done outstanding work compiling this information. It is hoped that this Cultural Resources Overview of the Sumter National Forest will be useful to archeologists, historians, land managers, and others working in cultural resource management in South Carolina and neighboring areas.

The Francis Marion and Sumter National Forests Heritage Program staff.

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James F. Bates
Michael A. Harmon
Olga Maria Caballero
Clare E. Graf

Acknowledgments

Composing this Cultural Resources Overview of the Sumter National Forest was about a three-year process. In the beginning, a considerable amount of time and effort was expended processing the existing Sumter National Forest archeological site inventory (site files) into a useful, complete electronic database. Of greatest initial importance was producing a comprehensive, yet easily accessible, database that could be used for the analyses presented in this overview and for future research on the Sumter National Forest.

Producing this document required a select cast of participants, mainly the contributors listed on the title page and Sumter National Forest archeologist Jim Bates. I greatly appreciate Jim Bates' time, effort and patience toward producing this overview. This document is as much his vision as it is my own. He provided a considerable amount of information, ideas and references on all aspects of the overview, but especially concerning historic period resources, Cherokee sites, and resources on the Andrew Pickens Ranger District. He provided constant support and advice. ArcGIS was a principal tool for analyzing site distribution on the Sumter National Forest and Eric Schmeckpepper of the Forest Service provided the data and advice to make this type of analysis possible. Keith Derting of the South Carolina Institute of Archaeology and Anthropology was particularly helpful for pinning down wandering site data.

Tom Pluckhahn assembled the cultural history and previous archeological research chapters. This began with our typical cultural history and archeological background sections used for past Sumter National Forest cultural resource management reports, and then required editing and adding more recent information gathered from various sources. Jim Bates also contributed information to these two sections through comments on earlier drafts of the document. Tom Pluckhahn also assembled the archival depository list, the historic maps list, and the Sumter National Forest cultural resource management reports lists, which appear as Appendices D, E and F.

Tom Gresham composed much of the research issues chapter (VIII). His part of this chapter provided discussion and research questions under two subheadings, Thematic Issues and Culture Period Specific Issues. Jim Bates and Chad Long, principally among others, contributed numerous research issues and questions to this section. Other research issues and questions were provided by respondents to a questionnaire sent to 20 individuals who we thought would have a general interest in or significant insight about certain archeological aspects on the Sumter National Forest. We had six thoughtful responses, which fell into two categories–research objectives, methodology and administrative measures to improve the site database, and research themes, areas of study and gaps in our understanding. The second half of the research issues chapter is concerned with specific research themes that were generated from notable gaps or points of interest in the interpretive synthesis (Chapter VI). These research themes are complemented by a series of recommended research objectives that could be undertaken by the Sumter National Forest to address the research themes.

Doug Atkinson and Karen Payne produced the exercise in the geographic information system (GIS) site predictive model (Appendix B). Except for the introductory abstract of this appendix, Doug Atkinson wrote, described and presented the process of producing the GIS site predictive

model. Doug applied the GIS analyses and produced the final product under the supervision of Karen Payne. Karen Payne designed and created the basic GIS site predictive model and wrote or acquired necessary logarithmic equations used in the model.

A number of people, besides Jim Bates and Forest Service archeologist Bob Morgan, contributed to this overview by submitting comments on the draft report. Walt Kubilius, a southeastern geologist, commented on the lithic resources section in Chapter II. His comments created better organization of the lithic raw materials that are found on or near the Sumter National Forest and better descriptions and geographic distributions of specific lithic raw materials. David Anderson, who co-wrote with Bob Morgan and Patricia Logan the first cultural resources overview for the Sumter National Forest that was never finalized, provided many helpful comments that made the overview more robust. John Cable also provided thoughtful comments, focused mostly upon the interpretive synthesis and archeological survey critique chapters. Not all of their comments were addressed, however. Anderson's and Cable's comments were directed toward producing a better document for archeological researchers, especially those familiar with southeastern archeology. However, this overview was meant to be a hybrid, useful for both archeological specialists and non-archeologists who manage the forest. Thus, with the assistance of Jim Bates, some more in depth or detailed discussions were removed from the document or were moved to the appendices.

Not all original text and chapters that were cut were completely discarded, however. Two original chapters are included as appendices. Appendix A is a former chapter that looks at archeological site distribution on the Sumter National Forest and Appendix C is a former chapter on past environments. Both former chapters required a significant amount of time and effort to assemble. Except for Chapter VI, the interpretive synthesis of the Sumter National Forest database, Appendix C was my favorite chapter. For anyone who is interested in environmental reconstruction over the past 12,000 years, Appendix C is a good source.

This overview has many figures. A large portion of artifact photographs were made available by Tommy Charles at the South Carolina Institute of Archaeology and Anthropology. Jerald Ledbetter, Gerald Schroedl and Gail Wagner provided graphic illustrations of specific archeological sites. Jim Bates provided some recent photographs of historic period structures and sites. Early historic period maps were reproduced from the Hargrett Library at the University of Georgia and most of the early twentieth century photographs came from the Library of Congress, Prints and Photographs Division.

Robert W. Benson

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Chapter I
Introduction

This Cultural Resources Overview of the Sumter National Forest has been prepared in response to a Memorandum of Understanding among the Francis Marion and Sumter National Forests, the Advisory Council on Historic Preservation and the South Carolina State Historic Preservation Office in accordance with USDA Forest Service Manual 2360. It has been produced to provide Sumter National Forest land managers with necessary information on the nature and distribution of cultural resources so that they can adequately plan for future budgets, priorities and field investigations. It includes both a comprehensive record of known (recorded) resources and examines the Forest Service model for predicting as yet undetected resources on the Sumter National Forest. It places these known and predicted resources in a framework of the cultural history of upstate South Carolina, in which the Sumter National Forest is located. The archeological and historical investigations from which this framework is derived, both within the forest, but more so in the surrounding area, are reviewed, and gaps in our knowledge and current research issues are identified. While the overview will be used by forest planners, it will also be useful to anyone interested in the varied cultural resources found in abundance on the Sumter National Forest, particularly to archeologists conducting survey and excavation.

The primary objectives of the overview are to compile in one document all previously recorded data about cultural resources in the area of the Sumter National Forest, to provide background information on cultural resources to aid in the planning of field inventories (surveys) of sites, to generate maps of cultural resource potential (that is, site predictive models) and to delineate areas and activities for future cultural resource work in the Forest. One key element of this overview is the development of a model predicting site location, which is to be both descriptive and predictive.

The Sumter National Forest is comprised of three spatially distinct ranger districts. Enoree and Long Cane Ranger Districts are located in the Piedmont Province and the Andrew Pickens Ranger District is mostly within the Blue Ridge Province (Figure I.1). The Enoree and Long Cane Ranger Districts were created when the United States government bought numerous tracts of exhausted farm and timber land in the 1930s. The Andrew Pickens Ranger District was part of the Savannah River Purchase Unit of the Nantahala National Forest. Land within each ranger district is divided among land management units called compartments. Boundaries for these compartments typically follow roads, streams or ridge divides. Total combined area in South Carolina encompassed by the three ranger districts is 389,283 ha (961,529 ac). Within the proclamation boundaries of these ranger districts, the federal government owns 147,334 ha (364,058 ac). Any calculations involving Forest Service land ownership for this Overview uses the area figures calculated from the GIS layer.

The Andrew Pickens Ranger District's proclamation boundary encompasses 56,502 ha (139,616 ac) in Oconee County, South Carolina. Presently, the federal government owns 34,127 ha (84,328 ac) (Figure I.2). The northeast extension of the ranger district, which terminates at the Keowee River, is mostly privately owned land. Formerly a part of the Nantahala National Forest, it now shares borders with the Nantahala and Chattahoochee National Forests to the north and west, respectively. The North/South Carolina state line forms its northern boundary and the Chattooga

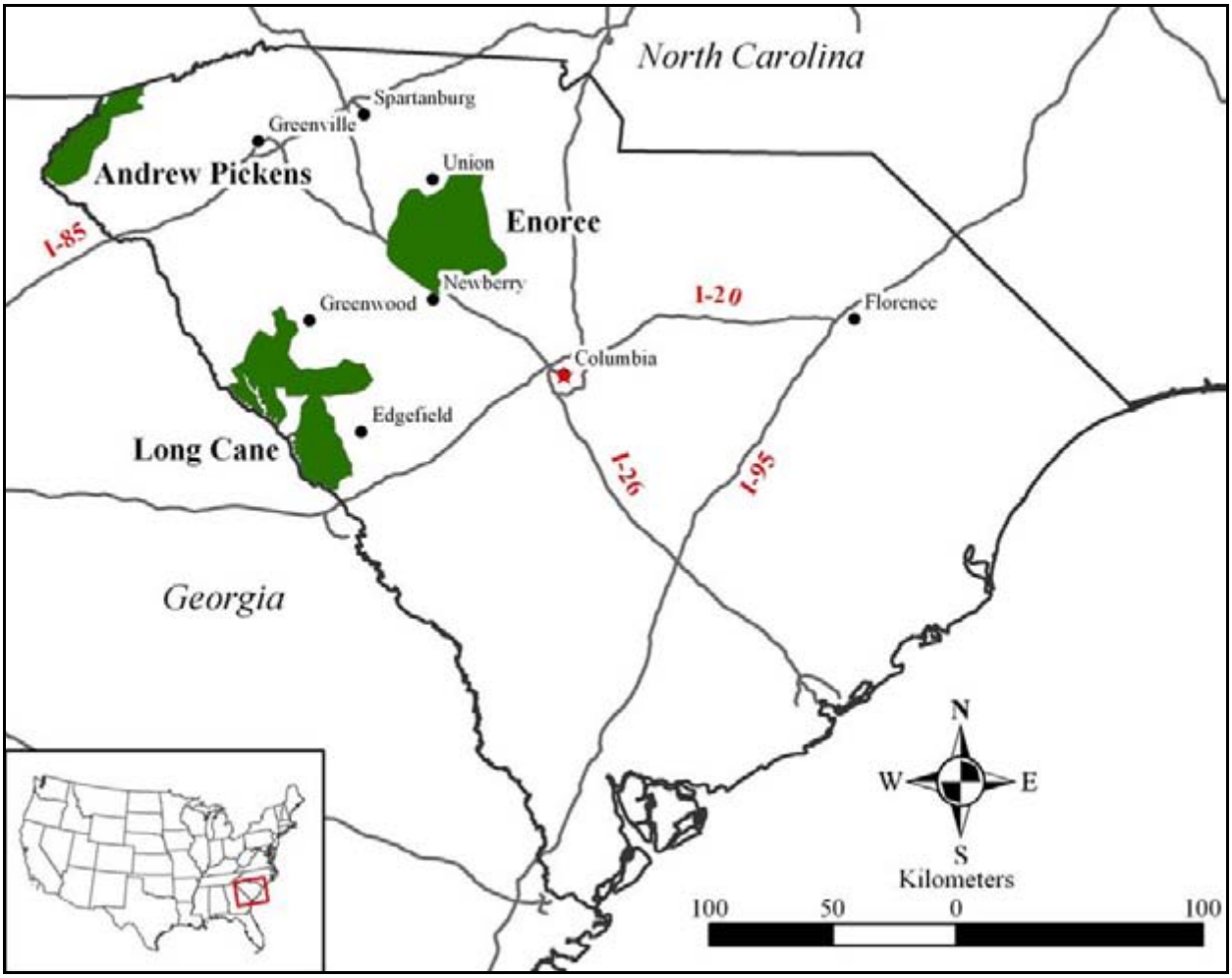

Figure I.1. Locations of the Three Sumter National Forest Ranger Districts in South Carolina within Respective Physiographic Provinces.

River forms its northwestern boundary. Except for a narrow property buffer, the Tugaloo River provides the ranger district's western boundary. The Tugaloo and Keowee Rivers are major Savannah River tributaries, so the entire ranger district is within the Savannah River watershed.

The Enoree Ranger District's proclamation boundary encompasses 160,165 ha (395,768 ac). The federal government owns 65,144 ha (160,971 ac) (Figure I.3). It occupies substantial portions of Laurens, Newberry and Union Counties and small portions of Chester and Fairfield Counties east of the Broad River. Union, Clinton, Newberry and Leeds are just outside of the northern, western, southern and eastern boundaries, respectively. Whitmire is centrally located within the ranger district. The entire ranger district lies within the Broad River watershed. The Tyger and Enoree Rivers, major tributaries of the Broad River, flow northwest-southeast through the ranger district.

The proclamation boundary of the Long Cane Ranger District encompasses 171,616 ha (424,063 ac), of which 48,061 ha (118,759 ac) is owned by the federal government (Figure I.4). It occupies portions of Abbeville, Edgefield, Greenwood, McCormick and Saluda Counties. The Savannah River forms the western boundary. Major streams on the Long Cane Ranger District generally flow northeast-southwest into the Savannah River.

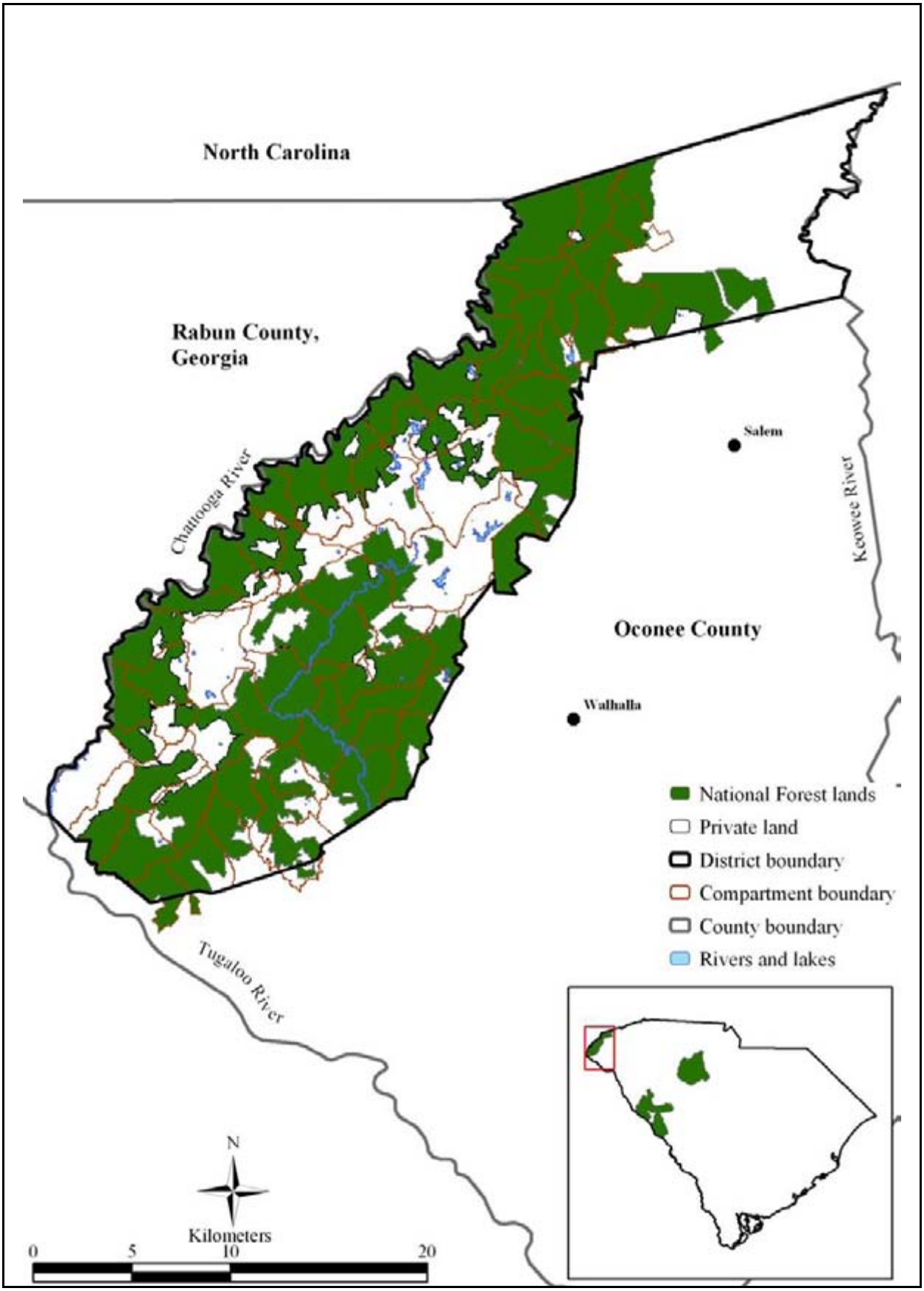

Figure I.2. Major Administrative Features of the Andrew Pickens Ranger District.

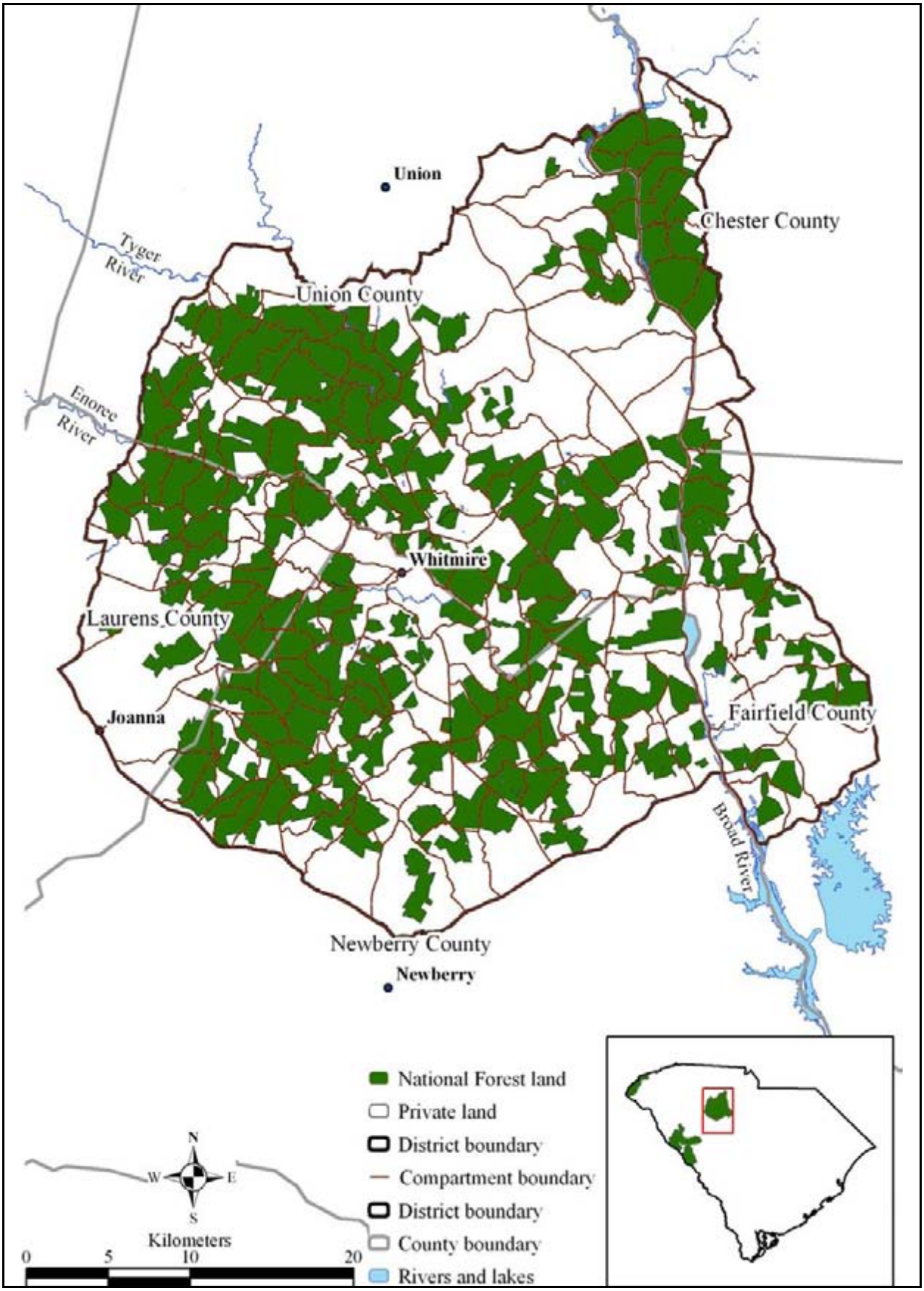

Figure I.3. Major Administrative Features of the Enoree Ranger District.

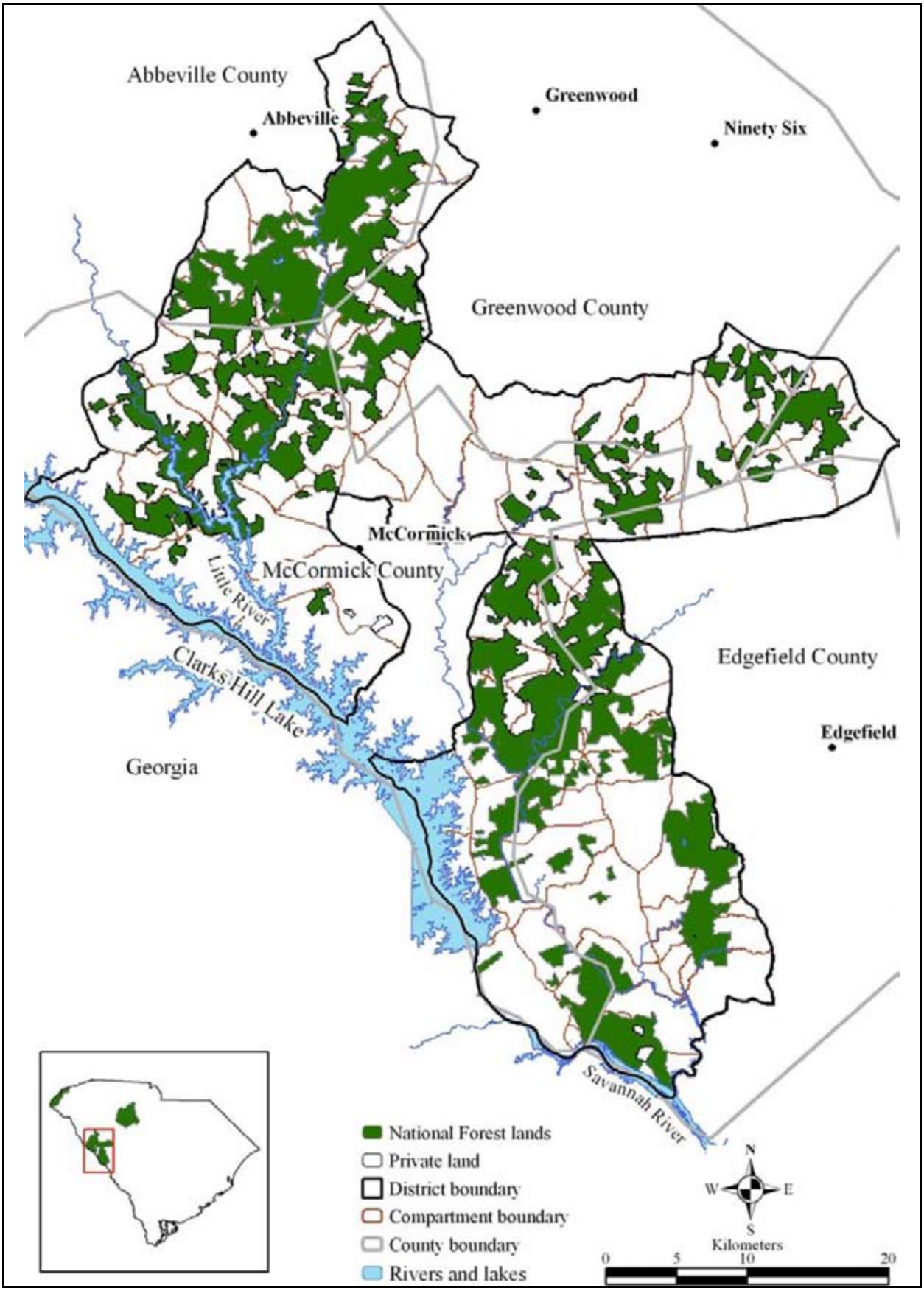

Figure I.4. Major Administrative Features of the Long Cane Ranger District.

Chapter II
Environmental Setting

This chapter summarizes the present environmental setting for the Blue Ridge and Piedmont Provinces of South Carolina. Included is a summary of lithic resources used during the prehistoric and historic periods in these two physiographic provinces. Also included is a summary of anthropogenic modifications to the landscape. This section provides an historical background for some common landscape features of the South Carolina Blue Ridge and Piedmont Provinces that we see today, such as extensively eroded uplands and sediment-filled creek and river valleys.

Physiography and Hydrology

Blue Ridge Province

The Andrews Pickens Ranger District is almost entirely in the Blue Ridge Province in the northwestern corner of South Carolina (Figure II.1). The southern edge of Andrew Pickens extends into the northern Piedmont. The southern edge of the Blue Ridge Province only skirts the northwestern edge of South Carolina, covering about two percent of area in South Carolina and can be described as rugged and mountainous (Kovacik and Winberry 1987:14-16). Overall, the Blue Ridge Province encompasses a relatively small area (1,554 km^2 [600 mi^2]) of the Appalachian Mountains (Kovacik and Winberry 1987:14). The widest part of the province is its southeastern portion, the majority of which encompasses eastern North Carolina and the southern edge of Tennessee. The province narrows considerably as it extends northeast out of North Carolina and into Virginia. Elevation of the Blue Ridge in South Carolina ranges from 427 m (1,400 ft) to just over 1,067 m (3,500 ft) (Kovacik and Winberry 1987:14).

The Blue Ridge mountains have no true peaks, as in the Rocky Mountains. Instead, because of their greater age and more humid environmental conditions, peaks have been eroded to domes that are sometimes exposed (Barry 1980:12; Kovacik and Winberry 1987:13-14). The mountains are also considered "subdued," meaning that a mantle of decayed rock overlies the bedrock such that talus slopes and bare cliffs are rare (Barry 1980:12).

Rivers that flow through or along the boundaries of the Andrew Pickens Ranger District are the Chattooga, Chauga and Toxaway Rivers. All three rivers are part of the Savannah River watershed. The northeastern portion of the Andrew Pickens Ranger District (east of Persimmon Mountain) is within the Toxaway/Keowee River basin, while the remaining area of the ranger district is within the Chattooga River basin.

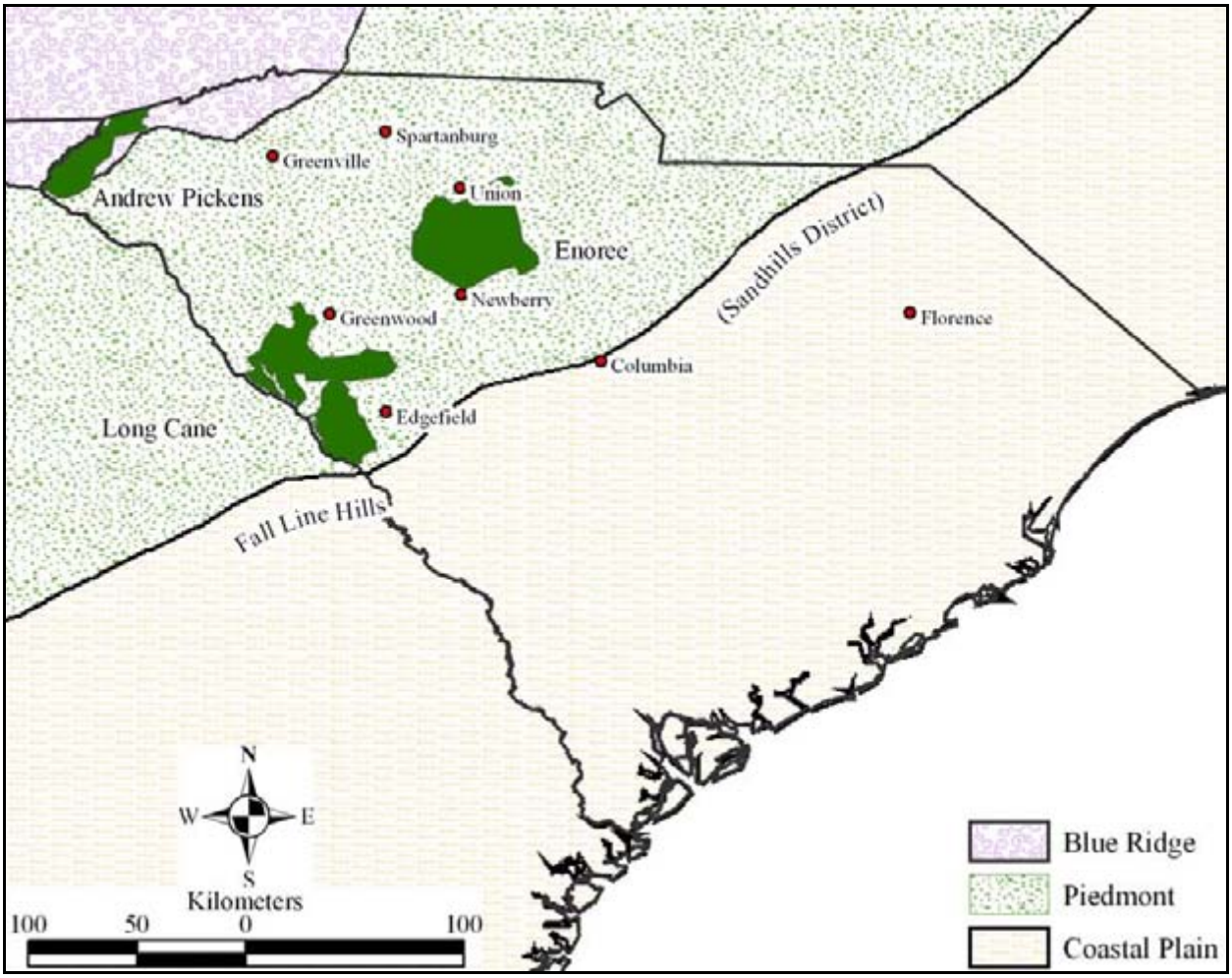

Figure II.1. Map of South Carolina Showing Physiographic Provinces and Locations of the Three Sumter National Forest Ranger Districts.

Piedmont Province

The southern Piedmont stretches from Maryland to central Alabama and covers about one-third of South Carolina's total area. The Piedmont Province formed by volcanic activity at sea and later collided with the continental margin through tectonic activity. The collision caused deformations, buckling and additional changes to the original igneous and sedimentary deposits, forming the present exposures of metamorphic rock (Barry 1980:14-15). The Brevard Zone is a fault that runs northeast-southwest through the Andrew Pickens Ranger District and marks the boundary between the Blue Ridge and Piedmont Provinces (Kovacik and Winberry 1987:16). The Fall Zone forms the boundary between the Piedmont and Coastal Plain. Elevation of the Piedmont Province ranges from 91 m (300 ft) near the Fall Zone Sand Hills to 366 m (1,200 ft) near the Blue Ridge Province (Kovacik and Winberry 1987:16).

A characteristic pattern of rolling land without sharp breaks separating hillsides, hilltops or valley bottoms is a consequence of dissection and degradation of the surface geology. The degree of slope on ridges and size of the landforms vary across the Piedmont, but Piedmont physiographic features are dramatically different from that of the adjacent Blue Ridge Province. Ridge divides are

generally steep and narrow in the northern portion of the Piedmont (northern Enoree Ranger District) but not as steep and broader in the southern portion of the Piedmont (southern Enoree and Long Cane Ranger Districts). Ridge tops and adjoining ridge noses provide most of the flat, usable land surfaces.

The Enoree Ranger District, located in the central Piedmont of South Carolina, is entirely within the Broad River watershed. The Broad River runs roughly north-south along the east side of Enoree Ranger District, but does not form the district's eastern boundary. The Tyger and Enoree Rivers cut across the Enoree Ranger District in a northwest-southeast direction and flow into the Broad River. Principal streams that flow into the Tyger River include Fairforest and Padgetts Creeks, and principal streams that flow into the Enoree River include Duncan and Indian Creeks. Notable streams that flow into the Broad from the east include Sandy River, Beaver Creek and Rocky Creek. The Saluda River flows northwest-southeast and forms a notable natural boundary between the Enoree and Long Cane Ranger Districts. Thus, two prominent ridge divides also separate the Enoree from the Long Cane Ranger District. The Saluda flows into the Broad River in Columbia, forming the Congaree River.

The Long Cane Ranger District, situated in the southern portion of the Piedmont in western South Carolina, is within the Savannah River watershed. The southern extent of the ranger district almost encroaches upon the Fall Line Hills (or Sandhills District) of the Coastal Plain Province. The northwestern corner of the Long Cane Ranger District is directly across the river from where the Broad River of Georgia meets the Savannah River. Two principal waterways, Little River (north) and Stevens Creek (south), generally flow northeast-southwest across the Long Cane Ranger District before emptying into the Savannah River. Little River is fed by Long Cane and Buffalo Creeks and Stevens Creek is fed by Beaverdam and Turkey Creeks.

Geology and Topography

The Southern Piedmont is the result of convergences of the North American and African plates, during the Silurian, Triassic and Jurassic periods. These orogenic events formed the Blue Ridge and Piedmont. Together, the underlying geology of the Blue Ridge and Piedmont Provinces consist of parallel belts of geologic formations that run northeast-southwest (Figure II.2). From northwest to southeast the belts are as follows: Blue Ridge Belt, Brevard Belt, Inner Piedmont Belt, Kings Mountain Belt, Charlotte Belt and Carolina Slate Belt (Overstreet and Bell 1961). The formation of these belts and their notable differences are likely the consequences of differential changes in their original sedimentary and volcanic deposits (Overstreet 1970:369, 370) over the course of three episodes of intrusion and metamorphism (Overstreet 1970:377-381). All rocks in these belts have undergone considerable folding, faulting, regional and contact metamorphism and igneous intrusion, and these belts essentially represent zones of different metamorphic grades (Overstreet 1970:370). Generally, metamorphic grades increase from southeast to northwest, with the Inner Piedmont Belt displaying the highest degree of metamorphism.

Three geologic belts comprise the relatively small Andrew Pickens Ranger District, the Blue Ridge, Brevard and Inner Piedmont. Nearly all of the Enoree Ranger District lies within the Charlotte Belt. Granite intrusions and a portion of the Carolina Slate Belt encroach upon the eastern edge of

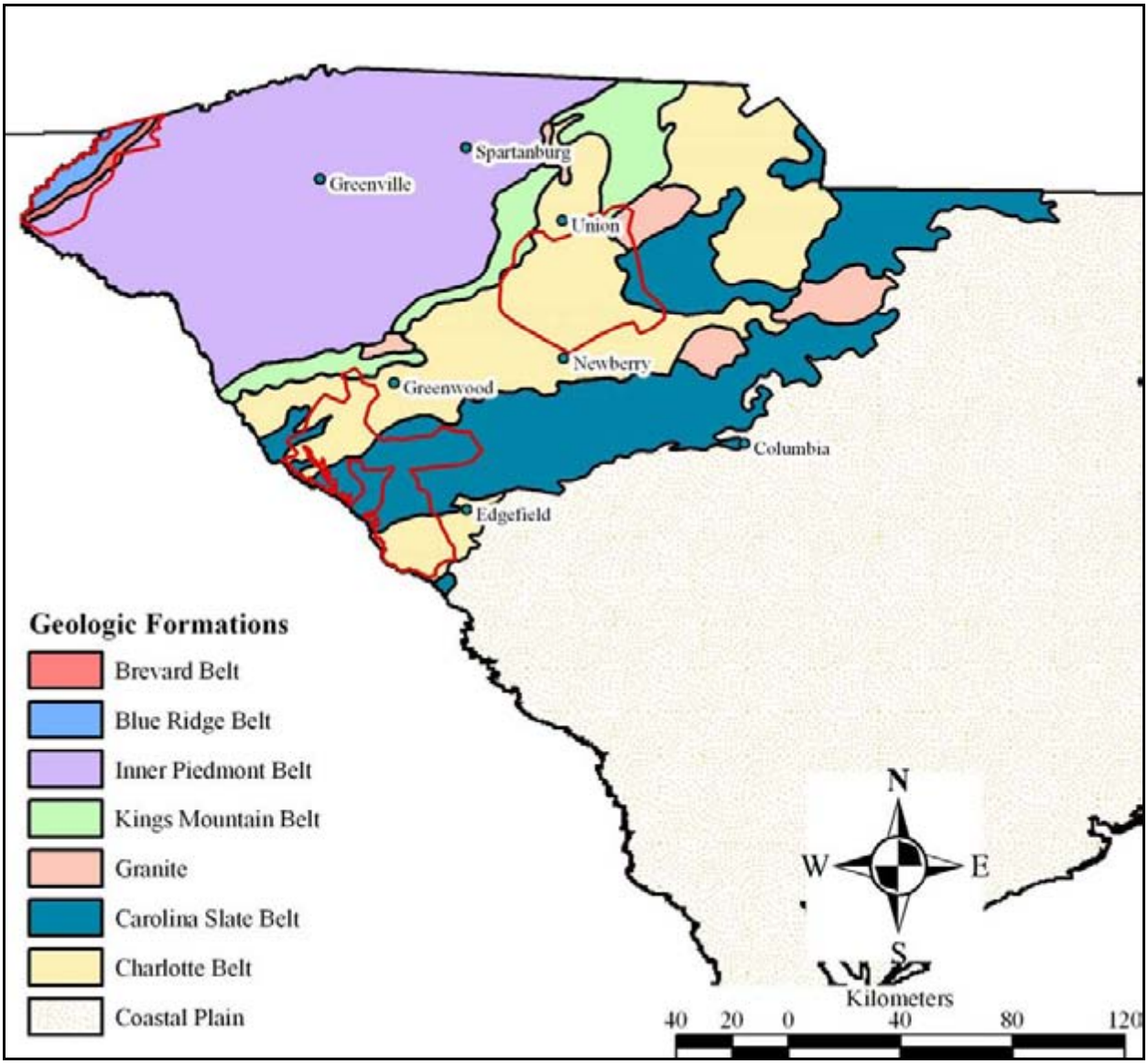

Figure II.2. Geologic Belts of the Blue Ridge and Piedmont of South Carolina. Sumter National Forest Ranger Districts are Outlined in Red. Reproduced from Overstreet and Bell (1961).

the ranger district. Also, the northwestern corner of the Enoree Ranger District extends into the Kings Mountain Belt. The Long Cane Ranger District is more or less equally divided between the Charlotte and Carolina Slate Belts, with the Carolina Slate Belt running through the middle of the ranger district.

The terrain in the Blue Ridge Province, which comprises most of the Andrew Pickens District, is typified by a rugged, steep topography with high ridges and narrow stream valleys. The steeper gradient yields greater stream energy, resulting in deeply incised stream channels cutting through the rocky substrate. However, larger creek and river valleys can be wide, supporting floodplains, terraces and meandering water courses. On the Andrew Pickens Ranger District elevation ranges from 1,225 m (4,020 ft) amsl near the North Carolina border to 213 m (700 ft) amsl at Brasstown Creek as it passes through the southern end of the ranger district. The underlying geology consists of granitic schist and gneiss of Precambrian and Paleozoic age (Barry 1980:12;

Kovacik and Winberry 1987:16), the parent material of the highly weathered soils in the region. Slightly younger, metamorphosed, later Precambrian sedimentary rocks run along the southern edge of the Blue Ridge, forming the Brevard Belt or fault zone. This zone represents the contact between the Blue Ridge and Piedmont Provinces. The Brevard Belt consists of poorly sorted siltstone, sandstone and conglomerates (Barry 1980:12). Local mineral sources in the Blue Ridge include scattered deposits of gold, silver, lead, mica, feldspar, asbestos (soapstone), granite, marble and clay (Barry 1980:13).

The Piedmont is the foothills region of the Appalachian mountains in the process of weathering and washing toward the Coastal Plain and Atlantic ocean. The Fall Line Hills or Fall Zone separates the Piedmont from the Coastal Plain. At the Fall Zone metamorphic and intrusive igneous rocks of the Piedmont give way to the unconsolidated sediments of the Coastal Plain Province and it is typified by rolling hills and sandy soils. Thus, this zone is referred to as the Fall Line Hills or Fall Zone Hills or the Sandhills District of the Coastal Plain Province. The Fall Line Hills zone represents an ancient shore line that runs from New Jersey to Alabama, generally increasing in width from north to south.

Lithic Resources

There are a number of lithic resources used by both prehistoric and historic period inhabitants of the Blue Ridge and Piedmont Provinces. Local material used for chipped stone tools during the prehistoric period predominantly include quartz, varieties of metavolcanics, quartzite and Piedmont silicates. The clear majority of flaked stone artifacts from Sumter National Forest is quartz. Types of stone are grouped below under metamorphic and igneous rocks, other Piedmont materials, and exotic materials. Most types of stone listed below are those commonly found in the South Carolina Piedmont and Blue Ridge, on archeological sites and/or at their sources. Considerably more work for classifying the varieties of the most common flaked stone raw material, quartz, and for other metavolcanic stone is necessary. Recommendations for doing so are made in Chapter VIII.

Metamorphic and Igneous Rocks

Because the Sumter National Forest lies within the Slate Belt, there is a large variety of locally occurring igneous and metamorphosed stone that exhibit conchoidal fractures, making them suitable for flaked stone production. Other metamorphosed stone found in the Piedmont and Blue Ridge also are suitable for ground stone tools. Types of metamorphosed rhyolite and dacite are most frequently found on archeological sites used as flaked stone tools and debris. Soapstone is commonly used for ground/polished stone tools.

Rhyolite

Fine-grained rhyolite is infrequently found on prehistoric sites in the Sumter National Forest. Recently a small source of this material was found in a dry creek bed adjacent to site 38MC1648 on the Long Cane Ranger District (Keith and Keith 2002:45-46). Banding on this material suggests that it is a relatively high grade rhyolite (Keith and Keith 2002:13), similar to rhyolite found in the North Carolina Piedmont. Known rhyolite deposits occur north of this occurrence (Keith and Keith 2002:13), near the interface between the Carolina Slate and Charlotte Belts on the Overstreet and

Bell (1961) geologic map (Figure II.2) or along the interface between the Buzzards Roost shear zone and Eastern Piedmont Modoc zone on the more recent [Generalized Geologic Map of South Carolina] (South Carolina Department of Natural Resources 1997). This resource apparently occurs in isolated pockets of limited density, possibly along this shear zone, and is only occasionally found on archeological sites. Keith and Keith (2002:13) suggest that the source north of 38MC1648 might be from a small granite outcrop within the Buzzards Roost shear zone.

A Late Archaic period rhyolite quarry has been recorded on the Long Cane Ranger District (38MC909) and is located about 15 km south of 38MC1648. Whether this quarry is of the same kind of rhyolite found in the creek bed adjacent to 38MC1648 or is actually of the more typical, poorer-quality dacite often found on Late Archaic sites in the Sumter National Forest is not known.

A weakly flow-banded rhyolite quarry was recorded by Jim Bates in western Saluda County (38SA64), situated east of a different rhyolite outcrop called Spring Branch Rhyolite (Mittwede 1988). Mittwede (1988) mapped the 38SA64 area as hydrothermally altered metavolcanic rock. After observation of rock samples from 38SA64, Walt Kubilius (personal communication, 2005) suggested that it should be described as "hydrothermally altered rhyolite, with occasional weak flow banding." Fresh surfaces of this rhyolite are fine-grained and gray-blue in color. 38SA64 is a large site with obvious quarrying activity. Several other sites nearby also show evidence of quarrying. Overall, given the complex nature of the metamorphosed geologic bands with a variety of igneous plutons, dikes and sills, specific outcrops of rhyolite may be difficult to predict or locate.

Some rhyolite found on prehistoric sites in the project area, mainly on the Enoree Ranger District, likely comes from the southern Uwharrie Mountains of the North Carolina Piedmont. Recently, Daniel and Butler (1996) and Benson (1999) surveyed portions of the southern Uwharrie Mountains and produced a classification scheme of rhyolite types based upon both macroscopic and geochemical characteristics. The two main rhyolite types are aphyric (no phenocrysts) and aphanitic (with phenocrysts). The most well known type of aphyric rhyolite is Morrow Mountain rhyolite. Three common types of porphyritic rhyolite (sometimes referred to as andesite) were classified in the southern Uwharrie Mountains based upon the presence, absence or co-occurrence of quartz and plagioclase feldspar phenocrysts. These types were named after specific rhyolite quarries by Benson (1999). Porphyritic rhyolite corresponds with House and Wogaman's (1978:55) "Carolina slate (unbanded)" type. Morrow Mountain rhyolite is a fine-grained aphanitic rhyolite named after the Morrow Mountain quarry in Stanly County, North Carolina. Novick (1978:425) depicts a Morrow Mountain rhyolite quarry in northeastern South Carolina. Aphanitic rhyolite includes rhyolitic tuffs, which consist of metamorphosed volcanic ash, rather than mafic or lava flows. The aphanitic Morrow Mountain rhyolite type corresponds with "Carolina slate (banded)" and the rhyolitic tuff type corresponds with "Grey andesite" in House and Wogaman's rock type definitions (1978:54-55).

Dacite

The two most frequently encountered types of metamorphosed volcanic stone that are found on archeological sites are (meta)dacite and (meta)rhyolite. These rocks originated from mafic and felsic volcanic flows. They essentially are distinguished by relative amounts of feldspar contained in them. Dacite has more feldspar than rhyolite. It is more common than rhyolite on archeological sites in western South Carolina and eastern Georgia. This stone comes from sources in the Carolina Slate Belt, which stretches from northeast Georgia through northern North Carolina, but tends to

concentrate in the Savannah River watershed. Dacite, which can vary considerably in appearance and quality, is generally a low-quality stone, weathers quickly compared to other chipped stone materials, and is often brown in color. It was used most often during the early part of the Late Archaic period for broad-bladed hafted bifaces. This poorer quality (in respect to edge-holding qualities) stone was more often used than its finer-grade cousin, rhyolite. Dacite sources appear to be more abundant within and close to the Sumter National Forest, and it was certainly a targeted Piedmont lithic resource during the Late Archaic period.

Argillite

Argillite is one type of stone identified on the Windy Ridge Site (House and Wogaman 1978:56). It was described as a metamorphosed rock derived from siltstone, claystone or shale. This stone is gray to light green in color and is typically soft. Argillite will often exhibit a cleavage plane, which inhibits controlled flaking. This stone is probably the same as "Fractured phyllite" and "Sheared siltstone" described by Goodyear and Charles (1984) (see below).

Quartzite

Quartzite or metaquartzite can be found on sites on the Sumter National Forest. Quartzites are exposed where stream channels cut through layers of sediment and rock. Quartzite is more often used for ground stone tools or for hammerstones, rather than flaked stone tools. Quartzite is dense and often does not fracture conchoidally. Quartzites have been reported from Cherokee, Spartanburg and Oconee Counties (Novick 1978:424).

Greenstone

Other stone used by prehistoric inhabitants of the Blue Ridge and Piedmont include a type of metamorphic stone called greenstone. This stone is typically dark green in color, dense and fine-grained and is shaped by grinding rather than chipping. It is sometimes confused with argillite. It typically is used for non-utilitarian purposes and is rarely found on archeological sites in the Piedmont. Outcrops of this stone are also rare, apparently occurring sporadically along the Carolina Slate Belt. A broken ground stone artifact made from this material was recently recovered on the same site mentioned above, 38MC1648, by Keith and Keith (2002).

Soapstone

Ground stone implements were more frequently made from soapstone (steatite). Soapstone artifacts are most often (almost exclusively) found on sites with Late Archaic components throughout the Blue Ridge, Piedmont and Coastal Plain Provinces. Soapstone was traded widely across the Southeast. Known quarries occur in Elbert County, Georgia, 1 km south of Paris Island (Elliott 1986:16), and in Columbia County (9CB23), 3 km south of Paris Island (Sassaman 1993a:121), across the Savannah River from Abbeville County, South Carolina. Soapstone quarries are more numerous in the adjacent watersheds east and west of the Savannah River watershed (Sassaman 1993a:121). North of the Enoree Ranger District along the Pacolet River in Spartanburg and Cherokee Counties nearly 20 soapstone quarries have been recorded (Edens 1971; Ferguson 1979; Lowman and Wheatley 1970; Overton 1969; Peck 1981).

Three soapstone quarries and one soapstone source have been recorded on the Sumter National Forest. On the Andrew Pickens Ranger District, two of the three soapstone quarries are prehistoric soapstone bowl quarries (38OC48 and 38OC425) with no affiliated archeological period. The third soapstone quarry was active during the historic period, which could have obliterated any evidence of previous prehistoric use. A soapstone outcrop (38ED462) was recorded on the Long Cane Ranger District, but no evidence of quarrying was recorded. Though no quarries have been identified on the Long Cane Ranger District, an eighteenth-nineteenth century cemetery (38AB365) contains soapstone grave markers. In McCormick county, a soapstone outcrop/quarry is suspected near site 38MC934, a site recorded across the river from the Lake Spring Site during the initial Clarks Hill Lake basin survey. A decorated soapstone slab and large, unmodified soapstone blocks were found on the site (Elliott 1995:132).

Diabase and Granite

Diabase (or gabbro), generally gray to dark gray in color, is an igneous rock widely available throughout the Piedmont across the southeastern U.S. It was used occasionally during the prehistoric period as sources for grinding stones and hammerstones. Diabase was widely used for millstones during the historic period. Granite was quarried on the Sumter National Forest. Eighteenth through twentieth century granite quarries have been recorded on the Andrew Pickens (n=2), Long Cane (n=1) and Enoree (n=5) Ranger Districts. One millstone quarry has been recorded (38MC116). Though recorded as a granite quarry, this quarry and probably others, were likely exploiting outcrops of diabase for millstones and building material. Two granite (probably diabase) quarries on the Andrew Pickens Ranger District were quarried for crushed road gravel in the early twentieth century.

Amphibolite

House and Wogaman (1978:56-57) define two types of amphibolite found on the Windy Ridge Site, low-grade and high-grade. The low-grade amphibolite is fine-grained with a light gray groundmass. It contains needle-like and aggregates of hornblende crystals, which can give specimens a laminated appearance. Petrological analysis defined low-grade amphibolite as a variety of andesite tuff. As a metamorphosed tuff (volcanic ash), it is likely a type of rhyolite. The high-grade amphibolite described by House and Wogaman (1978:57) is blacker in appearance with larger hornblende crystals and was suggested as a “proper” amphibolite.

Other Piedmont Materials

Quartz

Quartz can be divided into at least two types: crystalline quartz and plain (or vein) quartz. Crystalline quartz comes from one of two sources, either from quartz crystals or from transparent crystalline inclusions within milky white quartz veins. Crystalline quartz pebbles often are found in stream beds. While the distribution of quartz is generally widespread across the Piedmont Province, there are certain source locations that display extraordinary quality and/or concentrations. Such locations were exploited more heavily by prehistoric inhabitants. Through 2000, there have been 16 prehistoric quartz quarries recorded on the Long Cane Ranger District and seven recorded on the Enoree Ranger District. No quartz quarries have been recorded on the Andrew Pickens Ranger District.

Piedmont Chert

A type of chert has been recorded in the southwestern part of Edgefield County. Sites 38ED163 and 38ED164 record two quarries of this material (Charles 1985:11). The chert did not form in marine sediments, typical of Coastal Plain chert, but rather by hot water solution in geologic formations much older than Coastal Plain formations. Nevertheless, it has a similar appearance to Coastal Plain chert, especially when weathered (Charles 1985:11). Quality ranges from poor to excellent. Both sites 38ED163 and 38ED164 were used intensively throughout the prehistoric period and Charles (1985:11) presumes that other quarries like these two occur nearby.

Gold

Lithic resources exploited during the historic period focused on mineral prospecting, mining and stone quarrying. The most common mineral targeted during the historic period was gold. Numerous prospecting pits and several mines, many of which are concentrated in McCormick County on the Long Cane Ranger District, attest to the effort spent during the nineteenth and early twentieth centuries to secure this valuable mineral. Dorn's Gold Mine in McCormick County, which later became the town of McCormick, was founded by William Burkhalter Dorn after a big strike around 1852 on his farm. The mine continued to operate until 1865. Prospecting pits are found scattered throughout the Sumter National Forest, and are often located on quartz outcrops since gold is associated with quartz veins.

A considerable amount of gold prospecting and mining activity also has occurred on the Andrew Pickens Ranger District. These activities are concentrated around Townes, Cheohee, Moody, Tamassee and Cantrell Creeks, which flow southeast from the White Rock Scenic Area of the ranger district. Recently recorded gold mining/prospecting sites 38OC237, 38OC275, 38OC276, 38OC277, 38OC326 and 38OC430 include hard rock and placer deposit mining. Much of the gold mining/prospecting activity has not been recorded as archeological sites. Among recorded and yet-to-be recorded sites are numerous adits and shafts. Townes Creek has dredge spoil piles, flumes and probably smelting furnaces on some of these sites. Sloan (1908) reports gold mines or prospects on Tamassee Creek and Cheohee Creek. The Kuthman Mine, located on Cheohee Creek, had a placer deposit worked in the 1850s and quartz veins mined in the 1860s (Sloan 1908:23). Sloan (1908:93) also reports on an 1860s galena (lead) mine in the same area as the Kuthman Mine.

Other Piedmont Silicates

Sam Upchurch, a geologist, reported on the petrology of selected rock outcrop/quarry samples in Goodyear and Charles (1984:125-158). Among these samples were three from the lower Piedmont of South Carolina (Lancaster and Abbeville Counties). Two of these Piedmont rocks from Lancaster County were identified as 'Sheared siltstone' and 'Fractured phyllite.' The third, from Abbeville County, was identified as 'Lake Secession Jasper' (Goodyear and Charles 1984:129). 'Sheared siltstone' is a greenish, fine metasiltstone or argillite and 'Fractured phyllite' is a gray-brown, homogeneneous microcrystalline metamorphic rock which is also considered to be an argillite (Goodyear and Charles 1984:136). The 'Lake Secession Jasper,' found around Lake Secession in Anderson and Abbeville Counties, has a clear quartz matrix with clumps of opaque, yellow iron oxides (Goodyear and Charles 1984:137). Upchurch indicated that neither the 'Sheared siltstone' nor the 'Fractured phyllite' are good quality materials for knapping, mostly because of their

foliation and fractures and because they are relatively soft materials. The 'Lake Secession Jasper' was rated as good quality material for flaked stone tools (Goodyear and Charles 1984:137).

Exotic Materials

Orthoquartzite

Orthoquartzite is a sedimentary rock that is comprised of visible quartz grains cemented by quartz. The quartz grains and cement allow it to fracture conchoidally. It has a sugary appearance and texture and often has a light brownish or tan color. Presently there are no known sources of this material recorded on or around the Sumter National Forest. Sources typically occur along the southern perimeter of the Piedmont Province or within the Fall Line Hills in Georgia (e.g., at the headwaters of Headstall and South Prong Creeks on Fort Gordon [Benson 1995c:8]).

Chert

Most of the chert present on sites on the Sumter National Forest, especially on the Long Cane Ranger District, comes from Coastal Plain sources in and around Allendale County, South Carolina. Occasionally, however, other extralocal types of chert from the Ridge and Valley Province, located ca. 300 km west from the central Piedmont of South Carolina, also occur. Coastal Plain chert typically has a tan, yellow or pale red color which changes to darker reddish hues when heated. Ridge and Valley chert typically is dark blue or black and can often closely resemble fine-grained rhyolite (local and extralocal). Distinguishing between the two types of raw material can be difficult.

One other type of chert that could have been used for chipped stone tools on the Sumter National Forest is a type of chert that is located in the Fall Line Hills. Recently, Lautzenheiser and colleagues (1996) identified thin beds of chert in Triassic period basins (Triassic lowlands) in North Carolina. A similar Triassic period basin occurs south of Columbia, South Carolina along the east side of the Congaree River (South Carolina Department of Natural Resources 1997), suggesting the potential for another type of chert that could have found its way into the Piedmont.

Soils, Climate, Flora and Fauna

The majority of soil on the Andrew Pickens Ranger District consists of the Evard-Edneyville, Fanin-Talladega and Ashe-Saluda-Edneyville associations (USDA Soil Conservation Service 1979). These are deep to moderately deep soils found on sloping to steep narrow ridges and side slopes in the Blue Ridge and Brevard Belts and are derived from schist, gneiss and granite. In the Inner Piedmont Belt within the Andrew Pickens Ranger District are Cecil-Hiwassee-Cataula and Pacolet-Grover soil associations (USDA Soil Conservation Service 1979). These soils occur on sloping uplands and moderately steep to steep ridges and side slopes. They are firm, clayey soils that are strongly acidic and are derived from gneiss, schist, hornblende schist and mica schist.

The soil is typically well drained and shallow throughout the Blue Ridge Province, leading to a significant amount of runoff down the steeply sloped terrain. Soils in the uplands tend to be

rocky, but this varies considerably from one ridge to the next. Historic agriculture in the uplands led to a significant amount of erosion of ridge slopes. Agricultural production, both historically and prehistorically, occurred in the relatively rich and level bottomlands of major creeks and rivers.

Geological and topographical conditions largely determine Piedmont soils. Each soil type differs slightly in mineral composition, organic content and physical characteristics, which influence the vegetation that may grow on them. A loamy surface layer and mostly clayey or silty clay subsoil characterizes most of the soils in the region.

Soils along rivers and major creeks on the Enoree Ranger District consist of the Pacolet-Madison-Wilkes association (USDA Soil Conservation Service 1979). These soils occur on moderately steep ridges and side slopes derived mainly from gneiss, mica schist and hornblende schist. Remaining area is dominated by Cecil-Hiwassee-Cataula or Cecil-Appling-Cataula soil associations. These soils occur on sloping upland or broad ridges and side slopes and are derived from gneiss, hornblende gneiss, schist and granite. A single pocket of the Iredell-Mecklenberg association is situated between the Tyger River and Fairforest Creek. This soil type is plastic and moderately acidic to moderately alkaline, as opposed to the strongly acidic, firm, clayey soils covering the rest of the ranger district. These soils occur on level to sloping broad ridges and short side slopes and are derived from diorite, gabbro and hornblende schist. Typically, soils throughout the district consist of sandy loam or clay loam over clay subsoil.

There is slightly greater variety in regard to soil associations on the Long Cane Ranger District compared to the Enoree Ranger District. Like the Enoree Ranger District, Pacolet-Madison-Wilkes association soils occur along rivers and major creeks and the majority of the area is covered by Cecil-Hiwassee-Cataula and Cecil-Appling-Cataula soil associations (USDA Soil Conservation Service 1979). Granitic intrusions are more common on the Long Cane Ranger District, thus Iredell-Meclenberg soil associations are more prevalent. Also present on the Long Cane Ranger District and absent from the Enoree Ranger District are the Georgeville-Herndon and Cecil-Mecklenberg-Cataula soil associations. The Georgeville-Herndon association is derived from phyllite and Carolina slate, and the Cecil-Mecklenberg-Cataula soil association is derived from gneiss, schist and diorite. Both of these soil associations are strongly acidic, firm, clayey soils.

South Carolina lies in the humid subtropical zone and receives abundant precipitation that is more or less distributed evenly throughout the year. Summers are hot and humid and winters are generally mild with some below-freezing temperatures. Average annual precipitation in the Blue Ridge is around 65 inches and ranges from 58 to 70 inches across the Andrew Pickens Ranger District. Annual precipitation in the Piedmont is around 48 inches (Kovacik and Winberry 1987:31-32). Average January temperatures for the respective provinces is about 40 degrees Fahrenheit for the Blue Ridge and about 43 degrees Fahrenheit for the Piedmont (Kovacik and Winberry 1987:33). Average July temperatures range from 71 to 76 degrees Fahrenheit on the Andrew Pickens Ranger District and around 80 degrees Fahrenheit for the Enoree and Long Cane Ranger Districts (Kovacik and Winberry 1987:36). Average growing season is about 20 days shorter in the Blue Ridge, about 200 days, compared to the Piedmont (Kovacik and Winberry 1987:35).

The natural environment of the Blue Ridge Province is distinctly hardwood, consisting of oak-hickory-chestnut forests, which extends from New England to northern Alabama. Typical tree species include oak, red oak, chestnut, shagbark and pignut hickory, poplar, beech, white ash and

pine, with dogwood, sourwood and varieties of rhododendron as primary understory species. Chestnuts once dominated the canopy of the Appalachians but the Oriental Chestnut Blight (*Endotheca parasitica*) destroyed chestnut trees in the 1920s and 1930s in the Appalachian Mountains. Since then chestnut oak and the tulip poplar compete to replace the chestnut in the topmost canopy of the forest (Kovacik and Winberry 1987:42). The loss of the chestnut likely had a significant effect on wildlife, likely decreasing the deer population in the Appalachian mountains. For changes in the southeastern environment over the past 12,000 years, please read Appendix C.

Northern associated trees include the hemlock, white pine, beech and yellow birch. Along streams and rivers, trees that are adapted to wetter soils include alder, cottonwood, sycamore, sweetgum, persimmon, blackgum, white pine, red maple and tulip poplar (Barry 1980:27). The understory typically is composed of dogwood, musclewood and birch. Most of these same water-adapted trees can also be found along Piedmont streams (Kovacik and Winberry 1987:42). Shrubs found in the stream and river margins include spicebush, strawberry bush, wild hydrangea, mountain laurel, leucothoe, gooseberry and blueberry (Barry 1980:29). Coves support the most varied and dense mosaic of both canopy species and understory species of bushes and herbaceous plants (see Barry 1980:28-29) and were the focus of human use and occupation.

Because of dramatic changes in elevation in the Blue Ridge Province, vegetation composition can change dramatically across a relatively short distance. From the coves to ridges and peaks, the vegetation mosaic rapidly changes from a mesic environment to a xeric environment. In coves the vegetation predominantly consists of a cove hardwood and hemlock forest. In the flats, draws and ravines and sheltered slopes, one finds a red oak-pignut hickory or a chestnut oak-chestnut forest. Open slopes predominantly consist of a chestnut oak-chestnut heath forest and on the upland ridges and peaks is a pitch or Virginia pine forest (Barry 1980:22).

The present natural flora of the Piedmont is basically an oak-hickory climax forest with white oak communities found on rich, moisture retaining soils, and post or black oak communities found on poorer and drier soils (Wharton 1978). Both upland and bottomland forests support an understory of shrubs, vines and flowering plants. Many produce edible fruit or tubers. The most xeric forests occupy ridgetops and south- and west-facing slopes and are dominated by post oak and blackjack oak forests with minor amounts of shortleaf pine and cedar (Barry 1980:83).

The Piedmont bottomlands support a more mesic forest with oak, hickory, gum, poplar, hackberry, maple, elm, walnut and beech species. Like the Blue Ridge, coves, especially those facing north or northeast with steep slopes, offer a richer variety and greater density of understory bushes and herbaceous plants. In such ecotones one finds tulip poplar, beech, red oak, white oak, willow oak, pignut hickory, bitternut hickory, white ash and two types of maples. The understory is typically composed of hophornbeam, slippery elm, dogwood, redbud and buckeye (Barry 1980:75-76). Species from other localities are also often well represented. They include mountain laurel, storax, wild azalea, Carolina laurel and umbrella and cucumber trees (two species of magnolia) (Barry 1980:76). A rich variety of herb species also thrive due to a relatively open shrub community, most notably greenbrier and trout lily (Barry 1980:76-77). Barring human changes to the Piedmont landscape over the past 200 years, the Piedmont woodland consists predominantly of oak and hickory, with pine occupying recently cleared land. Surviving beneath a mature canopy are dogwoods, red maple and sourwood (Kovacik and Winberry 1987:43).

Extensive agriculture, reforestation, and erosion control have changed the Piedmont landscape over the past 250 years. There are several introduced plant species found in today's Piedmont forests. Loblolly pine is planted by paper companies and state and federal foresters (Kovacik and Winberry 1987:43). Native pines are shortleaf and longleaf pines. Kudzu and a common type of honeysuckle are native to Japan and were introduced for erosion control and landscaping.

Many of the animal species indigenous to the Blue Ridge and Piedmont were of economic importance to people in the past. These include white tailed deer, turkey, raccoon, opossum, squirrel, bear, rabbit, quail, turtles, snakes and fish. Several varieties of spawning fish, including shad and sturgeon, once ran up the rivers of the southeastern seaboard. These fish were an important food source up until the nineteenth century when dam construction for mills and clogged stream channels from the denuded uplands prevented fish from migrating.

Poor farming practices of the eighteenth, nineteenth and twentieth centuries caused huge quantities of soil to be eroded from the uplands, clogging stream channels with sediment and creating many flood prone wetlands. Erosion in the uplands has been so severe that in some cases the A, E and B soil horizons are missing, leaving only saprolite (C horizon). Extensive gullying is prevalent in some portions of the Sumter National Forest. Beginning in the early nineteenth century fields were abandoned to gullies and regrowth into forest (Trimble 1974:54). Since the early-to-middle twentieth century, most agricultural fields in the area were abandoned and replaced with pine forests, physically stabilizing the soils (Richter and Markewitz 2001:42). Prior to historic occupation, however, prehistoric inhabitants also likely had an effect upon the landscape. The following section presents an anthropogenic land history of the Blue Ridge and Piedmont Provinces.

Land Modification History

While direct evidence of prehistoric human modification of the landscape is not available from archeological, paleoecological or geomorphological sites on the Sumter National Forest, presumptions based upon work in nearby areas can at least model potential prehistoric land modifications on the Sumter National Forest. One of the more complete investigations concerning prehistoric use and modification of the landscape is Delcourt et al.'s (1986) work in the Little Tennessee River Valley. In this work, Delcourt and colleagues (1986) combined the pollen records from two nearby bog sites with archeological data from the Icehouse Bottom site to provide a more complete picture of the landscape during the past 3,500 years. In another study, Delcourt and Delcourt (1997) investigated the potential for Native American use of fire in the southern Appalachians through analysis of pollen and charcoal from a core in Horse Cove Bog. Horse Cove Bog is located on the Nantahala National Forest, only 7 km northwest of the Andrew Pickens Ranger District. Taylor and Smith (1978:24-25) have also assessed the potential impact on vegetational regimes by prehistoric use of fire in the Russell Reservoir.

Prehistoric Period

Recent attention focused upon landscapes during the prehistoric period has produced substantial evidence for a "humanized landscape" by the sixteenth century (Denevan 1992:369). Throughout the New World there is evidence that populations were large and that people modified

forest compositions, created grasslands and generated eroded landscapes through intensive use, in addition to major earthworks, such as mounds, roads and agricultural fields (Denevan 1992). Fire is presumed to be the main tool for clearing wooded areas for specific uses or for intensive, long-term use.

Use of fire for improving production during the prehistoric period had at least two motives. One motive was to promote primary growth. Primary growth would improve upland graze for large, grazing herbivores, such as deer or elk, that prehistoric inhabitants typically hunted. Burning the understory while retaining the overstory promotes primary vegetation growth and maintains mast from nutting trees, such as oak, hickory and chestnut. Both primary vegetation and products of the mast trees would attract large herbivores, as well as promote growth of useful herbs and maximize access to mast products. Creating fields of useful dietary and medicinal herbs and easily accessible mast products, fields that also attracted game animals, could have been a long-term production system used throughout the prehistoric period. It is possible to envision an upland landscape with traditional burning areas that may have been maintained over long periods of time, creating a vegetation mosaic across a traditional cultural region. The appearance would be a patchwork of woodland and relatively open savannas.

A second motive, which would be attributed to the later Holocene inhabitants, would be clearing areas for farming and semi-permanent or permanent settlement. Larger trees may not necessarily require removal, since burning the understory may provide enough sunlight to reach the forest floor. Tree girdling is an expedient way of killing trees and would have opened more of the forest floor to sunlight. This method was commonly used by early, predominantly poor Scots-Irish settlers in North and South Carolina during the eighteenth and early nineteenth centuries (Meyer 1957:103-4) and has been hypothesized for Late Mississippian societies in Piedmont Georgia (Kowalewski and Hatch 1991).

Fire strictly used for hunting also is described by Swanton (1979:317-319). This method was not for establishing a particular patch of landscape for future increased productivity, but rather for reaping large benefits from a single episode or hunt. This method required anywhere from 100 to 300 hunters who encircled game and then lit fires. The fire eventually enclosed the game (typically deer), with the hunters also closing in behind the fire, and a slaughter ensued. This method, as suggested by Swanton (1979:318), may actually have been a consequence of European contact and trade. The animal fur trade was one of the most important colonial commercial enterprises and larger kills could produce more skins for trade to Europeans, increasing Indian acquisition of trade goods.

A consequence of land clearing, whether for improving hunting grounds, clearing agricultural fields or providing area for larger settlements, is creation of an "edge effect" or ecotone where there is increased variety and density of plants along plant community junctions (Odum 1971:157). Such plants would include those that thrive along forest edges, such as blackberry, raspberry, grape vines and green brier, among other valuable forage plants. Additionally, within the open spaces other forage herbs and fruiting plants would also thrive, such as strawberries and a suite of ruderals, while preserving mast for fall harvest.

Virtually no direct evidence suggesting the use of fire as a method for "improving" the local environment exists for the Early and Middle Archaic periods in the Southeast. However, indirect evidence may at least suggest the use of fire for improving landscape production for human use.

Seielstad (1994) recorded charcoal accumulations in his pollen core at Chatterton Springs in the Coastal Plain of central Georgia. He found a high frequency of charcoal between 9500 and 8000 B.P., encompassing most of the Early Archaic period, and a low frequency of charcoal throughout the end of the Early Holocene and the entire Middle Holocene. Not until the Late Holocene (and the Late Archaic period) does he find a high frequency of charcoal again.

Seielstad (1994), in conjunction with Kirkland's (1994) archeological excavations at Chatterton Springs, correlated the varying frequency of charcoal in his pollen core with human occupation. High charcoal frequency correlated with Early and Late Archaic occupations at Chatterton Springs. There was no evidence of Middle Archaic occupation and the charcoal frequency was low. Seielstad (1994) suggested that Early and Late Archaic inhabitants of the Chatterton Springs area might have been using fire in the region to modify or improve the production of the surrounding landscape.

However, Goman (2003) found the same high-low-high charcoal frequency pattern from Early-Middle-Late Archaic periods in her pollen study at Fort Bragg, North Carolina. Unlike Chatterton Springs, archeological sites surrounding her Bogwater pollen core included diagnostic artifacts from the Middle Archaic (Morrow Mountain) period, which is the most prevalent Archaic period component on Fort Bragg (Benson 2000a:629). Thus, the change in charcoal frequency from high to low to high again appeared to be independent of human occupation, since charcoal frequency was low during the Middle Archaic period.

Based upon evidence from 25 stratified archeological sites on a Holocene terrace in eastern Tennessee, Early and Middle Archaic disturbances to the landscape were minimal. Delcourt et al. (1986:335-338) found through paleoethnobotanical remains that disturbance-favored taxa in Early and Middle Archaic levels constituted only 1 to 11% of the entire charcoal collection. Charred fruits and seeds from the Early and Middle Archaic levels encompassed a wide variety of taxa of vines and herbs from both upland and lowland habitats. Charred fruits and seeds included grapes (*Vitis* and *Ampelopsis*), bedstraw, pokeweed, sumac, goosefoot, purslane, persimmon, maypops, morning glory, knotweed, amaranth, asters, grasses and legumes. Disturbance-favored taxa increased to 25% in the Late Archaic levels and the variety of fruit and seed taxa diminished. The assemblage was dominated by grape, grasses and maygrass. By the Woodland period, disturbance-favored taxa increased to 46% and domesticated plants that included goosefoot and maygrass were the most abundant seeds. Approximately the same proportion of disturbance-favored taxa occurred during the Mississippian period, but the preponderance of local cultigens, such as goosefoot and maygrass, were replaced by sumpweed and asters.

The relative proportions of different kinds of nuts identified through charred nutshell fluctuated through time. Hickory nutshell constituted 50 to 90 percent of charred fruit and seed remains for all prehistoric periods, but acorns reached their highest frequency (36%) during the Early Archaic period. Walnut was first represented during the Middle Archaic period and then constituted 88 percent of nutshell remains in the Late Archaic period. Beech nuts, hazlenuts and chestnuts were all represented in trace amounts throughout the Archaic period (Delcourt et al. 1986:337). Cultigens make their first appearance during the Late Archaic period (maygrass, squash and gourd). Maize cobs and cupules first occurred in the Middle Woodland levels and then became increasingly prevalent through the Mississippian period (Delcourt et al. 1986:337). Trace amounts of beans were

also present in the later Woodland and earlier Mississippian levels and then increased to four percent of the charred seed and nutshell total in the later Mississippian period (Delcourt et al. 1986:337-338).

Comparing the ethnobotanical and paleoecological data against the pollen data background collected from beneath the cultural levels at Icehouse Bottom and at nearby Bob Black Pond and Tuskegee Pond, Delcourt et al. (1986:347) were able to determine the relative extent of disturbance that was caused by prehistoric inhabitants of the Little Tennessee River valley. Their vegetational history indicates that the landscape during the Early and Middle Archaic periods consisted of a closed canopy of hardwoods, primarily composed of oak and chestnut in the uplands with hemlock, beech and basswood on mesic sites. Birch, ash and cottonwood predominated in the bottomlands.

Initial evidence of land modification at these sites in the Little Tennessee River valley began in the Late Archaic period. At that time disturbance-favored species comprised 25 percent of the wood charcoal, along with the introduction of cultigens, such as maygrass, squash and gourd, indicating that forest clearance and limited cultivation was occurring on the first terrace of the river. By the Late Woodland period, lower stream terraces as far as one kilometer from the river were being cleared, as evidenced by high ragweed percentages and wood-charcoal assemblages dominated by early successional species at Tuskegee Pond. Tuskegee Pond is located on the third terrace of the river. Black Pond, located 4 km from the river, showed no significant land clearing activities in the upland interfluves for the entire prehistoric period. During the Cherokee period, beans, peaches, corn, squash and gourds were grown in larger cultivated fields in the bottomlands adjacent to Cherokee settlements. Native ruderals decreased with the increase of newly introduced European weeds in the Tuskegee Pond pollen core.

In the Little Tennessee River valley, there was a gradual increase in natural habitat modification throughout prehistory, beginning with the Late Archaic period, that positively correlated with a gradual increase in the use of domesticates. The extent to which slopes were eroded due to forest clearing is not expected to be high, since vegetation clearing appeared to be limited to within the bottomlands of major streams or rivers. Bottomlands, or valley floors, would have less slope than the dissected ridges of the interfluvial uplands.

Delcourt and Delcourt's (1997:1012) data from Horse Cove Bog, located a short distance northwest from the Andrew Pickens Ranger District, indicates a lack of extensive erosion through the Cherokee and early Euro/African American historic periods. Average sediment accumulation rate does not increase significantly until after A.D. 1830, where the rate jumped from 0.004 cm/year from A.D. 1425-1830 to 0.086 cm/year from A.D. 1830-1900. It should also be noted, however, that at the beginning of the deposition sequence at Horse Lake Bog sediment accumulation rates were 0.026 cm/year for the first 326 years. The beginning of the deposition sequence corresponds with the Late Archaic period. Deposition was much slower after the Late Archaic period, ranging between 0.003 and 0.008 cm/year (Delcourt and Delcourt 1997:1011).

In general, Delcourt and Delcourt (1997) found the same pattern of pollen mosaics through time as the Little Tennessee River valley study (Delcourt et al. 1986). Oak and chestnut dominated forest cover for the past 4,000 years. Beginning with the Late Archaic period, weedy herbs and cultigens, including goosefoot, plantain, purslane, sumpweed and maize, appear with increasing frequency through prehistory and into the Historic Native American period. The fire record, based upon relative frequency of three graduated charcoal particle size grains, documents the probable use

of fire for vegetation clearing purposes over the past 4,000 years in the Blue Ridge (Delcourt and Delcourt 1997:1012-1013). They reasoned that human modification of the landscape from the Late Archaic through Mississippian periods was concentrated in alluvial bottoms of major rivers and within coves of smaller streams. Larger settlements and agricultural fields were in alluvial bottoms and smaller household camps and garden plots were in coves. Upland slopes and ridges were cleared through the use of fire to improve hunting and forage. Presumably, north-facing lower slopes and more mesic areas escaped pre-settlement fires (Delcourt and Delcourt 1997:1013).

Historic Period

Though some have argued that Forest Service forest management in the past 70 years is largely responsible for the denigration of the landscape (cf., Kibler 1998), ample historic documentation complemented with geomorphological studies attest to widespread upland erosion due to poor farming practices and land management in the southeastern Piedmont prior to Forest Service ownership. Poor land management, coupled with relatively low native soil fertility and loss of nutrients through leaching (Richter and Markewitz 2001:42) and relatively steep slopes and vegetation clearing on fragile subtropical soil, led to extensive erosion of the Piedmont uplands during the nineteenth and early twentieth centuries. The purpose of the Sumter National Forest was to stop and control the erosion. Though silviculture does not model the natural vegetation mosaic of the Piedmont, pines, with tap roots that can extend as deep as four meters or more, are very effective for stabilizing the soil and controlling erosion (Richter and Markewitz 2001:57,152).

Pioneer settlement and landscape modification was not significantly different from the late prehistoric and Historic Native American periods. Pioneer agriculture focused on the same alluvial bottomlands (Richter and Markewitz 2001:116). Alluvial valleys were far more fertile than the uplands. Periodic sediment deposition from occasional floods maintained fertility. Clearing bottomlands used similar methods, which was girdling large trees and burning the understory (Richter and Markewitz 2001:117-118). Though some soil nutrients are lost to burning, it is an effective means for rapidly adding nutrients to the soil. What differed between the two cultures were methods used for sustaining soil fertility and high crop yields. In addition to using the inherently more fertile bottomlands, Native Americans used less destructive means for preparing their gardens and field plots, interplanted with legumes to promote nitrogen fixation, burned cultivated plant stubble and allowed for regular periodic fallows (Richter and Markewitz 2001:111, 115). Europeans did not burn to clear agricultural field stubble, typically planted fields with single crops, and did not allow for regular periodic fallows. Instead farmers regularly abandoned fields that were no longer productive, clearing new fields elsewhere. This method was particularly destructive once agriculture expanded onto the fragile soils of the interfluvial uplands during the early nineteenth century.

The primary management approach to decreased yields was moving to newly cleared fields to alleviate problems with pathogens, pests, weeds, infertility, erosion and leaching (Richter and Markewitz 2001:119). Snapshots of cotton production in the Southeast illustrate farmers' migrations westward in the nineteenth century. Richter and Markewitz (2001:121, citing Gray 1933) show the density of cotton production at 1801, 1821, 1839 and 1859. At 1801 cotton production was minimal but concentrated in the South Carolina and eastern Georgia Piedmont and expanded to the central Georgia Piedmont by 1821. At this time cotton farms were springing up as far west as Louisiana. By 1839, the South Carolina Piedmont no longer dominated cotton production. The center of cotton

production had shifted to the central Georgia Piedmont and the lower Mississippi River valley in Louisiana and Mississippi. The center of cotton production expanded and shifted again by 1859, where the Alabama black belt and the Mississippi River valley extending up into Missouri and Tennessee were the main centers of cotton production.

By the mid nineteenth century farmers recognized that abandoning old fields and moving to fresh fields was not sustainable. Amendments to the soil to increase fertility began at this time. To stave off soil depletion and help combat erosion, fertilizers such as manure and compost, swamp mud, lime, plaster, ground bones, blood, wool and guano were introduced. Planters' clubs and agricultural societies proliferated. Plowing on the contour was advocated, as were crop rotations, runoff-diversion ditches and terraces (Richter and Markewitz 2001:122-123). Post-Civil War fertilization increased substantially, thus eliminating field fallow periods. By 1880 the cotton harvest in the Southeast surpassed 1860 levels (Richter and Markewitz 2001:124).

Cotton reached its greatest areal extent in South Carolina in 1920 with 1.06 million hectares out of a total area of 8.06 million hectares under cotton production. The boll weevil arrived in the South Carolina Piedmont in 1920. Cotton acreage decreased nearly in half in five years in Greenwood County (Lesh et al. 1929:6). By 1940 487,000 hectares remained and by 1960 220,000 hectares remained. Only 38,400 hectares was in cotton production by 1982 (Richter and Markewitz 2001:151). According to soil erosion maps produced by Trimble (1974), accelerated erosion was worst in the South Carolina and Georgia Piedmont (Richter and Markewitz 2001:128) as a direct result of cotton farming (Figures II.3, II.4, II.5 and II.6).

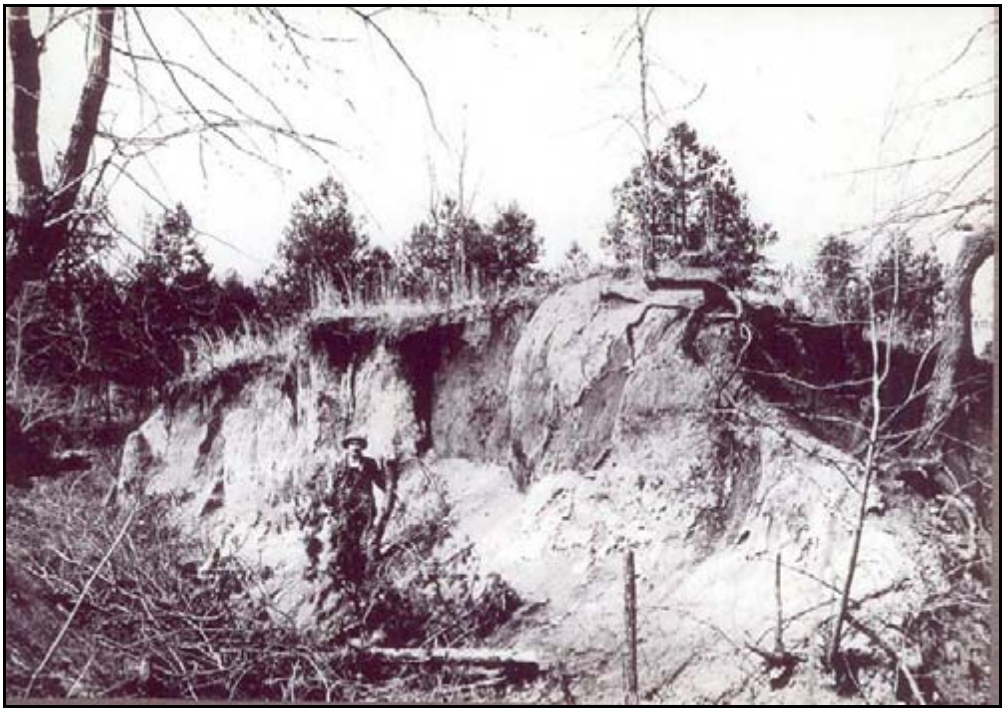

Figure II.3. Example of the Extent of Erosion in Old Cotton Fields in the Southeastern Piedmont, ca. 1935-1940 (USDA photo archives, No. Ga.-A-2).

Figure II.4. Eroded Pasture in Greenville County, South Carolina, ca. 1940 (Library of Congress, Prints & Photographs Division, FSA-OWI Collection [LC-USZ62-97824]).

Figure II.5. Abandoned Tenant Farmer's House with Eroded Slope in Spartanburg County, S.C., ca. 1935 (Library of Congress, Prints & Photographs Division, FSA-OWI Collection [LC-USZ62-118231]).

Figure II.6. Eroded Fallow Farmland in Spartanburg County, South Carolina (Library of Congress, Prints & Photographs Division, FSA-OWI Collection [LC-USF34-043641-D]).

Increased sedimentation in bottomlands illustrate widespread upland erosion during the nineteenth century. Sedimentation rates in the Blue Ridge jumped from 0.004 cm/year to 0.086 cm/year between 1830 and 1900 (Delcourt and Delcourt 1997:1012), the greatest single increase recorded at Horse Cove Pond prior to 1900. Recent geomorphological studies conducted in stream and river valleys in the Piedmont and Sandhills across the Southeast document the amount and timing of increased flooding and sedimentation across bottomlands (cf., Leigh 2001), where historic redeposition can amount to several meters of sediment overlying pre-European valley floors.

While extensive agricultural production without soil conservation eroded the landscape, logging during the nineteenth and twentieth centuries also contributed. Clear cutting of upland slopes (Figure II.7) without replanting exposed surfaces and added more sediment to choked stream channels. Shallow channels were prone to flooding, provoking more frequent, low-energy (silty) deposition of valley floors. Machine-aided logging in the mid-late twentieth century exacerbated conditions by removing trees and causing physical damage to forest floors from felling and tree transport (skidding) with large machines. The combination of poor farming practices and machine-aided logging created deep erosional gullies on ridge slopes, depositing upland sediment onto valley floors. Between 1900 and 1930, the sedimentation rate at Horse Cove Pond increased from an already-high 0.086 cm/year rate to 0.267 cm/year (Delcourt and Delcourt 1997:1011).

By the mid-to-late nineteenth century, Southeastern Piedmont farmers were not only realizing that soil fertility was consistently decreasing, but also the amount of erosion of the uplands was removing any hope for productive agricultural fields. Many farmers were plowing and planting on the contour to control erosion (Figure II.8 and II.9). Wheat was planted between rows of cotton (strip cropping) to control erosion between cotton strips. As machine-aided farming grew, terraces replaced strip cropping as the method of choice for erosion control on agricultural fields (Figure II.10).

Figure II.7. Example of Early 1930s Clear Cut in South Carolina (Library of Congress, Prints & Photographs Division, FSA-OWI Collection [LC-USF34-043461-D]).

Figure II.8. Cultivated Fields Plowed with the Contours in Pacolet, South Carolina, ca. 1935 (Library of Congress, Prints & Photographs Division, FSA-OWI Collection [LC-USF34-043814-D]).

Figure II.9. Example of Strip Cropping in Spartanburg County, S.C. in 1936 (U.S. Soil Conservation Service, No. SC-383-A).

Figure II.10. Machine-aided Terracing of Agricultural Field in Newberry County, South Carolina in June 1941 (National Archives, USDA photo by Forsythe)**.**

One of the central goals of the Forest Service in the early 1930s was land reclamation. The Civilian Conservation Corps (CCC) organized the labor of the depression-era jobless for erosion control. Activities entailed digging drainage ditches to divert runoff (Figure II.11), gully stabilization, terracing, road construction and widespread planting of pines. Much of the history of Forest Service stewardship involved contracting with logging companies to cut timber within mature stands. Prior to the 1960s, loggers cut and processed trees with portable saw mills. Trees usually were transported by mule and stands rarely were clear cut. Between the 1960s and 1990s clear cutting was practiced. Trees were harvested and transported out of the forest by machine. The debris left in the clear cuts was typically "drum chopped" and then bulldozed, along with soil, into windrows, which generally followed landscape contours. Debris in the windrows was typically burned and by the following year clear cuts were replanted with pine seedlings. Clear cutting is now less often practiced on Forest Service land. Current methods of tree harvesting are far less destructive of the terrain.

Figure II.11. CCC Workers Digging Run-off Diversion Ditch (Library of Congress, Prints & Photographs Division, FSA-OWI Collection [LC-USZ62-77913]).

Land clearing, repeated plowing, severe erosion, terracing and silviculture in the uplands clearly has had an adverse impact upon archeological resources. While the full impact of past land use cannot be measured, it is certain that patterns of artifact distribution on sites have been altered. The impact was far greater on sites on the Piedmont ranger districts, since agriculture and tree harvesting was much less intensive on the Andrew Pickens Ranger District due to much steeper terrain. Initially, many artifacts may have been damaged, moved from their archeological context or completely removed from their original location with the former topsoil. The lack of vegetation promoted sheet erosion on ridge slopes, which also moved artifacts downslope and contributed sediment to floodplains, burying sites under recent clay colluvium. Frequent flooding of choked stream channels contributed layers of alluvium. Erosional gullies have dissected ridge slopes between natural drainages, dividing once contiguous landforms (e.g., ridge noses) into two or more smaller ridge spurs or have "dissolved" saddles between ridge knolls. Agricultural sheet erosion and gullying deflated sites surface, destroyed subsurface archeological features, and carried artifacts downslope to be redeposited at slope bases. Slope terracing to prevent further erosion created "pools" of redeposited soil and presumably artifacts along the uphill sides of terrace edges, producing artificial artifact patterns. It is rare that any Piedmont prehistoric site or site on cultivable land on the Andrew Pickens Ranger District has not been disturbed by the extensive soil disturbance over the past 250 years.

Chapter III
Cultural History of the Sumter National Forest

The history of human occupation of Piedmont South Carolina stretches back at least 12,000 years and is reflected in tens of thousands of archeological sites. Only a small fraction of these sites have been discovered and recorded, and only a small fraction of these have seen any sort of intensive excavation. Although archaeologists have learned a great deal in the past century, we still have only the broadest outlines of the nature and pace of culture change in the Piedmont. Most archeological excavations in Piedmont South Carolina and in the vicinity of the Sumter National Forest have taken place outside of the forest, principally within and along side of three reservoirs on the Savannah River. Work here and in nearby areas of Georgia and North Carolina have allowed archeologists to piece together a basic cultural historic framework for the region. In addition to embellishing a radiometrically documented prehistoric chronology of the region, recent work has addressed issues of settlement patterning, sociopolitical organization, lithic and ceramic technology, lifeways and subsistence strategies. Work at historic period sites has addressed many of these same issues but also provided historical particulars for certain sites. Table IV.1, which correlates broad cultural periods with phases or complexes, key diagnostic artifact types and absolute dates, is the framework for the discussion presented in this chapter, which draws heavily from Anderson and Joseph (1988) and Anderson et al.'s (1990) draft cultural resources overview for the Sumter National Forest.

The Paleoindian Period

The date of the earliest human occupation has not been fully resolved and increasingly is a matter of debate, with estimates ranging from 12,000 to over 50,000 years ago (Adovasio et al. 1999; Dillehay 1989; Goodyear 2005; Meltzer 1997; Meltzer et al. 1997). Some believe that human occupation of the Beringia region of Alaska and the Yukon territory predates 33,000 B.P., based upon radiocarbon dates of potential cultural remains at Monte Verde, southern Chile (Dillehay 1989). Charcoal from a possible hearth with burnt flakes was dated to 50,300 and 51,700 radiocarbon years B.P. at the Topper Site in Allendale County, South Carolina (Goodyear 2005). Furthermore, genetic research suggests that people of a coastal adaptation followed the Asian coastline northward during a glacial maximum (ca. 35,000 years ago), crossed Beringia and then followed the coastlines of the Americas until reaching the eastern coast of North America. Potential early sites, given the lower sea levels of the time, would be submerged beneath the present sea. Thus, people who crossed Beringia during the last glacial maximum, between 18,000 and 14,000 years ago would have displaced prior inhabitants and eventually inhabited the interiors of both continents of the New World.

Recent excavation and radiometric dating pushes back the potential date of human occupation in South Carolina to as much as 52,000 years ago. At the Topper Site in Allendale County, about 70 km down the Savannah River from the Long Cane Ranger District, Al Goodyear reported a hearth with chert flakes and charcoal that date to 50,300 and 51,700 radiocarbon years B.P. (Goodyear 2005). The Topper Site occupies a particular landform along the Savannah River that has been subjected to deep colluviation. Such deep sandy colluviation is unlikely to occur further upstream on the Savannah River on the Long Cane Ranger District.

Table III.1. Cultural Chronology for the Major Ranger Districts of the Sumter National Forest.

Period	Sub-Period	Cultural Complex or Phase			Diagnostic Artifacts	Dates
		Pickens	E noree	Long Cane		
Historic		Contemporary			plastic, aluminum	A.D. 1945 - present
		Postbellum			whiteware, wire nails	A.D. 1865 - 1945
		Early Federal			pearlware, cut nails	A.D. 1810 - 1865
		Colonial Frontier			creamware, wrought nails	A.D. 1670 - 1810
Historic Native American		Estatoe	Daniels	abandoned	glass beads, metal	A.D. 1650 - 1750
Mississippian	Lamar	Tugalo	Mulberry		complicated stamped pottery, glass beads, metal	A.D. 1450 - 1650
		Rembert	McDowell	Rembert	complicated stamped pottery	A.D. 1300 - 1450
			Town Creek			
			Adamson			
	Savannah	Beaverdam	Belmont Neck	Hollywood	complicated stamped pottery, small triangular PP/Ks	A.D. 1200 - 1300
	Etowah	Jarrett/ Pisgah	Pisgah?	Jarrett/ Lawson	complicated stamped pottery; small triangular PP/Ks	A.D. 1000 - 1200
Late Woodland		Woodstock?	Connestee?	Woodstock?	complicated stamped pottery; medium-small triangular PP/Ks	A.D. 900 - 1000?
		Connestee	Connestee	Cartersville	brushed , simple stamped pottery; medium-small triangular PP/Ks	A.D. 600 - 900
Middle Woodland		Connestee	Connestee	Connestee?	brushed/simple stamped pottery, medium triangular PP/Ks	A.D. 200 - 600
		Pigeon?	Yadkin?	Cartersville	check, simple, and complicated stamped pottery; medium triangular PP/Ks	300 B.C. - A.D. 600
Early Woodland		Swannanoa	Swannanoa	Dunlap	simple stamped and fabric marked pottery; large triangular and small stemmed PP/Ks	700 - 300 B.C.
Late Archaic		Otarre	Otarre	Stallings II	small stemmed PP/Ks	1 000 - 700 B.C.
		Savannah River	Savannah River	Stallings I	broad stemmed PP/Ks	3000 - 1000 B.C.
Middle Archaic		Guilford	Guilford	Guilford/ MALA	lanceolate PP/Ks	4000 - 3000 B.C.
		Morrow Mountain			rounded stemmed PP/Ks	5400 - 3500 B.C.
		Stanly			square stemmed PP/Ks	6000 - 5400 B.C.
Early Archaic		LeCroy/St. Albans			bifurcated PP/Ks	6900 - 5800 B.C.
		Palmer/Kirk			corner-notched PP/Ks	7500 - 6900 B.C.
		Taylor			side-notched PP/Ks	8000 - 7500 B.C.
Paleoindian	Late	Dalton			small semi-lanceolate PP/Ks	8500 - 7500 B.C.
	Middle	Simpson/Suwanee			lanceolate and fluted PP/Ks	9000 - 8500 B.C.
	Early	Clovis			lanceolate and fluted PP/Ks	10,000 - 9000 B.C.

Distinctive tool forms such as lanceolate (usually fluted) projectile points, flake knives and scrapers characterize Paleoindian period sites. Point types from the period have been grouped into three temporal categories (Anderson and Joseph 1988:99; Anderson et al. 1990; Coe 1964; Goodyear et al. 1989). Earliest varieties are Clovis (or Clovis-like) points that have nearly parallel hafted edges and slightly concave bases with one or more flutes. They also tend to be large and thick points. Smaller fluted and unfluted points with exaggerated constrictions of the haft area characterize the Middle Paleoindian period. Named forms include the Suwanee and Simpson types. The Late Paleoindian period is marked by Hardaway/Dalton and Dalton assemblages (Figure III.1). Dalton points have lanceolate blades and concave bases that are usually thinned and typically ground along the lateral and basal margins.

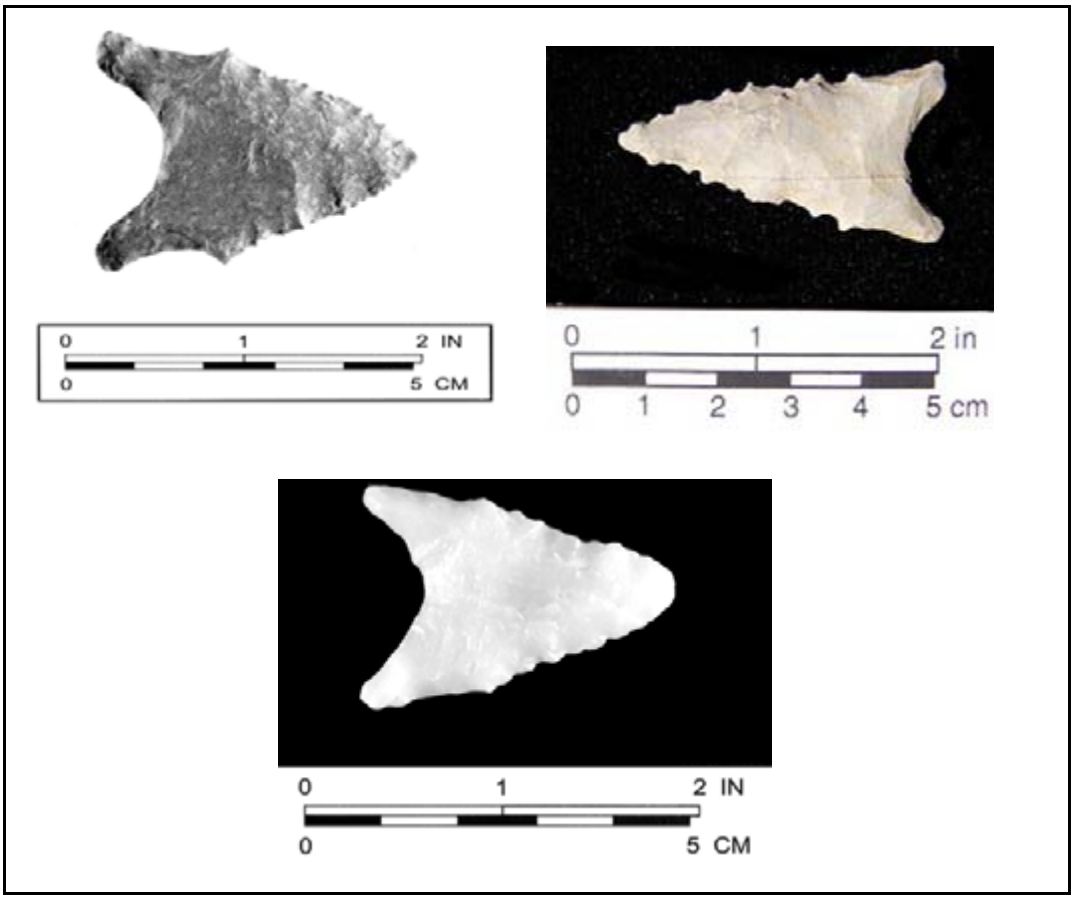

Figure III.1. Examples of Hardaway Dalton (left) and Dalton Points from South Carolina. The Hardaway Dalton (upper left) is made from crystallized rhyolitic tuff. The upper right Dalton is made from aphanitic rhyolite. The bottom center Dalton is made from white quartz. Photographs courtesy of Tommy Charles.

Anderson and Gillam (2000) use a least-cost analysis to posit several models of Paleoindian colonization of North America. Their analyses suggest a rapid dispersal with early settlement focused on coastal and riverine areas. The distribution of fluted points into dense but widely separated clusters suggests that colonization may have proceeded from several more permanently settled "staging areas" (Anderson 1990a; Anderson and Faught 1998, 2000). Meltzer (1988:42), however, has suggested that Paleoindians were foragers in the truest sense of the term, wandering widely across the landscape in pursuit of a broad range of species.

Research on the Paleoindian period has been concerned with problems of typology and site distribution. Limited data suggest that the Georgia and South Carolina Piedmont may contain a few intensively or repeatedly occupied sites, complemented by many more numerous and widespread small, low density camp sites and specialized quarry-related sites (Anderson 1990a). Archeological investigations in the Savannah River area have identified only very low density, limited activity sites (Anderson and Joseph 1988; Sassaman et al. 1990). However, the Taylor Hill site in the Phinizy Swamp area of Richmond County may be an exception. Limited testing of this 40 hectare site produced several late Paleoindian points (Elliott and Doyon 1981). Taylor Hill may be the only known example of an intensively occupied Paleoindian residential base site in the area.

Few sites in the South Carolina Piedmont or adjacent states have produced Paleoindian material from good stratigraphic contexts. In light of this absence, most interpretations about Paleoindian lifeways must come from other areas. Paleoindian remains have been associated with extinct Pleistocene fauna, such as mammoth and bison, in the Southwest and Plains and with caribou in the Northeast (Anderson and Joseph 1988:102). Thus, these hunting practices are assumed to have occurred in the lower Southeast. Within the region, evidence for Paleoindian animal exploitation is mainly from Florida, where there is good evidence for bison (Webb et al. 1984), mammoth, giant beaver, and giant land tortoise hunting (Clausen et al. 1979; Kraft 1977). Rounding out the Paleoindian diet, a wide range of hunted animals and exploited wild plant food is assumed (Anderson and Joseph 1988:102). At the end of the Paleoindian period, the difference in the form the Dalton point and the composition of Dalton assemblages suggests a change away from specialized hunting of megafauna in favor of a more generalized exploitation of smaller game (Anderson and Joseph 1988:102; Goodyear 1974; 1982). This change occurs at the beginning of the Holocene period.

Population density during the Paleoindian period in the Southeast was probably low, given that most sites consist only of isolated artifacts. Social organization has been assumed to be simple because of the low population density. Although, as Anderson and Joseph (1988:102) reasoned, social organization might have been more sophisticated to facilitate free information exchange regarding the timing and placement of resources (Hayden 1982; Wobst 1977) and to create a larger pool for mate exchange (Wobst 1976). Such constraints require a large geographical region (Silberbauer 1980; Weissner 1983), which the broad geographical extent of Paleoindian points seems to represent.

Charles and Michie (1992) report about 365 Paleoindian projectile points in South Carolina. The later Paleoindian Dalton points are more commonly found than the earlier forms, although detailed accounts of the distribution of this type have not been published. Generally, the distribution of points suggests that Paleoindian populations occupied both riverine and inter-riverine environments throughout South Carolina. However, Michie notes that most Paleoindian points occur in the Fall Line Hills and Coastal Plain, with a preference towards major drainages and confluences of major streams (Charles and Michie 1992:193).

Evidence for Paleoindian period settlement on the Sumter National Forest is minimal. Bates (1998c) noted a Hardaway Dalton component at the Garrets Ford Road site (38ED497), on a ridge nose overlooking Stevens Creek on the Long Cane Ranger District. Dalton components have been found on at least three other sites on the Long Cane Ranger District, including the Mims Point site (Sassaman 1993b:53). Kratzer and Rinehart (1996) report the recovery of Hardaway and Hardaway

Dalton PP/Ks from site 38CS167, on a bench adjacent to the Broad River on the Enoree Ranger District. Two other sites (38LU317 and 38UN949) on the Enoree Ranger District are known to have Paleoindian components. One Dalton PP/K was found at 38OC109 on the Andrew Pickens Ranger District.

The Archaic Period

The Archaic period (8000 to 1000 B.C.), which begins with the onset of the Holocene and post-glacial climatic conditions, is characterized as a long and successful adaptation based on collecting wild foods, hunting and fishing. Technology became more diversified, possibly in response to the uncertainties of a changing environment. Ground stone woodworking and plant processing implements, carved and polished stone bowls, atlatl weights and stone pipes and beads appeared for the first time during the Archaic period. Geographic differentiation in hafted biface styles suggests increased regional conscription.

Early Archaic Period

The Early Archaic (8000 to 6000 B.C.) is generally regarded as a period of adaptation to warmer, wetter climatic conditions (Wetmore and Goodyear 1986:17). After the continental glaciers melted and sea levels rose, precipitation increased and more water coursed through river channels. According to the fossil pollen record, oaks continued to dominate the forest vegetation in this region (Delcourt and Delcourt 1987). Substantial alluvial deposition in major river valleys, indicates probable episodes of landscape denudation and heavy rainfall (Segovia 1985).

Southeastern megafauna became extinct coincidental with the emergence of a warmer climate. The extinction of big game animals also corresponds closely with the end of the Paleoindian way of life. The succeeding Early Archaic tradition was based on a more diversified subsistence economy (Anderson and Hanson 1988; Chapman 1976; Claggett and Cable 1982; O'Steen 1983).

Diagnostic artifacts of the Early Archaic period include side- and corner-notched and bifurcated points. The point style chronology was initially defined by Coe (1964), primarily based on his work at Hardaway in the southern Uwharrie Mountains of North Carolina. Doerschuk, located across the Yadkin River from Hardaway, mostly provided the later Archaic and Woodland series. The Early Archaic sequence begins with side-notched forms such as Taylor (Figure III.2), progresses next to Kirk (Figure III.3) and Palmer (Figure III.4) corner-notched forms, and then to bifurcated points such as LeCroy (Figure III.5), St. Albans, MacCorkle (Figure III.6) and Kanawha. A thick unifacial side-notched, hafted tool known as the Edgefield Scraper (Figure III.7) is also a diagnostic artifact of the late Paleoindian to Early Archaic period (Michie 1973). Other artifacts associated with the Early Archaic period include hafted unifacial end and side scrapers, flake perforators and wedges.

Early Archaic population levels probably increased above that of the Paleoindian period. Early Archaic components have been recorded on many surveys on and near the Sumter National Forest and a number of sites have been excavated in the vicinity (Anderson and Schuldenrein 1985; Elliott and Doyon 1981). Survey and excavation data suggest that Early Archaic settlement is characterized by a few large sites in floodplain settings and more numerous small, low density sites in both riverine and upland locations (Chapman 1975, 1977; Claggett and Cable 1982; Coe 1964).

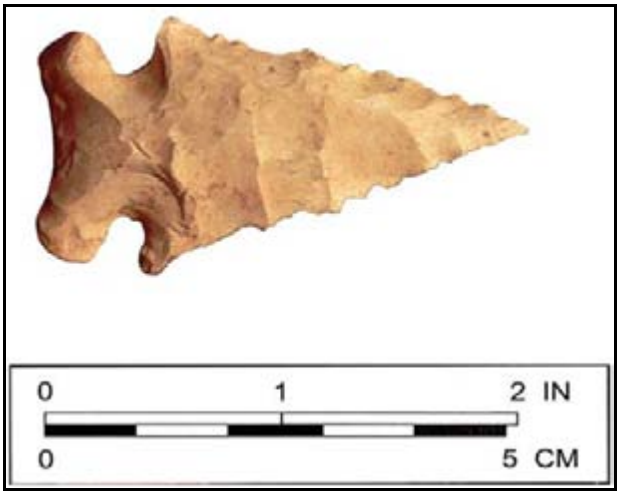

Figure III.2. Taylor Point from South Carolina Made from Coastal Plain Chert (photograph courtesy of Tommy Charles).

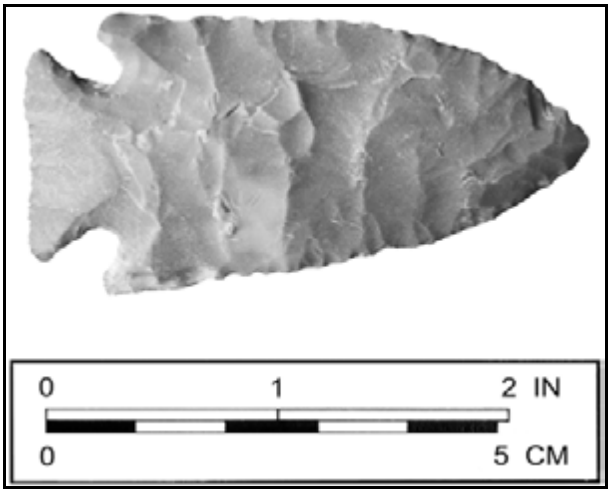

Figure III.3. Kirk Corner Notched Point from South Carolina Made from Vitric Tuff (photograph courtesy of Tommy Charles).

Figure III.4. Quartz Palmer Points from South Carolina (photograph courtesy of Tommy Charles).

Early Archaic settlement in much of the Southeast is characterized by a few large and apparently intensively, or perhaps repeatedly, occupied camps, or aggregation sites, and numerous small sites which produce only a few artifacts. Excavations at larger Early Archaic camp sites produced evidence suggesting various activities and diverse resource use. Some interpret these camps as long-term, perhaps seasonal or multi-seasonal settlements or base camps within a logistically oriented settlement-mobility system (Goodyear et al. 1979; House and Wogaman 1978).

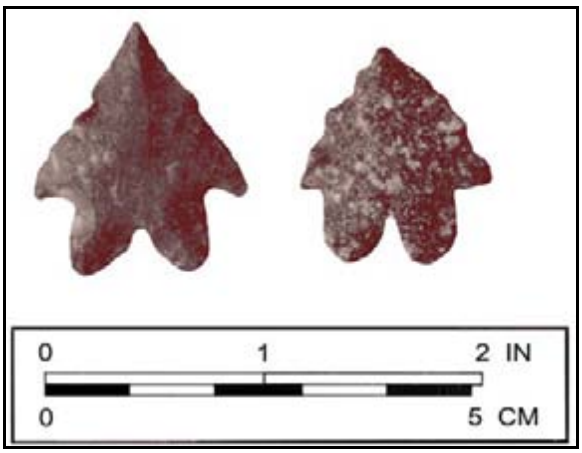

Figure III.5. LeCroy Points from South Carolina Made from Rhyolite (left) and Crystallized Tuff (photograph courtesy of Tommy Charles).

This model predicts that upland, inter-riverine settlements during the Early Archaic period should be smaller and less artifactually dense and diverse than their riverine counterparts, indicating short-term resource extraction camps occupied by certain segments (rather than families) of the population.

Alternatively, Claggett and Cable (1982) and Ward (1983a) suggest a residentially mobile oriented settlement-mobility system, citing a lack of difference in artifact diversity between the larger riverine sites and the smaller inter-riverine sites. Residentially mobile groups include all family members moving as a single unit from one foraging area to another. Anderson and Shuldenrein's (1985:713) investigations in the Upper Savannah River watershed also found no major differences in the composition of Early Archaic lithic assemblages between riverine and inter-riverine Early Archaic sites. Tool assemblages were dominated by expedient tools with few curated tools. Given the apparent lack of a settlement-mobility system dichotomy among Early Archaic sites, Anderson and Shuldenrein (1985:713) state that Early Archaic groups were more likely to be residentially mobile foraging groups, rather than logistically mobile collector groups in the central Piedmont. A logistically mobile settlement-mobility system would produce a few large sites with high artifact density and diversity, representing base camps, among numerous smaller sites with lower artifact density and diversity, representing special collector camps. Ledbetter's (1992) excavation of an Early-Middle Archaic inter-riverine, upland site in the north-central Piedmont of Georgia tends to support a pattern of residential base camps in the uplands (Figure III.8).

Early Archaic settlement of the Savannah River Valley was modeled by Anderson and Hanson (1988) with subsequent refinement by Anderson (1996) and Sassaman et al. (1990), based mainly on the work at the Savannah River Site. Familiarly known as the *Band-Macroband* model, it depicts a mixed forager and collector strategy in the Coastal Plain during the winter and late spring and a residentially mobile, forager strategy in the Piedmont during the summer and fall (Sassaman et al. 1990:308). Large base camps were established along the terraces of the

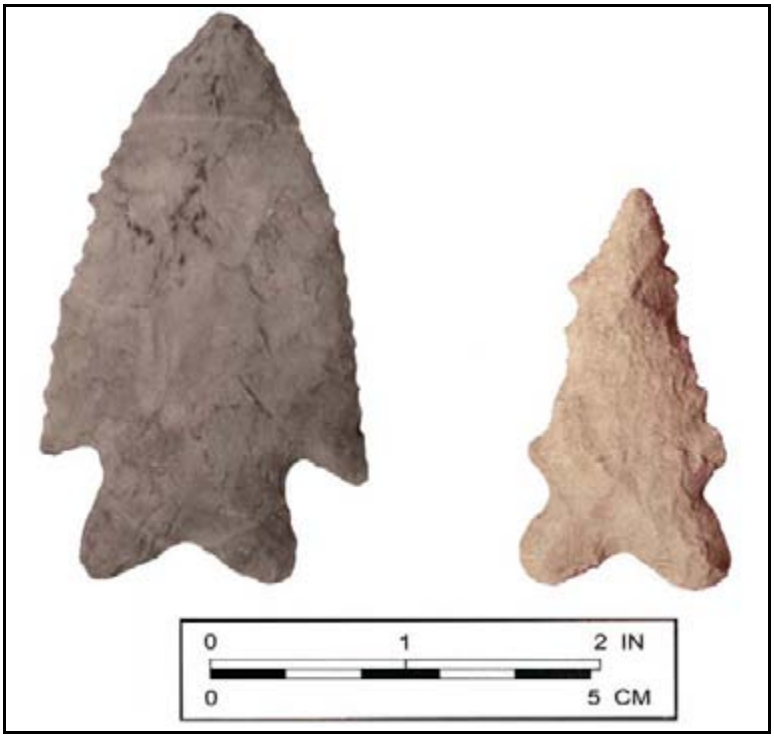

Figure III.6. Examples of MacCorkle Points from South Carolina (photograph courtesy of Tommy Charles). Lithic raw material is unknown.

Figure III.7. Coastal Plain Chert Edgefield Scraper from Pulaski County, Georgia (source: Benson et al.[2005]).

Savannah River during the winter and late spring. Foraging was conducted within a 10 km zone in the surrounding area. Smaller groups traveled outside of this 10 km range to secure more distance resources, such as high quality chert. During the summer and fall the larger riverine base camps splintered into smaller groups and utilized the Piedmont more intensively. Each residential group "maps on" to a particular resource area and then moves on to another location when those resources are depleted. Anderson and Hanson (1988) suggest that specific macrobands were tied to particular watersheds, using the watershed as their region of exploitation. Regional integration of bands from different watersheds occurred for information and mate exchange during the fall at settlements along the Fall Line.

Daniel (1996, 1998) presents an alternative model of Early Archaic settlement, encompassing a somewhat larger unit of analysis. Based upon his re-analysis of the material from the Hardaway site and from several sites in the Savannah River Valley and vicinity, he argues that settlement-mobility ranges cross-cut major watersheds, rather than stayed within major watersheds. He envisions two large macrobands, one centered on the Allendale chert and the other centered on the Uwharrie Mountains rhyolite in North Carolina. The spatial extent of the respective macroband ranges overlaps in central South Carolina. Thus, Early Archaic hafted bifaces in central South Carolina should reflect relatively equal proportions of Uwharrie ryholite (specifically Morrow Mountain rhyolite) and Allendale chert, corresponding to the macroband overlap zone. Interaction between distinct social groups occurred in the areas of macroband overlap.

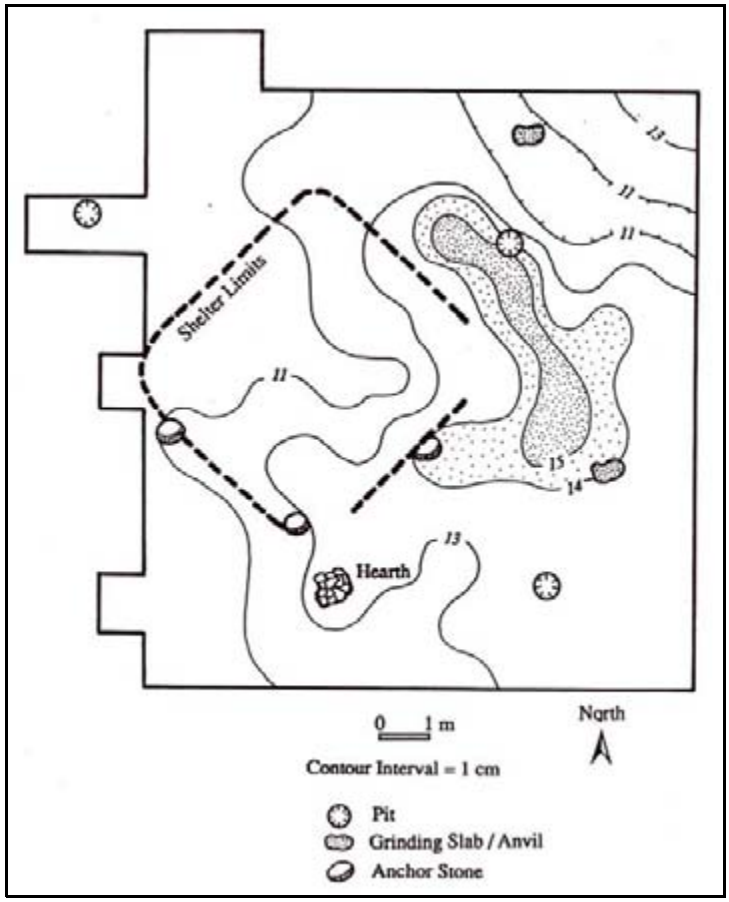

Figure III.8. Inferred Early-Middle Archaic Shelter Limits from Artifact Distributions and Activity Area Locations on 9BR775 (source: Ledbetter 1992:245).

Middle Archaic Period

Middle Archaic tool forms and technology differed greatly from the Early Archaic tradition. Stemmed forms replaced side notched or corner notched tools. Also, ground stone atlatl

(spearthrower) weights, notched pebble net sinkers and plant processing tools such as mortars, manos and nutting stones appear for the first time. Settlement and subsistence patterns appear to have changed as storage pits, burials and fire-cracked rock appear on Middle Archaic sites.

The basic projectile point chronology for the Middle Archaic period was documented by Coe (1964) at the Doerschuk site in North Carolina. Diagnostic types include Stanly, Morrow Mountain, and Guilford. Stanly points, which are thought to date from around 6000 to 5500 B.C., have square

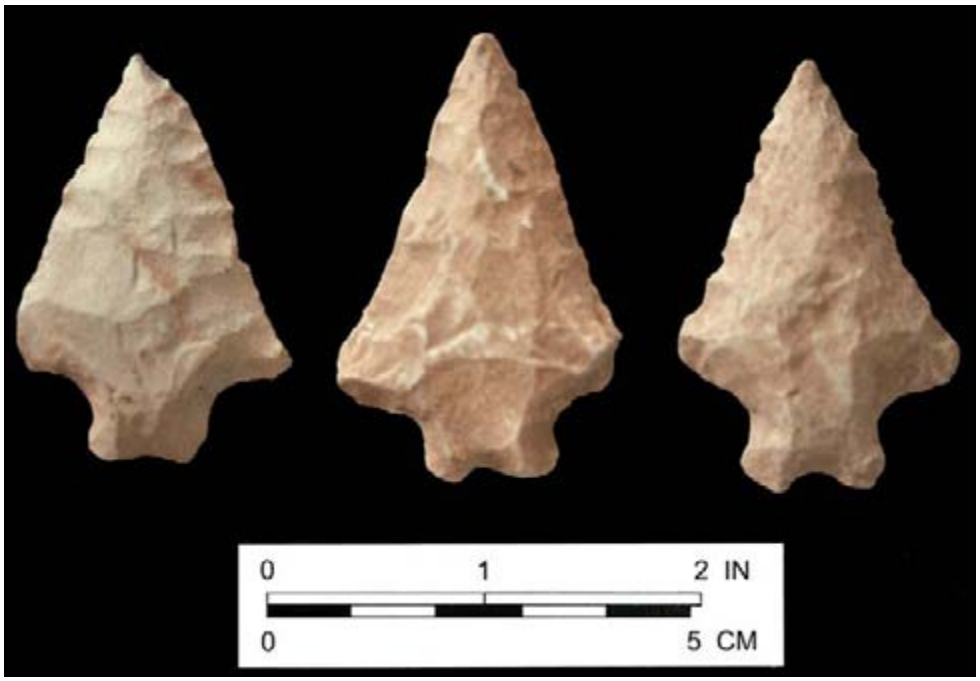

Figure III.9. Stanly Points from South Carolina (photograph courtesy of Tommy Charles). Unidentified lithic raw material.

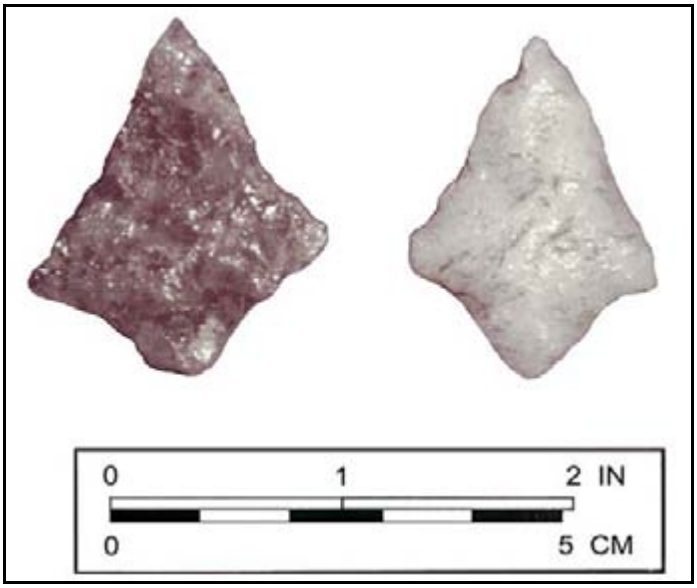

Figure III.10. Quartz Morrow Mountain I Points from the South Carolina Piedmont (photograph courtesy of Tommy Charles).

stems with incurvate bases and relatively broad blades with straight edges (Figure III.9). Morrow Mountain points (Figures III.10 and III.11), dating to about 5500 to 4000 B.C., are characterized by rounded stems and relatively wide blades. Guilford points (Figure III.12), which exhibit lanceolate to ovate forms and rounded bases, date to about 4000-3000 B.C.

Although Coe's sequence for the Middle Archaic is still widely applied, it is not without problems. Stanly points have proven quite uncommon in the Piedmont of South Carolina and Georgia, suggesting the chronology may be over-simplified or over-extended (Anderson and Joseph 1988:152; Blanton and

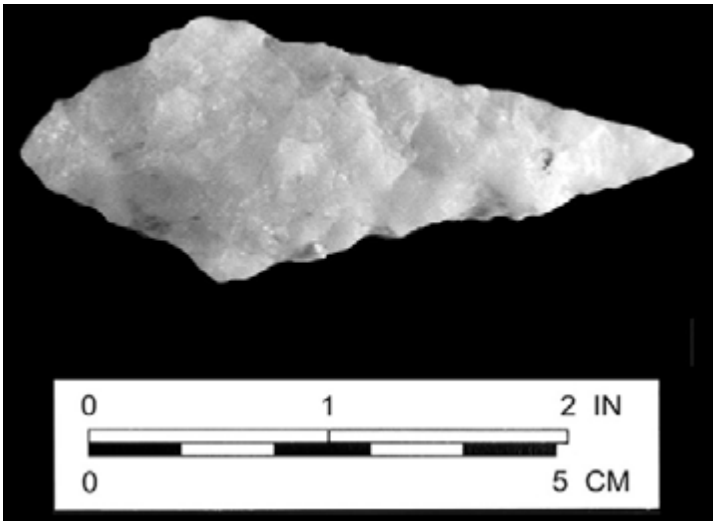

Figure III.11. Quartz Morrow Mountain II Point from the South Carolina Piedmont (photograph courtesy of Tommy Charles).

Sassaman 1989; Stanyard 2003:37). Many archeologists have noted that the Morrow Mountain and Guilford types are not well-differentiated either morphologically or temporally (Anderson and Joseph 1988; Anderson and Schuldenrein 1985; Goodyear et al. 1979; Sassaman et al. 1990:151). The chronology of the terminal Middle Archaic also is poorly developed. Possible diagnostics include smaller stemmed forms such as the Halifax and small Savannah River Stemmed (Coe 1964), as well as local variants of the larger Sykes, White Springs, and Benton types, such as the MALA or Allendale hafted biface (Sassaman 1985) (Figure III.13).

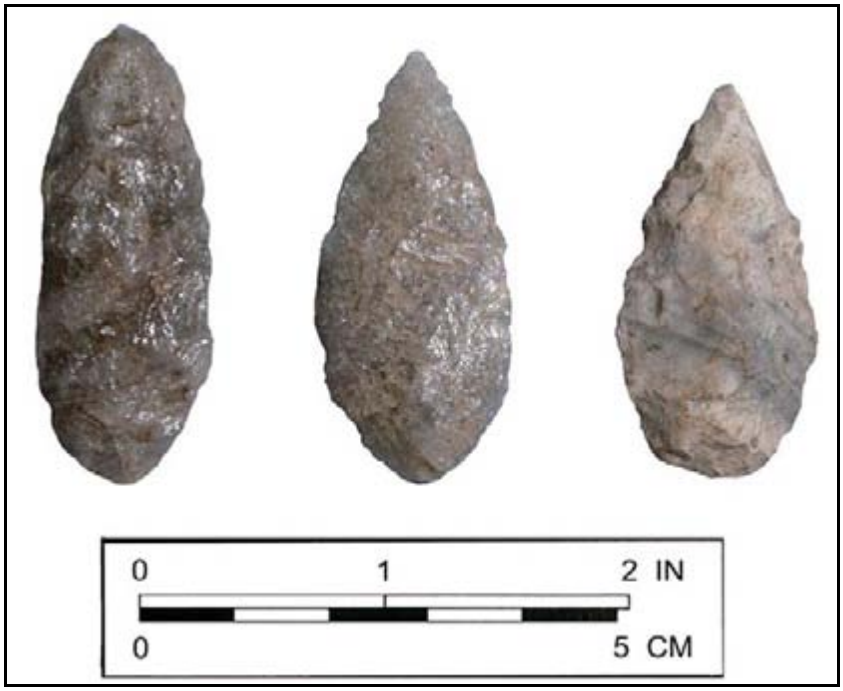

Figure III.12. Quartz Guilford Points from the South Carolina Piedmont (photograph courtesy of Tommy Charles).

Diagnostic tools include Morrow Mountain and Guilford projectile points or knives. Two types of Morrow Mountain points (Morrow Mountain I and II) are recognized (Figures III.10 and III.11). Morrow Mountain I points are more common and are characterized by a rounded stem and relatively wide blade. The overwhelming majority (95%) of these points from South Carolina Piedmont sites are made of quartz or crystal quartz (Wetmore and Goodyear 1986:20). The Guilford point is a lanceolate to ovate form with a rounded base (Figure III.12). Some have weak shoulders or contracted stems (Coe 1964; Wetmore and Goodyear 1986). While the Morrow Mountain phase dates to about 5500-4000 B.C. and the Guilford phase dates to about 4000-3000 B.C., there may be considerable overlap of these types.

The record of the Middle Archaic at the Savannah River Site, like that across much of the Georgia and South Carolina Piedmont, consists mainly of relatively small sites that are little differentiated by artifact density or type (Sassaman et al. 1990). Local raw materials predominate. These trends have been interpreted as evidence that residential mobility was high, albeit within

Figure III.13. Thermally Altered, Coastal Plain Chert Allendale Points (photograph courtesy of Tommy Charles).

limited regions (Blanton and Sassaman 1989; Sassaman 1983; Sassaman et al. 1990). In other words, people moved frequently, but not far, to fulfill their subsistence needs. Blanton and Sassaman (1989) have described this as a strategy of "adaptive flexibility."

Middle Archaic components—particularly those marked by Morrow Mountain projectile points—are ubiquitous on the Sumter National Forest among all three ranger districts. Prior to this overview, Benson (2003:10-11) calculated that nearly 40 percent of identified archeological components on the Long Cane Ranger District and 50 percent of identified archeological components on the Enoree Ranger District consisted of sites and isolated finds with Middle Archaic diagnostic artifacts. Archeological survey evidence suggests that Guilford hafted bifaces tend to be more prevalent on the Enoree Ranger District than on the Long Cane Ranger District. True to the settlement models cited above, Middle Archaic components on the Sumter National Forest tend to be small. Locally occurring lithic materials predominate.

Late Archaic Period

With the exception of the Mississippian, the Late Archaic period has been the focus of more intensive archeological investigation than any other era of prehistory in the vicinity of the Sumter National Forest (Anderson and Joseph 1988:155). Major excavations have been conducted at Late Archaic sites in the Savannah River valley near the Sumter National Forest, including Stallings Island (Bullen and Greene 1970; Claflin 1931; Fairbanks 1942), Lake Springs (Miller 1949), Lover's Lane (Elliott et al. 1994), Paris Island and Sara's Ridge (Wood et al. 1986). On the Sumter National Forest, major excavations were conducted by Sassaman (1993b) at Mim's Point, at the confluence of Stevens Creek and the Savannah River on the Long Cane Ranger District.

The greater archeological visibility of Late Archaic sites, many of which are large, artifact rich sites, suggests higher population density, greater sedentism, larger group size and more pronounced organizational complexity (Anderson and Joseph 1988:154). Long distance trade networks linked the more sedentary and larger population centers. Large shell middens appeared along the coast and in the Fall Zone. Pottery was produced for the first time in the Late Archaic

period, which coincides with initial plant cultivation. Grasses, chenopodium, sumpweed, squash, gourds and sunflowers were grown in the Southeast by 2500 B.C. (Wetmore and Goodyear 1986).

The Savannah River point, a large, broad-bladed, broad-stemmed point with straight shoulders, is the predominant tool form of the Late Archaic period (Coe 1964) (Figure III.14). Smaller projectile point forms such as the Otarre (III.15), Paris Island (Figure III.16), and small Savannah River Stemmed (Figure III.17) forms were also in use (Keel 1976). Archeologists long assumed a neat progression from larger to smaller stemmed forms over the course of the Late Archaic period. It is now widely acknowledged that these forms overlap temporally (Alterman 1987).

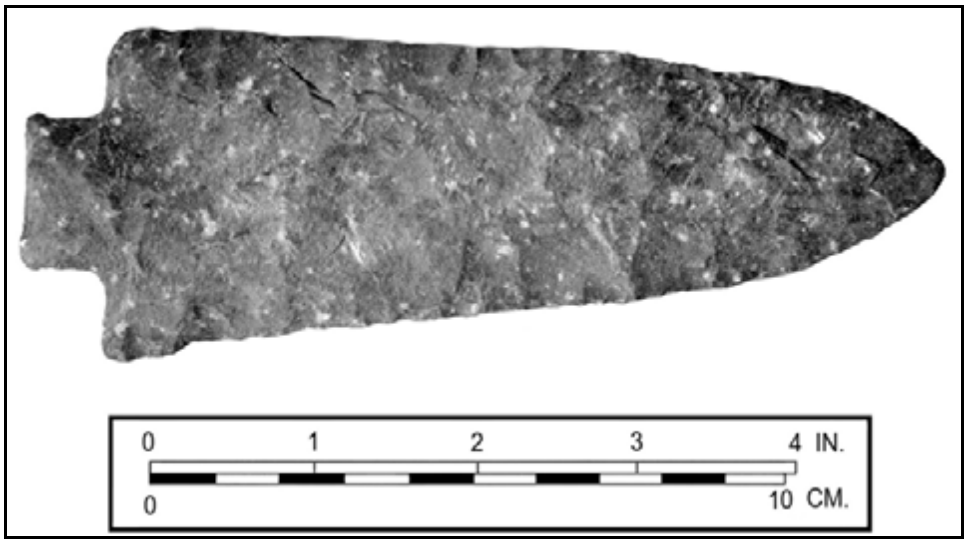

Figure III.14. Plagioclase Porphyritic Rhyolite Savannah River Stemmed Point (photograph courtesy of Tommy Charles).

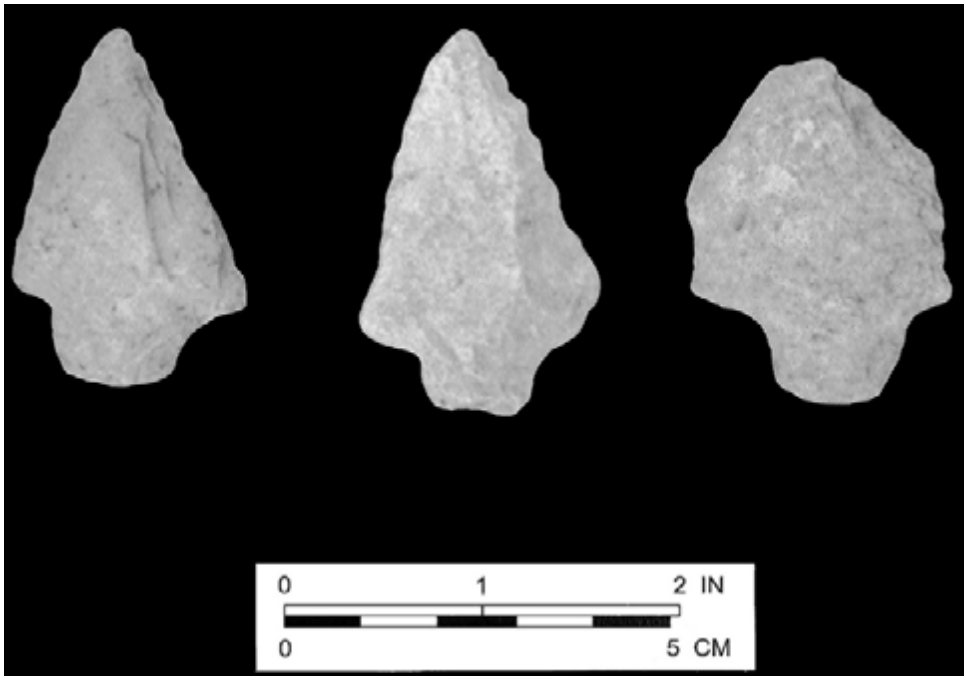

Figure III.15. Argillite (Dacite) Otarre Points (photograph courtesy of Tommy Charles).

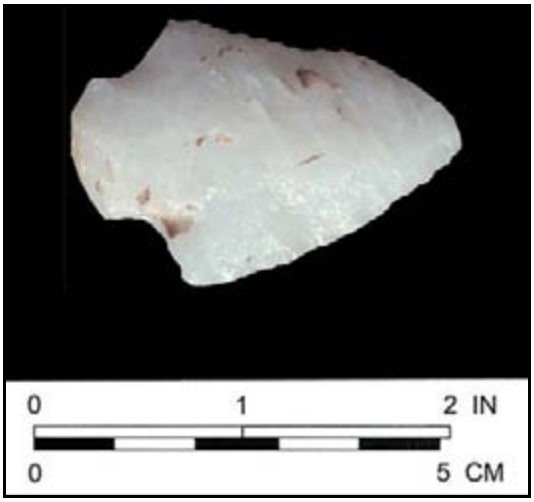

Figure III.16. Quartz Paris Island Point from South Carolina (photograph courtesy of Tommy Charles).

Figure III.18. Example of a Stallings Island Punctate and Incised Sherd (photograph courtesy of Tommy Charles).

The introduction of ceramics is another hallmark of the Late Archaic period. Fiber tempered sherds of the Stallings series appeared first, at roughly 2500 B.C. (Claflin 1931; Sassaman 1991, 1993a; Sassaman and Anderson 1994:135). Stallings sherds occasionally exhibit surface treatment such as punctation and incising (Figure III.18). Thom's Creek pottery is similarly decorated, but tempered with sand rather than fiber (Trinkley 1980b) (Figure III.19). Other Late Archaic implements include cruciform drills, grooved axes, soapstone bowls, and perforated soapstone slabs, which probably were used for some method of hot rock cooking.

Figure III.17. Metavolcanic (Dacite) Small Savannah River Stemmed Point from Georgia Piedmont (photograph courtesy of Jerald Ledbetter).

The Late Archaic period in the Savannah River drainage has been divided into two or three cultural and temporal subdivisions (Anderson and Joseph 1988:155, 190-193; Claflin 1931:37-42; Fairbanks 1942:230; Stoltman 1974:19; Wood et al. 1986:331-334) (Table III.2). The three-phase division developed for the Russell Reservoir (Anderson and Joseph 1988:190-193) is perhaps the most developed of these chronologies. Division I (3500-3000 B.C.) is marked by large Savannah River Stemmed points, typically made of metavolcanic material. Moderately-sized stemmed points and perforated soapstone slabs characterize Division II (3000-2000 B.C.). Division III (2000-1000 B.C.) sites are characterized by more diversity in point size, continued use of soapstone slabs, increased use of extralocal lithic materials and the appearance of Stallings and then Thoms Creek pottery. Stallings is the earlier of the two ceramic types, but they may have been in use simultaneously for some time (Sassaman 1991, 1993a; Trinkley 1980a, 1980b).

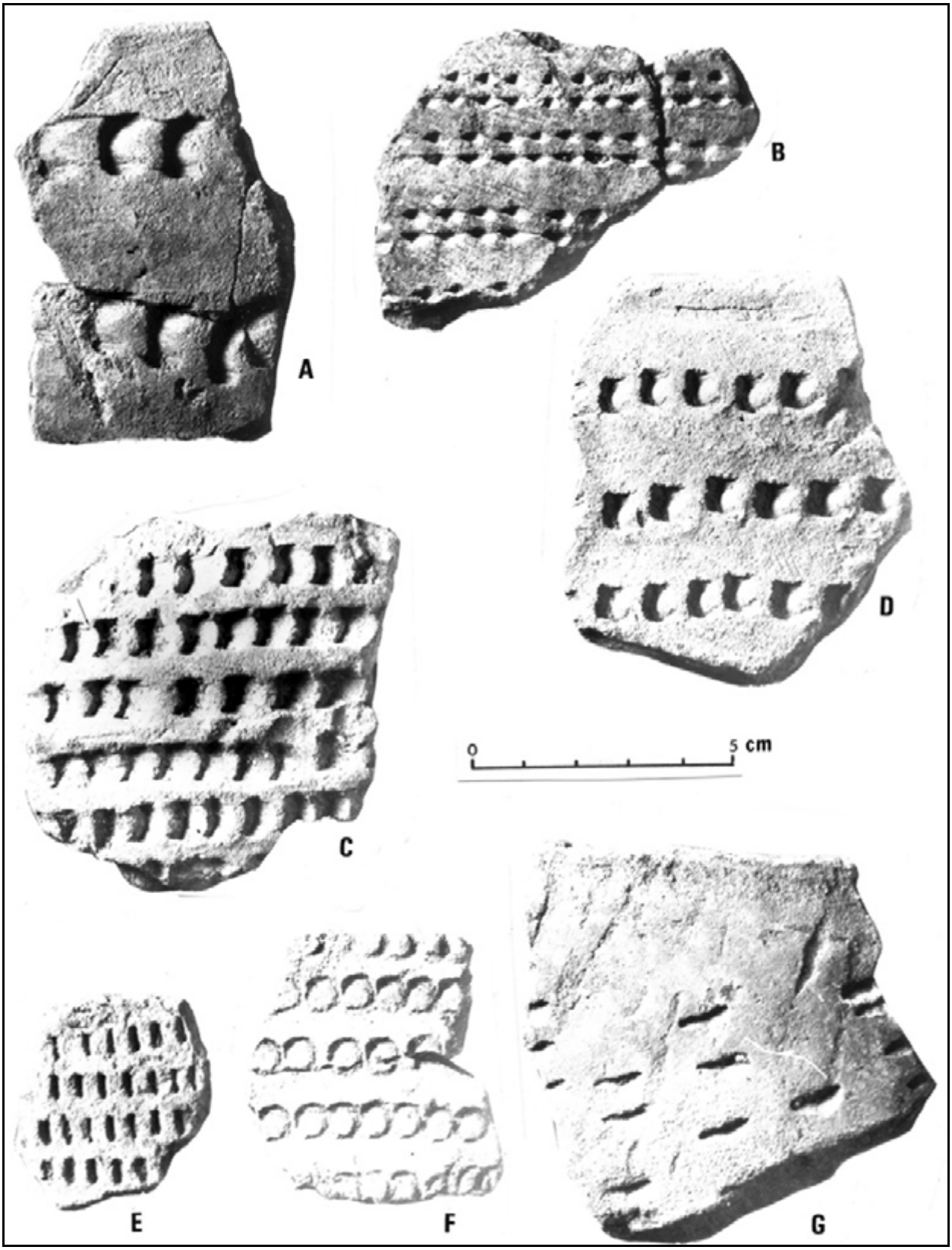

Figure III.19. Examples of Thom's Creek Reed Punctate Ceramics (photograph courtesy of Tommy Charles). A-F: Linear, G: Random.

Combining the work at Phinizy Swamp and Lovers Lane with other excavations in the region, Elliott et al. (1994:370-372) developed a more detailed sequence of artifact phases for the late Middle and Late Archaic periods in the central Savannah River Valley. Their sequence includes a Phinizy Swamp complex (3500 to 2500 B.C.). This is followed by the Paris Island phase (2500 to 2200 B.C.), Mill Branch (2200 to 1850 B.C.) and Lovers Lane (1850 to 1350 B.C.) phases, and concluding with the Dickens Complex (1350 to 900 B.C.).

Table III.2. Late Middle-Late Archaic Chronologies for the Savannah River Drainage.

Years B.C.	Russell Reservoir (Anderson and Joseph 1988)		Central Savannah River (Elliott et al. 1994)	
	Phase	**Artifacts**	**Phase/Complex**	**Artifacts**
500			Early Woodland (post 900 B.C.)	
1000	Early Woodland (post 1000 B.C.)		Dickens Complex: 1350-900 B.C.	Continued use lithic raw material variety; diversity of ceramic technology (poorly defined); increased use of soapstone bowls
1500			Lovers Lane: 1850-1350 B.C.	Increased use of quartz and Coastal Plain chert; increased use of Stallings plain and punctate; addition of Thom's Creek pottery; decreased use of perforated slabs; reduced use of pigment; fewer stone drills; Kiokee Creek stemmed bifaces
	Division III: 2000-1000 B.C.	Diverse Savannah River Stemmed point size, soapstone slabs, increased use of extralocal lithic materials, Stallings Island then Thom's Creek pottery		
2000			Mill Branch: 2200-1850 B.C.	Primarily metavolcanic use for chipped stone tools; minimal Stallings plain; soapstone perforated slabs; elaborate atlatl weights; red and yellow mineral use; abundant stone drills; Large Savannah River Stemmed with fewer smaller versions
2500	Division II: 3000-2000 B.C.	Medium Savannah River Stemmed; perforated soapstone slabs	Paris Island: 2500-2200 B.C.	Lithic raw material variety; increased use of perforated soapstone slabs; atlatl weights; Paris Island Stemmed and other small-to-medium sized stemmed points
3000			Phinizy Swamp Complex: 3500-2500 B.C.	Increase in daub; Brier Creek, Guilford and Allendale point types
3500	Division I: 3500-3000 B.C.	Metavolcanic Large Savannah River Stemmed		

Late Archaic settlement systems appear to have been more complex than those of earlier Archaic periods (Sassaman 1983; White 1982). Intensive settlement of the floodplains is inferred from the occurrence of dense shell middens at sites such as Stallings Island. Such sites likely represent the places where populations living across a broad area came together regularly, if only temporarily, for a wide range of activities. In the surrounding uplands, there appears to have been a network of smaller, seasonally occupied residential bases (Figure III.20). Interspersed in both the uplands and riverine areas were small, limited-activity logistical sites.

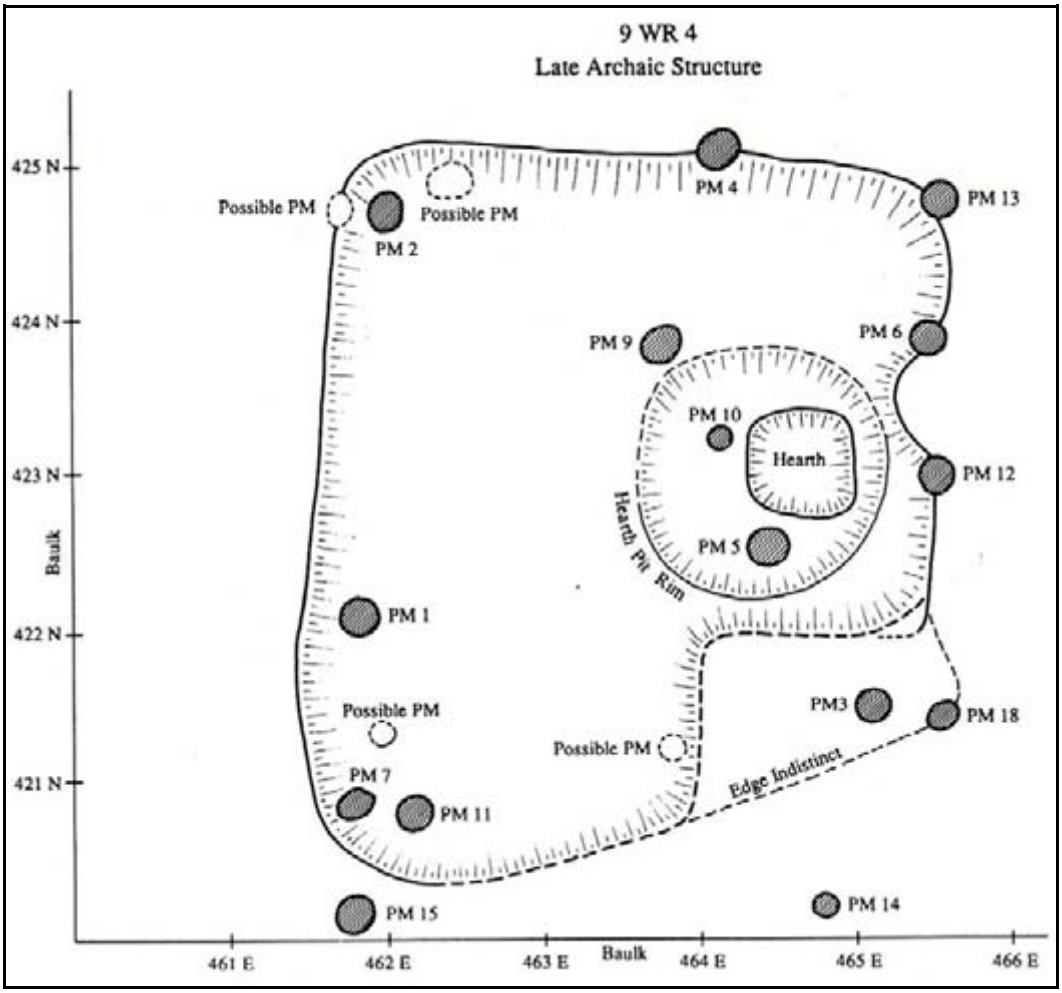

Figure III.20. Plan of 9WR4, a Late Archaic House, in the Inter-riverine Uplands of the Upper Coastal Plain, Georgia (source: Ledbetter 1995:180).

Late Archaic sites are common in many portions of the Sumter National Forest, but tend to be most prevalent on the Long Cane Ranger District. Mim's Point, at the confluence of Stevens Creek and the Savannah River on the Long Cane Ranger District, likely represents a Late Archaic aggregation site (Sassaman 1993b). Excavations into the shell midden at Mim's Point revealed a Late Archaic structure of single set posts with an interior hearth. Numerous occurrences of Late Archaic projectile points in the surrounding uplands of the Sumter National Forest (e.g., Bates 1987ii, 1988r) likely represent related, less-permanent occupations.

The Woodland Period

The Woodland period (1000 B.C. to A.D. 900) in the Southeast is characterized by extensive use of ceramics, increased reliance on horticulture, widespread ceremonialism and increased permanence of occupation. As with the Archaic, the Woodland is divided into Early, Middle and Late sub-periods.

Early Woodland Period

Social organization, settlement-mobility and population nucleation trends that began in the terminal Late Archaic carry over into the Early Woodland period (1000 to 300 B.C.) across the Southeast. As the Early Woodland period progressed, dependence upon horticulture increased and regional ceramic traditions developed (Anderson and Joseph 1988:205).

The chronology for the Early Woodland period in the South Carolina Piedmont leans heavily on work in adjacent states (Trinkley 1990). The Kellog focus, which is defined by the presence of sand-tempered Dunlap Plain and Dunlap Fabric Impressed sherds, marks the early portion of the Early Woodland period in northern Georgia (Anderson 1985; Caldwell 1958; Wauchope 1966). This was followed by the Deptford/Cartersville series, which includes simple-stamped, cord-marked and check-stamped wares.

The northern Georgia ceramic sequence is commonly applied in the western South Carolina Piedmont in the vicinity of the Long Cane Ranger District. It is also routinely utilized to describe assemblages from the central Piedmont, near the Enoree Ranger District.

North of the Piedmont and in the Blue Ridge, the Swannanoa phase marks the initial Woodland occupation (Keel 1976), which is dominated by fabric-marked pottery similar to the North Carolina Piedmont Badin series (Ward and Davis 1999:141, citing Holden [1966:61]). Simple-stamped, check-stamped and plain wares are minority elements of the Swannanoa series (Keel 1976:115-116). They also bear stylistic similarities with Kellog ceramics from northern Georgia and Watts Bar ceramics from eastern Tennessee (Ward and Davis 1999:141). Swannanoa ceramics typically have crushed quartz or coarse sand as a tempering agent.

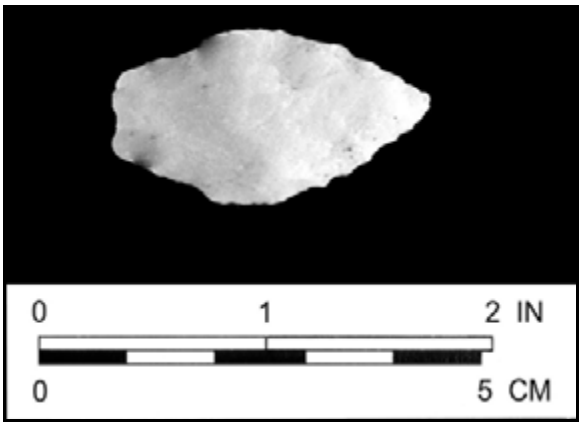

Figure III.21. Example of a Quartz Swannanoa Point from South Carolina (photograph courtesy of Tommy Charles).

Early Woodland stone tools are essentially unchanged from those of the terminal Late Archaic, with small stemmed points prevailing. Commonly applied types include Gypsy, Swannanoa (Figure III.21), Otarre (Figure III.15), Plott, and Pigeon (Keel 1976; Oliver 1981, 1985). Medium and large, triangular-shaped Badin and Yadkin points were added sometime during the Early Woodland period (Coe 1964)(Figure III.22). Keel (1976:211) reports Swannanoa Stemmed points found in stratigraphic association with a large triangular point called "Transylvania Triangular," which could be a

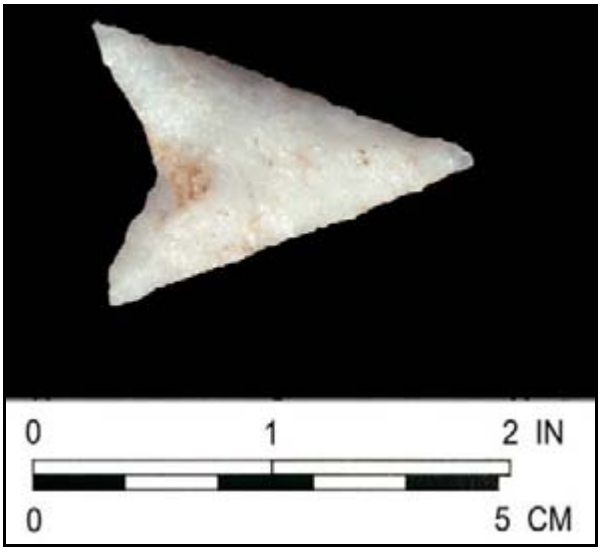

Figure III.22. Example of a Quartz Yadkin Point from South Carolina (photograph courtesy of Tommy Charles)**.**

variation of the Badin triangular point. A variety of tapered or irregular stemmed points were in use from the Early to Late Woodland periods (Figure III.23). Other artifacts found in Early Woodland assemblages include bar gorgets, soapstone vessels, bone awls, hammerstones, ochre, ceramic and stone pipes and net weights (Caldwell 1958; Dickens 1976; Keel 1976:230).

Circular houses, cylindrical storage pits, and flexed burials have been identified on Early Woodland sites in northern Georgia (Caldwell 1958; Garrow 1975; Wauchope 1966). The floral remains preserved in middens in this area suggest a heavy reliance on forest products such as hickory nuts, walnuts and acorns (Caldwell 1958).

Figure III.23. Small Tapered and Irregular Stemmed Points Presumably Used Throughout the Woodland Period in South Carolina (photograph courtesy of Tommy Charles).

Wild food gathering thus seems to have continued to dominate the subsistence strategy during the Early Woodland period. Although, the presence of cultigens indicates that horticulture was also relied upon. The incidence of storage and cooking pits increased dramatically over the preceding Late Archaic period. The density and frequency of these features argues for sustained periods of occupation at a number of sites.

Little evidence for intensive occupation during the Early Woodland period has been identified in the South Carolina Piedmont or Blue Ridge Provinces to date (Trinkley 1990). Small Early Woodland sites with relatively low artifact density are commonly reported on surveys on the Sumter National Forest (e.g., Bates 1985b, 1988r; Benson 1992b), as well as in the surrounding area

(e.g., Goodyear et al. 1979:214; Rodeffer et al. 1979). However, these appear to reflect nothing more than short-term occupations by small groups of people. Likewise, archeologists at the Savannah River Site note abrupt changes in settlement strategies following the Late Archaic period (Sassaman et al. 1990:315). The large sites at the Fall Line along the Savannah River show little evidence for Early Woodland occupation, and minimal evidence exists for seasonal population aggregation. Instead, sites are widely dispersed, prompting archeologists at the Savannah River Site to characterize this as a period of population in-filling. Some concentration of settlement is apparent on the central portions of tributary streams. These concentrations may have served as loosely connected centers for the exchange of information and goods.

Middle Woodland Period

The Middle Woodland period (300 B.C. to A.D. 600) saw the emergence of a ceremonial exchange network referred to as the Hopewell Interaction Sphere (Anderson and Joseph 1988:219-220; Caldwell 1964). Earthen mounds—often containing elaborate burials—were constructed in some parts of the Southeast (Kellar et al. 1962; Jefferies 1994; Sears 1956). Hopewell trade goods included such items as copper panpipes and earspools, prismatic blades, galena and cut mica. These items particularly were found in Middle Woodland period burials in the Southeast (Anderson and Joseph 1988:220).

Figure III.24. Examples of Cartersville Series Ceramics (photograph courtesy of Jerald Ledbetter).

As with the Early Woodland, the Middle Woodland period in the South Carolina Piedmont and Blue Ridge Provinces is defined primarily from work in adjacent states. For the western Piedmont near the Long Cane Ranger District, the chronology borrows from northern Georgia, where the Middle Woodland is marked by sand-tempered pottery of the Deptford/Cartersville (Figure III.24) and Swift Creek (Figure III.25) series (Caldwell 1958; Kelly and Smith 1975; Wauchope 1966). In the central Piedmont, the sequence looks to central North Carolina, where the period is defined by quartz tempered pottery of the Yadkin series (Coe 1964) or to the mountains in western North Carolina where the period is

Figure III.25. Examples of Swift Creek Complicated Stamped Ceramics from Pulaski County, Central Georgia (source: Benson et al. [2005]).

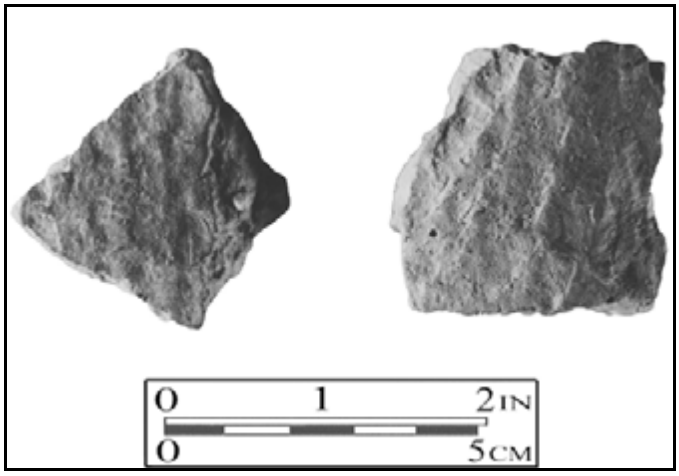

Figure III.26. Examples of Pigeon Check Stamped Ceramics from South Carolina (photograph courtesy of Tommy Charles).

defined by the Pigeon (300 B.C-A.D. 200) and Connestee (A.D. 200-800) series. The Connestee series spans the late Middle Woodland and Late Woodland periods. The Middle Woodland period is defined primarily in reference to the Pigeon and Connestee phases of western North Carolina on the Andrew Pickens Ranger District of the Blue Ridge Province (Keel 1976; Trinkley 1990:21) (Figures III.26 and III.27). However, Swift Creek phase ceramics have been found to co-occur with Connestee phase ceramics as far north as eastern Tennessee and western North Carolina (Ward and Davis 1999:155)

Like Swannanoa ceramics, Pigeon ceramics have crushed quartz as a tempering agent. However, they are distinctive from Swannanoa by their check-stamped surfaces, large tetrapodal supports and an iridescent sheen on their interiors (Keel 1976:49). Check stamping and tetrapodal supports are typical traits of Deptford/Cartersville series ceramics from Georgia, but Deptford/Cartersville ceramics are rarely tempered with crushed quartz.

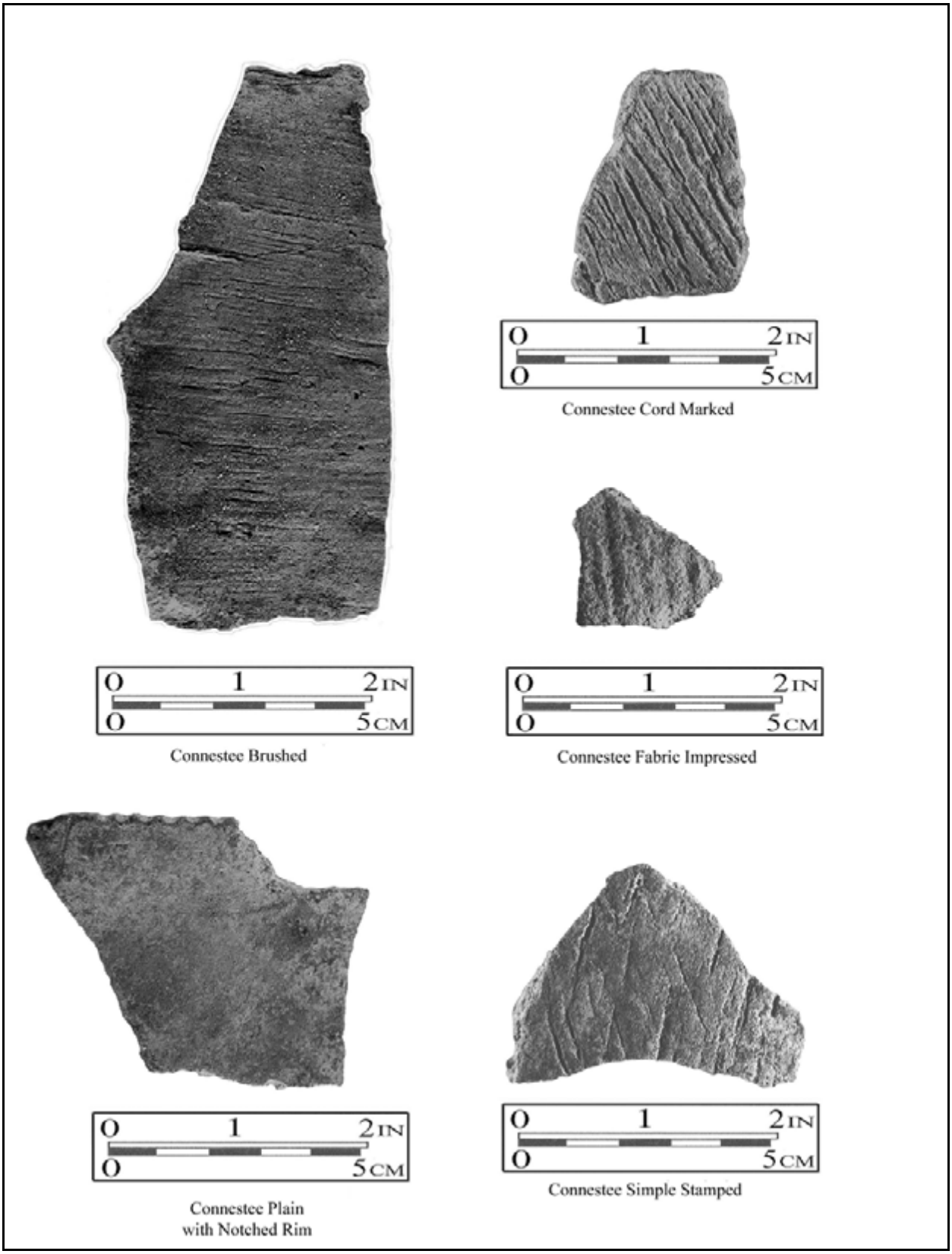

Figure III.27. Connestee Series Ceramics (photographs courtesy of Tommy Charles).

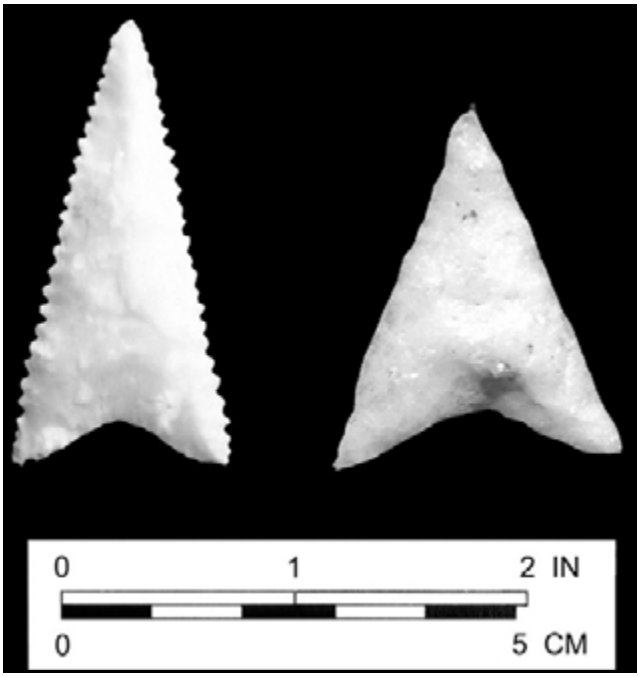

Figure III.28. Quartz Yadkin Points, Serrated (left) and Non-serrated (photograph courtesy of Tommy Charles).

Crushed-quartz tempering ends with the Connestee phase. This pottery has relatively thin walls and is tempered with mostly fine sand with occasional larger quartz grains. Exterior surfaces are typically plain, brushed or simple stamped with lesser frequencies of cord and fabric marking, check stamping, and complicated stamping. Tetrapodal supports are less frequent and generally smaller, compared to Pigeon ceramics (Ward and Davis 1999:150). Punctated, notched and incised lips are common (Purrington 1983:137).

The typical Middle Woodland projectile point is the Yadkin type, defined by Coe (1964) at the Doerschuk site in the Piedmont of North Carolina. Yadkins have triangular blade edges, sometimes serrated, and concave bases (Figure III.28). Comparable forms from western North Carolina include the concave-base Garden or Camp Creek Triangular, the Copena Triangular, the shallow side-notched Pigeon point, the slightly smaller Connestee Triangular, and the still smaller and nearly equilateral Haywood Triangular (Keel 1976). Keel (1976:219) suggests a temporal progression of Pigeon Side Notched-Garden Creek Triangular-Connestee Triangular-Haywood Triangular.

Middle Woodland components have been identified at a number of locations in western South Carolina (Goodyear et al. 1979:214; Wood and Gresham 1982; Wood et al. 1986), including several sites on the Sumter National Forest (e.g., Bates 1985b; Benson 1992b, 2002b, 2003; Price 1991a). All of these Middle Woodland sites referenced here were identified by diagnostic lithic artifacts, with no ceramic artifacts present. No sites have produced evidence for intensive occupation on national forest lands. On the northern portion of the Long Cane Ranger District, but located on private property, is a small mound site (38AB355–Ramona Mound) recorded by Dan Elliott (1984e). Elliott surface collected Middle Archaic and presumably Late Woodland ceramics. The Late Woodland determination was based upon color and tempering. There were no clear surface treatments on the collected sherds, so it is possible that the mound could date to the Middle Woodland period. Denser occupation during the Middle Woodland period is apparent immediately west of the Long Cane Ranger District, where at least one small earthen mound was constructed along the Savannah River (Braley 1999; Miller 1974).

Excavations of Cartersville components at several sites in northern Georgia have revealed circular houses (Figure III.29), stone-lined hearths and utilization of several cultigens including corn (Garrow 2000; Kelly 1972; Wood and Ledbetter 1990). Sassaman et al. (1990) also report village-based settlement at the Savannah River Site, with seasonal or permanent base camps located in prime resource locations, such as major stream confluences.

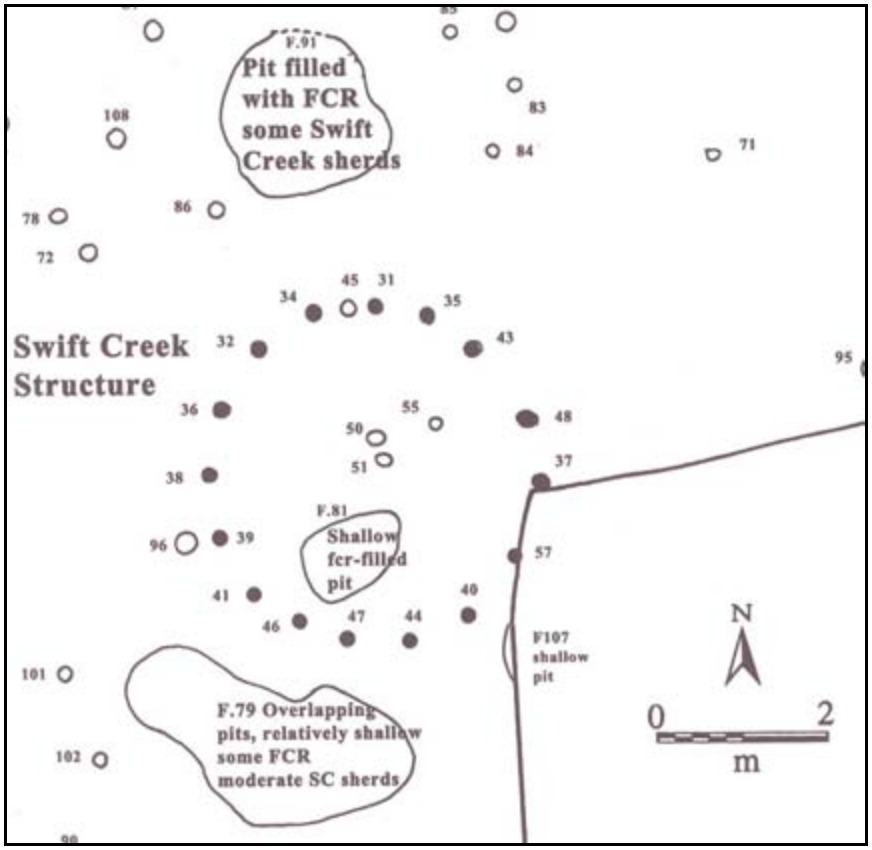

Figure III.29. Example of a Swift Creek Circular House on 9GE333, Greene County, Georgia (courtesy of R. Jerald Ledbetter).

Late Woodland Period

The Late Woodland period (A.D. 600 to 1000?) is one of the least known periods in the prehistoric sequence of western South Carolina, as well as the southeastern United States in general. In large part, this problem is related to artifact chronology. Few diagnostic artifacts are known that can effectively date occupations from this period. This lack of information affects our understanding of subsistence, ceremonial life and social and political structure. A general decline in the presence of exotic items during the Late Woodland period indicates a deterioration of long distance trade. Mound building continued, but became less frequent than in the preceding Middle Woodland period. Cultivation of maize and other crops appears to have intensified during this period, although wild foods still made up a large portion of the diet.

Swift Creek, Napier and Woodstock ceramics—all bearing combinations of curvilinear and rectilinear stamped designs—are considered diagnostic artifacts of the Late Woodland in northern Georgia (Anderson and Joseph 1988:231; Caldwell 1958; Kelly and Smith 1975; Wauchope 1966). Napier is rare in many portions of Georgia and in the western Piedmont of South Carolina. It is likely to be a late variation of Swift Creek complicated stamped designs (Stephenson and Snow 2005). Woodstock is a better diagnostic of Late Woodland occupation, but it only is rarely encountered in northeastern Georgia and western South Carolina. One site on the Andrew Pickens Ranger District (38OC318) produced Woodstock incised/punctated ceramics (Bates 1997h).

Anderson (1985:40-44) and Anderson and Joseph (1988:245), for example, have proposed that use of simple-stamped and brushed wares may have continued in the middle and upper Savannah River Valley (Andrew Pickens and Long Cane Ranger Districts) through the Late Woodland. This suggests that not only were Connestee series ceramics in use well into the Late Woodland period, but also that their use expanded further south into the middle-to-lower Piedmont. Purrington (1983:142) suggests that use of Connestee series ceramics may have extended beyond A.D. 800.

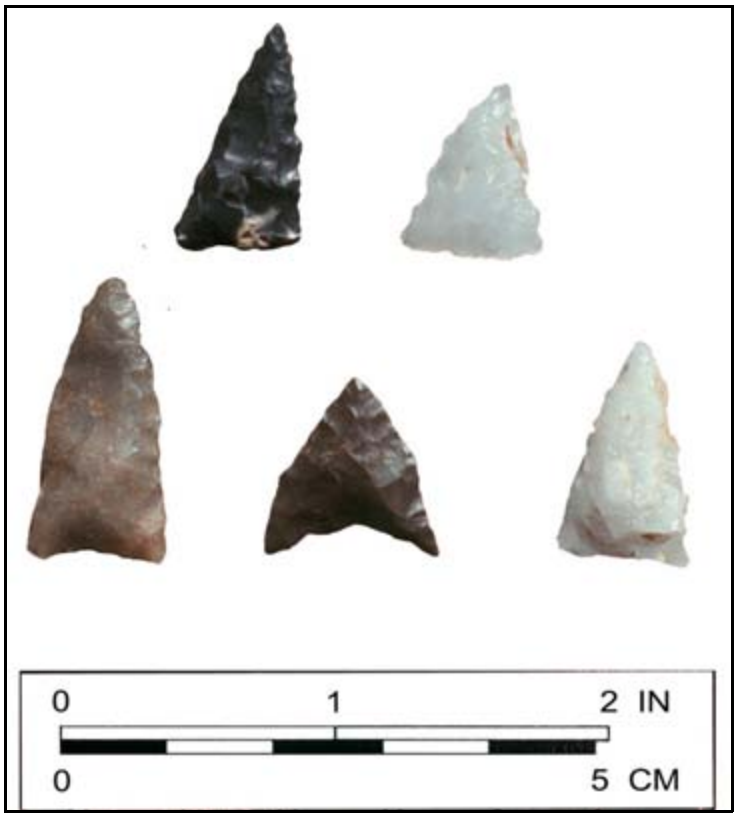

Figure III.30. Examples of Small Triangular and Pentagonal Points from South Carolina (photograph courtesy of Tommy Charles). Dark material is Ridge and Valley Chert and light material is quartz.

In the central Piedmont of South Carolina (Enoree Ranger District), the sequence may resemble that of North Carolina, where fabric-impressed pottery continued to be utilized through the Late Woodland (Coe 1964). Although, similar to the middle and upper Savannah River Valley, there is archeological evidence suggesting Connestee phase ceramics may have also been in use during the Late Woodland period in the central Piedmont of South Carolina north (Benson and Callahan 1999 [38SP295]) and west (Wood and Gresham 1982 [38LU107]) of the Enoree Ranger District. Diagnostic lithic tools associated with these ceramic complexes include small triangular and pentagonal projectile points (Figure III.30), as well as expanded stemmed, Jacks Reef Corner Notched points (Figure III.31).

It is difficult to discuss Late Woodland settlement trends with any degree of confidence since identification of such sites is problematic. The small number of sites bearing identifiable Late Woodland ceramics suggests a low population density. On the Savannah River Site, small Late Woodland habitation sites are widely distributed on terraces adjacent to tributary streams and the Savannah River (Sassaman et al. 1990:295). Some evidence of more permanent Late Woodland habitation was identified at several sites in the Russell Reservoir (Anderson and Joseph 1988). Excavations at Simpson's Field, located between the Andrew Pickens and Long Cane Ranger Districts, revealed evidence for structures, earth ovens, burials and the cultivation of domesticates such as squash (Wood et al. 1986). Other Late Woodland structures have been identified in the Blue Ridge. Savannah and early Lamar phases of the Mississippian period were also present at Simpson's Field.

Late Woodland settlement on the Sumter National Forest is poorly represented and poorly understood. Through 2002, a total of 28 "Late Woodland" sites have been recorded in the Piedmont

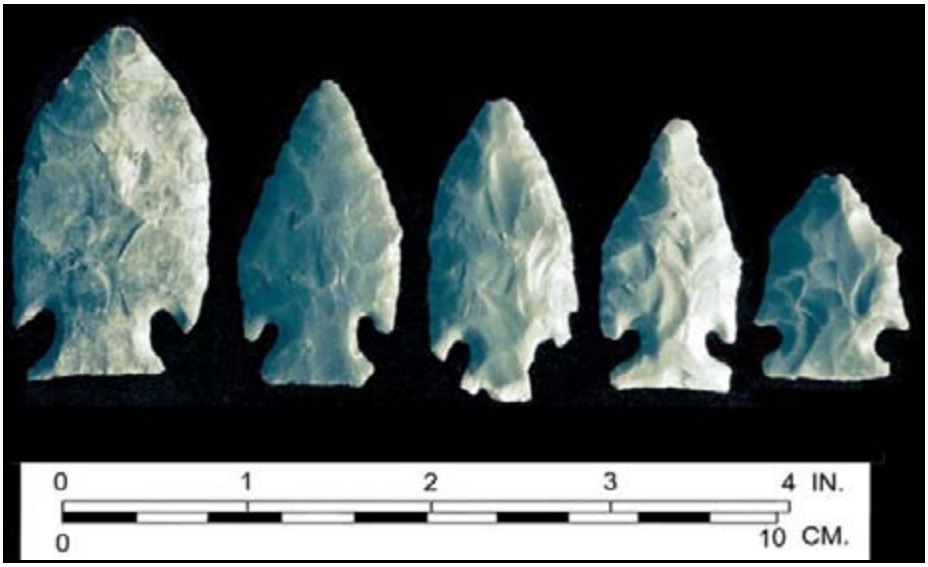

Figure III.31. Examples of Jacks Reef Corner Notched Points (photograph courtesy of Tommy Charles).

ranger districts. Among these, 17 were recorded as Late Woodland/Early Woodland sites. Similarly, five of six "Late Woodland" sites were recorded as Late Woodland/Early Mississippian sites on the Andrew Pickens Ranger District. The Late Woodland/Early Mississippian designations reflect the ambiguity of which ceramic types should represent the Late Woodland period. Connestee ceramics have been used to identify both Middle and Late Woodland components on the Sumter National Forest.

The Mississippian Period

The Mississippian period (A.D. 1000 to 1600) marked the height of social and political complexity in the prehistoric Southeast. Mississippian societies were characterized by the presence of a ranked, chiefdom-level socio-political organization. The settlement system of the Mississippian period was hierarchical. At the top of this hierarchy were permanently occupied villages which sometimes included truncated pyramidal mounds and palisade fortifications. Archeological and ethnohistorical evidence indicates that Mississippian societies were marked by elaborate mortuary ceremonialism and a heavy reliance on maize agriculture. Although most of these attributes appeared during the preceding Woodland period, they did not become widespread until after ca. A.D. 900.

The Mississippian sequence in the upper Savannah River Valley in the vicinity of the Long Cane and Andrew Pickens Ranger Districts of the Sumter National Forest is well developed. The chronology is based on early work in Lakes Hartwell and J. Strom Thurmond, as well as more recent excavations in the Russell reservoir (Anderson and Joseph 1988; Hally and Rudolph 1986; Rudolph and Hally 1985).

A comparable sequence has been developed for the Fall Line Hills portion of the Wateree River Valley, south of the Enoree Ranger District. This chronology is based on work at the Mulberry site (DePratter and Judge 1986), as well as the Town Creek site in North Carolina.

Mississippian sites are rare in the Piedmont and Blue Ridge sections of South Carolina away from major river valleys (Goodyear et al. 1979; House and Ballenger 1976; Rodeffer et al. 1979). Typically these sites consist of small artifact scatters but at least one village (Elliott 1984f, 1984h) has been recorded on the Enoree Ranger District.

Early Mississippian Period

Little is known about the initial Mississippian occupation of the South Carolina Piedmont and Blue Ridge provinces. Woodstock ceramics mark the onset of the Early Mississippian period (A.D. 900 to 1200) in northern Georgia, but are rarely identified in western South Carolina. Woodstock pottery is generally characterized by complicated stamping with oval, diamond and lineblock motifs (Hally and Langford 1988). Minor amounts of incising are occasionally noted.

The earliest secure Mississippian occupations in western South Carolina date to around A.D. 1100 and are marked by Etowah series ceramics (Figure III.32), first defined at the famous mound site in northwestern Georgia (Caldwell 1957; Sears 1953, 1958). Hally and Rudolph (1986) defined the Jarrett phase for this period in the upper Savannah River valley, based on their re-analysis of material from the Chauga and Tugalo sites. The Clyde Gulley site, located further downstream in the Russell Reservoir, is a small Mississippian period village that may represent a southerly expression of the Jarrett phase (Tippitt and Marquardt 1984). Archeologists identified a distinct Lawton phase for the area south of Augusta in the Savannah River valley (Anderson 1975; Anderson et al. 1986).

Figure III.32. Examples of Etowah Complicated Stamped Sherds from Pulaski County, Central Georgia (source: Benson et al. [2005]).

Ferguson (1971) noted that Mississippian assemblages occur progressively later with increasing distance east across the South Carolina Piedmont. Etowah ceramics are found near the Enoree Ranger District, but probably date slightly later than the Jarrett phase. The Belmont Neck phase, defined for the Wateree Valley, dates from around A.D. 1200 to 1250 (Williams and Shapiro 1990:56).

Construction of large platform mounds began in some portions of the Southeast during

the Early Mississippian period (King 2001), but no mound sites from the period have been documented in western South Carolina. Square and rectangular wall trench and semi-subterranean structures have been found at Etowah sites in northern Georgia (Caldwell 1957). Maize agriculture was probably well established by this time.

Middle Mississippian Period

The Middle Mississippi period (A.D. 1200 to1450) is defined largely by the appearance of the Savannah ceramic complex. The complex typically includes four basic pottery types: Etowah Complicated Stamped, Savannah Complicated Stamped (Figure III.33), Savannah Check Stamped and Savannah Plain (Hally and Rudolph 1986:51).

A number of regional variants or phases of Savannah have been identified. On the upper Savannah in the vicinity of the Andrew Pickens District, the Beaverdam phase has been defined by Hally and Rudolph (1986), based on their work at the Beaverdam Creek Mound site in the Russell Reservoir. Contemporaneous occupations have been noted at a number of other sites in the area, including the Tate Mound, Rucker's Bottom and Chauga.

Hally and Rudolph (1986) defined the Hollywood phase for the Fall Line portion of the Savannah River Valley. The area between the Beaverdam and Hollywood phase site clusters, including the lands of J. Strom Thurmond Lake and the Long Cane Ranger District of the Sumter National Forest, may have been an uninhabited buffer zone between two chiefdoms (Anderson 1990b:444-451, 623-630).

In the Wateree Valley, the local manifestation of the Savannah period has been defined as the Adamson and Town Creek phases (Williams and Shapiro 1990:56-7). DePratter (1989) suggests that the McCollum and Blair Mounds, on the upper Broad River on the Enoree Ranger District, also may date to the Middle Mississippian period. Green and Bates (2003) suggest that the Blair Mound was occupied during the Belmont Neck phase and into the Adamson phase (ca. A.D. 1225-1300), and the McCollum Mound was occupied during the later part of the Belmont Neck phase, through the Adamson phase, and into the Town Creek phase.

Mound building and the manufacturing of artifacts associated with the Southeastern Ceremonial Complex appears to have reached its height during the Middle Mississippian period. Distinctive artifacts from the Mississippian period include objects such as copper breast plates, conch shell bowls and shell gorgets. Far ranging exchange networks were in place during the period, and the control over exotic trade items may have been a key factor in legitimizing claims to chiefly authority (Brown 1976; Knight 1986; Steponaitis 1991). Fortifications were not apparent at Beaverdam Creek and at the Beaverdam-phase settlement at Rucker's Bottom, which suggested to Anderson and Joseph (1988:315) that competition and warfare may have been minimal in the Savannah River Valley and across much of the region during the Middle Mississippian period. Not until the Rembert phase, the last phase prior to abandonment of the middle Savannah River Valley, did fortifications appear at Rucker's Bottom (Anderson 1990b:573-577).

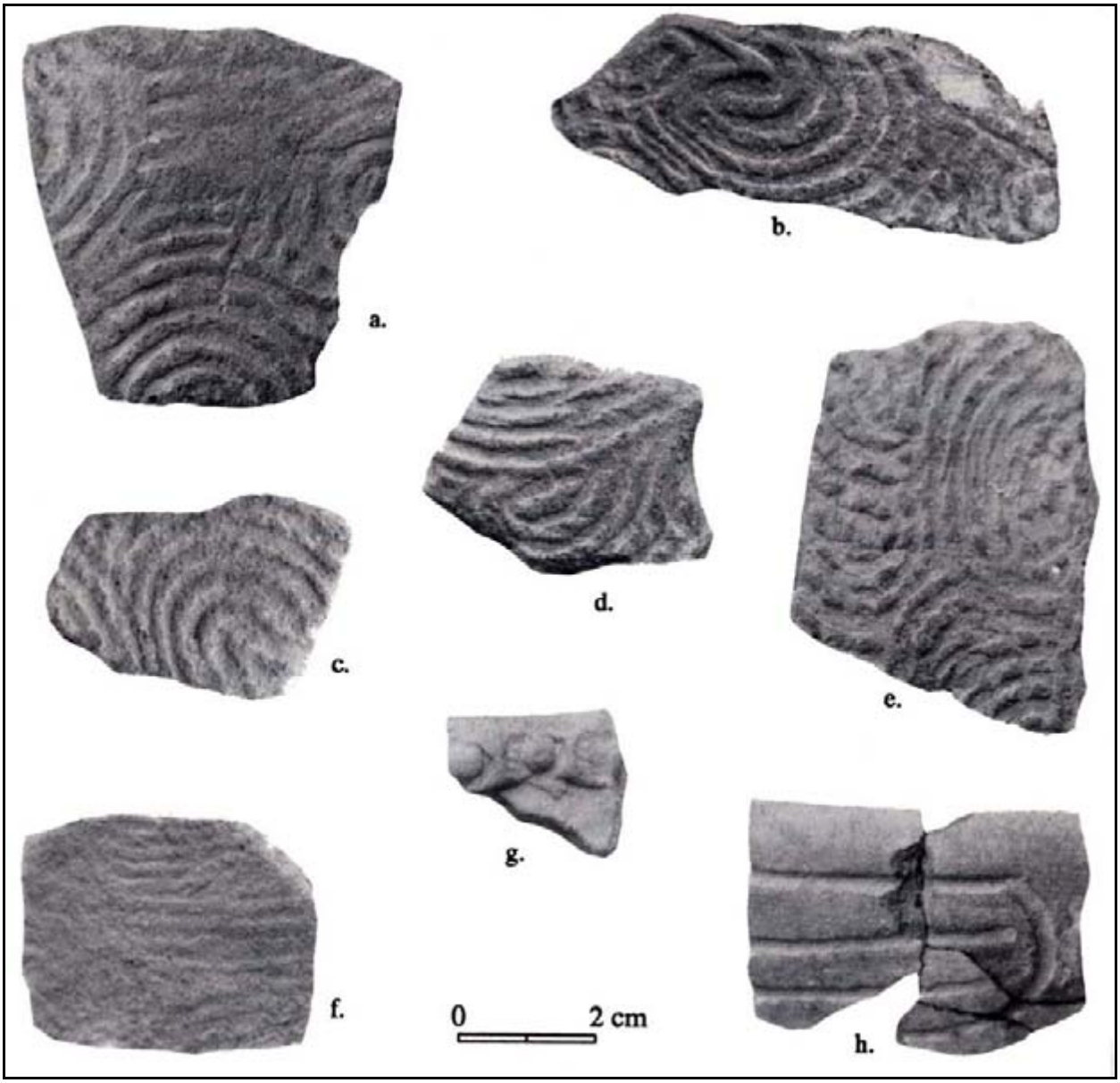

Figure III.33. Examples of Savannah and Lamar Pottery Types (source: Ledbetter 1995:107): a-e. Savannah Complicated Stamped; f. Lamar Complicated Stamped; g. Lamar Punctate Rim; h. Lamar Incised.

Late Mississippian Period

The Late Mississippian period (A.D. 1450-1600) begins with the transition from Savannah to Lamar ceramic complexes and ends with intrusion of European explorers during the sixteenth century. Lamar culture developed across a broad area of the Southeast during the Late Mississippian period. Although other features such as house form may also be diagnostic of the Lamar culture, it is defined primarily by pottery. Lamar ceramics are grit tempered and complicated stamped, with folded and pinched, punctated, and incised rims (Figures III.33 and III.34). Gradual increases in rim fold widths, a trend from bold to fine incising, and changes in the frequencies of various surface treatments and tempering agents have been used to identify and date phases for the period.

Figure III.34. Examples of Lamar Complicated Stamped and Incised Sherds from the Eastern Georgia Piedmont (source: Gary Doster collection).

Lamar period occupation appears to have been heavy in the Wateree Valley southeast of the Enoree Ranger District of the Sumter National Forest, where the large chiefdom of Cofitachequi was later encountered by early Spanish explorers (Baker 1974; Hudson 1997). Nine major mound sites

cluster along a 16 km section of the river near Camden (Wetmore and Goodyear 1986; Stuart 1970). Two Lamar phases have been identified for the area (Williams and Shapiro 1990:56-57). During the Mulberry phase (ca. A.D. 1450-1550), incised decorations were added, vessel rims were decorated with segmented or punctated applique strips and a series of vertical ticks were added to the shoulders of some vessels. Finally, during the Wateree phase (ca. A.D. 1550 to 1675), which dates to the period immediately following Spanish exploration , the pottery is characterized by thick vessel walls, poorly executed stamping and wide applique rim strips. At least one substantial village site has been recorded on the National Forest on the Enoree Ranger District, the Tyger Village site (Elliott 1984f, 1984h). Green and Bates (2003) tentatively date the occupation at Tyger Village from A.D. 1375 to 1450. Test excavations revealed evidence of a rectangular structure (Figure III.35) which was carbon dated to the time of the Mulberry phase.

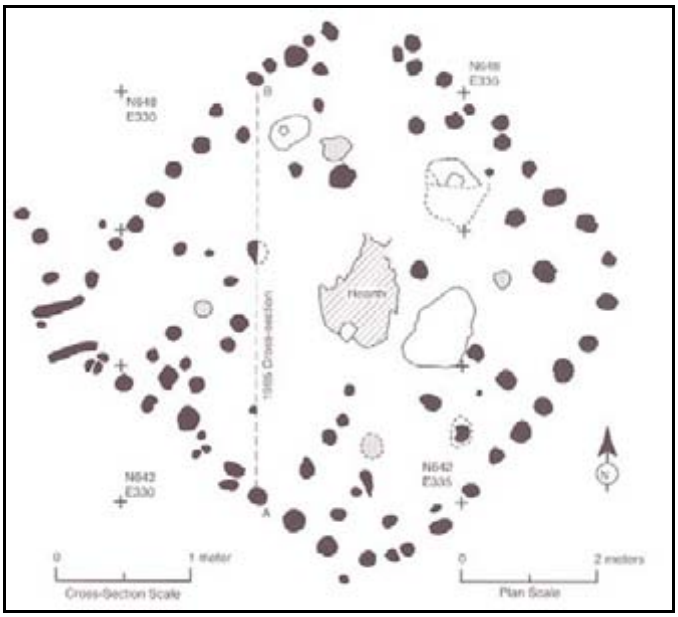

Figure III.35. Plan of House 1 at the Mulberry Site (source: Cable et al. 1998; graphic courtesy of Gail Wagner).

Lamar settlement in the central Savannah River is distinguished by the Rembert phase (A.D. 1350-1450), as evidenced by occupations at the Rembert and Rucker's Bottom sites in the Russell Reservoir (Hally and Rudolph 1986). After about 1450, this portion of the drainage was apparently abandoned for about 200 years, probably due to a combination of factors but largely due to hostilities between rival chiefdoms (Anderson 1990b:623-630). At the time that the expedition of Hernando De Soto moved through the area in 1540, the central Savannah River Valley formed part of an extensive buffer zone separating the rival provinces of Ocute (in the Oconee Valley of Georgia) and Cofitachequi (in the Wateree Valley of central and eastern South Carolina, as noted above).

Although the central Savannah River Valley was abandoned during the late Lamar period, the upper portion of the drainage in the vicinity of the Andrew Pickens Ranger District apparently remained occupied. Hally and Rudolph (1986) described the Tugalo phase for this area, noting settlement of the Chauga, Estatoe and Tugalo Mounds. The Pisgah phase is defined for the mountainous region north of the Andrew Pickens Division (Dickens 1976), and Pisgah-like pottery has been noted in this portion of the Sumter National Forest (Bates 1985b, 2000c) (Figure III.36).

Historic Native American Period

The historic era began with the arrival first of Spanish, and then English and French explorers, who introduced disease and disrupted existing Native American social, cultural and economic systems. European-Indian conflict began and already endemic warfare between Native

Figure III.36. Examples Pisgah Rim Sherds from South Carolina (photograph courtesy of Tommy Charles).

American groups increased. European induced changes, especially new diseases, were a major factor in the collapse of the Mississippian chiefdoms which lead to mass migrations and the disintegration of most autonomous indigenous societies in the Southeast.

Spanish exploration of the New World stemmed largely from the need for slave labor (Hudson 1997:32). The coast of South Carolina was explored first by Pedro de Salazar in 1514. Shortly later, slave ships under the direction of Pedro de Quejo and Francisco Gordillo landed near the mouth of the Santee River. Lucas Vázquez de Ayllón attempted to establish a colony in the same location in 1526. Ayllón died and the colony was abandoned after only a few months.

Hernando De Soto's expedition entered South Carolina in 1540, probably crossing the Savannah River Valley near Pace's Ferry, now submerged beneath J. Strom Thurmond Lake (Hudson 1990a, 1997:167; Hudson et al. 1984) (Figure III.37). De Soto found the area from the province of Ocute on the Oconee River, Georgia, to the province of Cofitachequi on the Wateree River unoccupied (Hudson 1990a, 1997:168-170). Nearly starving while crossing the unoccupied wilderness, De Soto and his men arrived at Hymahi, thought to be a town at the forks of the Congaree and Wateree Rivers. They next moved to the principal paramount chiefdom town of Cofitachequi, possibly the Mulberry site near Camden (Hudson 1990a:62). While at the town they were visited by the Lady of Cofitachequi, whose power and control may have extended as far north as the middle stretch of the Pee Dee River and as far south as the Carolina coast (Hudson 1997:183). De Soto and his men then moved north up the Catawba River into North Carolina, taking the Lady of Cofitachequi hostage. She eventually escaped in the company of some of De Soto's slaves.

In 1566 and 1568 Captain Juan Pardo traveled to the interior from the settlement of Santa Elena on the coast (Hudson 1990b). He hoped to find an overland route to an Atlantic port for silver from Zacatecas, Mexico. Pardo visited and built small fortifications at many of the same towns described from the De Soto expedition (Figure III.37).

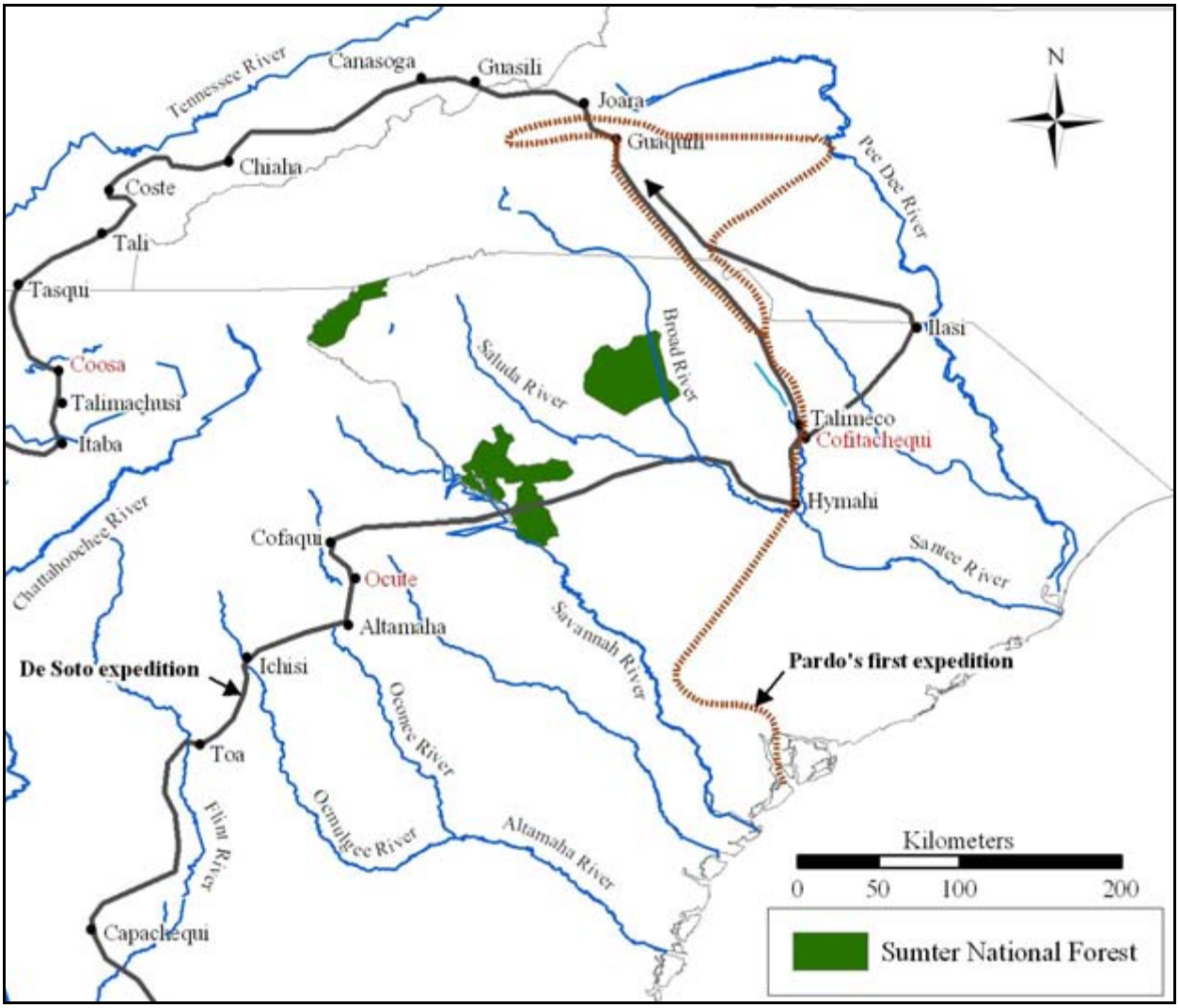

Figure III.37. Routes of the De Soto and First Pardo Expeditions through Georgia, South Carolina, North Carolina and Tennessee. Selected place names are from the De Soto expedition. Adapted from Hudson (1990, 1997).

By the early part of the seventeenth century, Spanish missions were established on the Atlantic coast as far north as Santa Elena and Edisto Island. By 1633, they were established across much of northern Florida (McEwan 1993:xix). English settlements were established at Jamestown, Plymouth and along Chesapeake Bay. Dutch settlements were established along the Hudson River and French settlements were beginning along the St. Lawrence River and upper Ohio Valley. These more distant settlements are important because they had a considerable effect on the native populations in the Southeast (Smith 1987). While the Spanish intentionally restricted the availability of firearms to the Indians of the Southeast, the native societies to the north were well armed by the mid seventeenth century. The availability of guns and the desire among many Indians to possess European items caused many Indian groups to become displaced, as new alliances and rivalries sprang up quickly. Some displaced groups moved south, displacing other Native Americans.

The Historic Period

The historic period is divided among four sub-periods or phases–the Colonial Period, the Early Federal Period, the Postbellum period and the Contemporary Era. The Colonial Period (Frontier Period) includes historic occupation from the first settlements through the end of the Revolutionary War. The Early Federal Period (Antebellum Period) encompasses the time immediately following the Revolutionary War through the end of the Civil War. The Postbellum period spans the time from the end of the Civil War to the late 1920s, when the federal government began buying land to form the Sumter National Forest. The Contemporary Era covers U.S. Forest Service ownership beginning in the late 1920s through the present.

Colonial Period

Little is known of the period immediately following the initial European exploration of the Southeast. The mid to late seventeenth century was a time of great social upheaval among the remaining Indian groups of the region. Large areas of the Southeast were apparently abandoned.

However, many areas of the South Carolina Piedmont remained occupied (Figure III.38). In 1670, Henry Woodward visited Cofitachequi and found it to be inhabited by Indians apparently descended from the original occupants. Again in 1701, John Lawson encountered the Congaree Indians just below the junction of the Congaree and Wateree Rivers and the Catawba upstream on the Catawba River near old Cofitachequi (Milling 1969). The Chattooga River region in the Appalachian Summit remained occupied until the late eighteenth century when William Bartram visited Tugalo, Estatoe, Qualatche, Chote, Great Estatoe and Naeoche (Van Doran 1955:372).

With the settling of Charles Towne in 1670, the English established a southern strong point in their competition with the French and Spanish to dominate the region. The Carolina colony was an economic success from the beginning. An agricultural economy based on slave labor developed very early. Rice and indigo were important in the coastal areas in the early eighteenth century. Indian trade, cattle raising, agriculture and forest products were the most important economic activities in the back country.

English and Spanish colonizing efforts were quite different. The English brought Indians into obligatory positions by enticing them with material goods upon which they became dependent. In this way the English developed an economic environment conducive to settlement and exportation. The Spanish sought to indoctrinate the Indians into becoming obedient citizens of New Spain.

Various southeastern Indian groups lived near present day Augusta during the late seventeenth and eighteenth centuries (Swanton 1946:13). By 1674, English traders had made contact with Indians in the Augusta area and arranged trading agreements. By about 1690 the Indian trade was centered at Savannah Town, located on the east bank of the Savannah River about four miles southeast of present day Augusta. The Savannah were a group of Shawnee refugees. The Saluda occupied the area of the Saluda River between the Long Cane and Enoree Ranger Districts of the Sumter National Forest until about 1715. By 1709, Apalachees, Savannah, and Yuchi Indians were also located on the Savannah River near Augusta (Crane 1956:88).

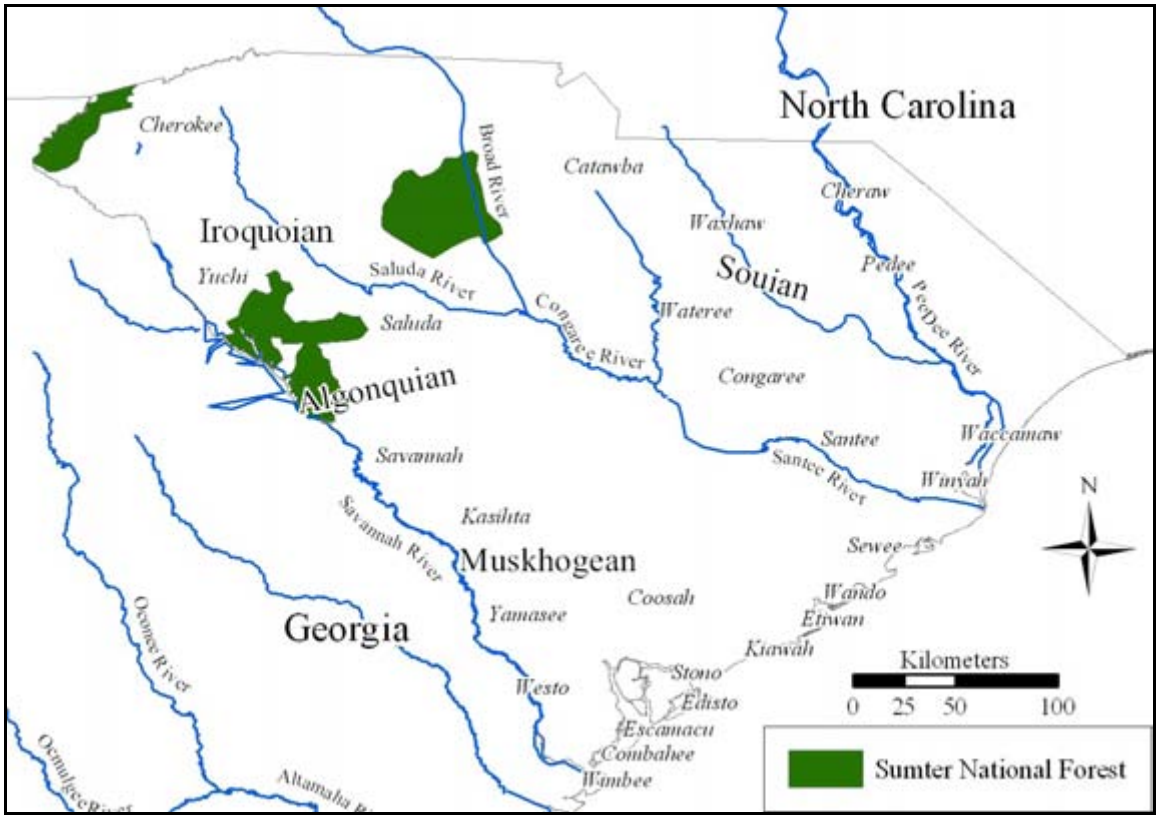

Figure III.38. Distribution of Native Americans by Linguistic Group in South Carolina around 1670. Adapted from Kovacik and Winberry (1987).

These groups took up residence on the Savannah to take advantage of trade with the English in Virginia and the Carolinas. The native societies quickly grew dependent on goods such as cloth, firearms, and rum from the West Indies, which they acquired from the English in exchange for animal furs and Indian slaves. The desire for material goods promoted slave raiding between neighboring aboriginal groups. In 1693, the Cherokees complained that the Shawnee, Catawba and Congaree Indians were raiding their settlements for slaves to sell in Charles Towne. The Westo, a refugee group from the Northeast that settled on the west bank of the Savannah River near Augusta, actively traded Indian slaves from the coast for firearms with the English in Virginia (Crane 1956:16-20). When the Westo began disrupting English trade with other neighboring groups in the early 1680s, a militia of Carolinians and Savannah Indians defeated and dispersed them.

By the early 1700s, Indians from across the Southeast had grown weary of the English (Corkran 1962; Crane 1956). Pressure from the English to trade or be enslaved had created such fear and resentment among the Indians in the Carolinas and eastern Georgia that a plan was devised, probably by the Chief of Coweta, Emperor Brim, to unite all of the Indians in the area and destroy the English. The Yamassee struck first in 1715, killing English Indian agents and attacking several outlying settlements around Charles Towne. Over 400 colonists were killed in attacks on outlying plantations and small settlements. By 1717 the tide had turned. The English colonists' retribution was severe, causing the migration of many Indian groups westward to the lower Chattahoochee River valley of Georgia and Alabama.

The Cherokees, who had allied themselves with the British, remained in western South Carolina after the Yamassee War. They sided with the English against the French and their allied Indians throughout the early and middle eighteenth century (Milling 1969). Some Lower Cherokee villages that were noted in early records and maps include, Chauga, Tomassee, Toxaway, Keowee, Estatoe, Oconee, and Chattooga (Sherriff 1994). Archeological investigations have been conducted at the sites of several of these towns (Beuschel 1976; Harmon 1986; Kelly and de Baillou 1960; Kelly and Neitzel 1961; Miller 1959; Smith et al. 1988; Williams 2004), and as described in Chapter IV (Figure IV.1). Excavations at Chattooga Town on the Andrew Pickens District have revealed well-preserved remains of domestic and public structures (Elliott 1984f; Schroedl 1994) (Figure IV.2). Chattooga Town was identified in the 1721 census, where it was described as a small village of 80 individuals (Elliott 1984f).

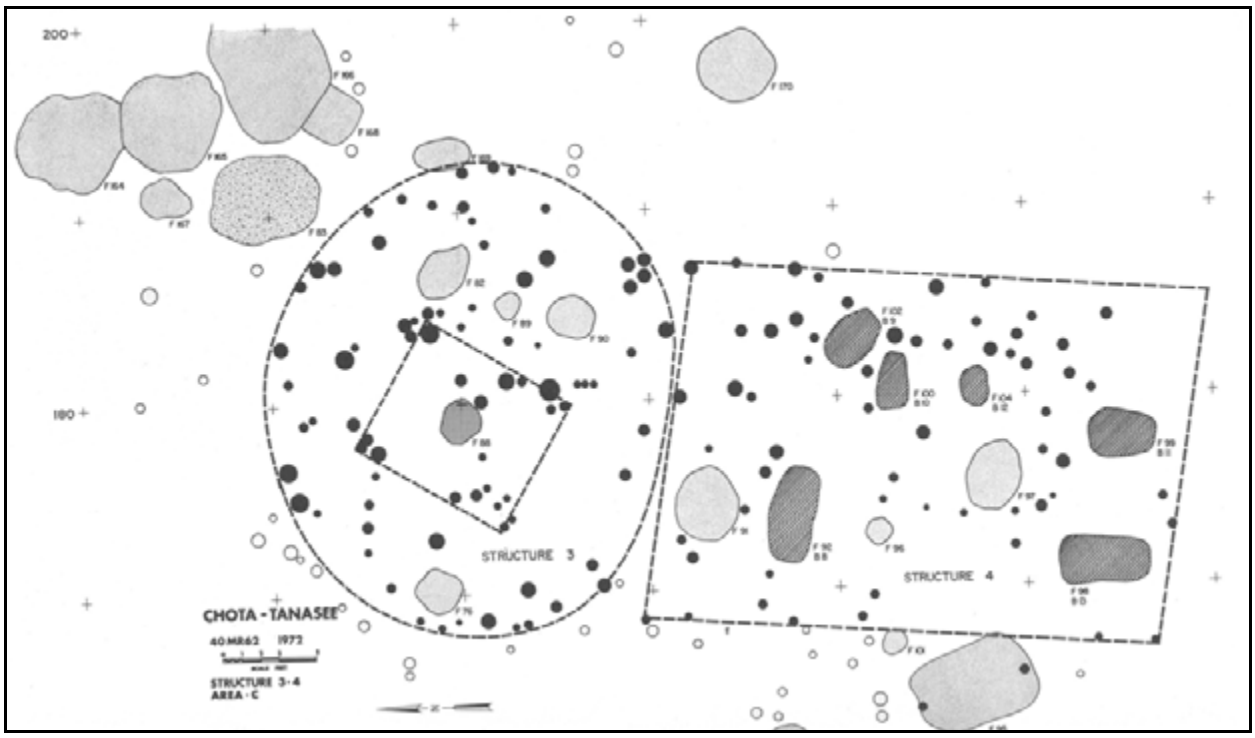

Figure III.39. Plan of Structures 3 and 4 at Overhill Cherokee Chota-Tanasee (courtesy of Gerald Schroedl).

The English built several forts in western South Carolina to protect both their Cherokee trading partners and early European settlers on the frontier (Klosky 1971). Fort Moore was built in 1716 on the Savannah River just south of present day Augusta (Meriwether 1940:10) (Figure III.40). Forts and fortified houses were also built near several settlements along the Broad, Enoree, and Tyger Rivers about this time (Pope 1980; Feaster 1977). In 1753, Fort Prince George was established at the Cherokee town of Keowee, where a trading post had been in operation since 1717 (Beuschel 1968; Corkran 1962; Crane 1956; Williams 1971).

Salude
Combarees
Apalachee
Markgrvate of Azilia
Fort King George
Alatamaha River
Ogeche River
Savana River
Port Royal
St Helena Sound
St Georges River
St Augustine
Pedee River
Catawbas
Wateree River
Cowetas
Tuskegees
Ocmulgee
Apalaga
Lewis Marke
Alachua
Mobila
Pensacola
Tomaly
Chowanoe
Tuscarora
Cataboes
Tawepus
Wateree
Sugaree
Cusabo
Cheraw
Tuskeenee
Ibitoe
Eregee
Tuxkiahe
Tamastee
Tekesinge
Torese
Callee
Tomah
Tasquinas
Nenny
Ketteras
Tuscaroras
Chowanoe
Tomaly
Chatee
Nogemahe
Sokalo
Tacoma
Cotasee
Tyfoe
Cowetas
Tuskegee
Attamas
Cotamies
Ocmulgee
Apalachee
Savana
Fort Moore
Hodgson
Fort King George
Alachua
Mobila
Pensacola
St Augustine
Port Royal
St Helena Sound
St Georges River
Savana River
Ogeche River
Alatamaha River
Pedee River
Wateree River
Catawbas
Sugaree
Wateree
Salude
Combarees
Apalachee
Savana
Ocmulgee
Cowetas
Tuskegee
Attamas
Cotamies

Figure III.41. Portion of 1765 Kitchin Map Showing Place Names and Indian Territories in the Southeast (Courtesy of Hargrett Rare Book and Manuscript Library/University of Georgia Libraries).

The incentives to settlement soon began to pay off. The period from1730 to 1760 witnessed more sustained and rapid population growth (Kovacik and Winberry 1987:78). It has been estimated that the population of South Carolina increased two and a half times in this interval, from around 30,000 to 80,000 people. Most of the increase occurred in the back country. By the time of the American Revolution, nearly half of South Carolina's population lived in the back country, comprising 80 percent of the total European population in the colony (Edgar 2001:2).

Settlers of the back country came from Europe and the British Isles, from older settlements in South Carolina and from more northern colonies (Hooker 1953:xxii). Scots- Irish immigrants from North Carolina, Virginia and Pennsylvania settled along Beaver Creek and the Broad River in 1745 and by 1755 those who entered the new world through the port of Charleston were settling along the Broad, Santee, Wateree, Pacolet, Enoree and Saluda Rivers (MacLean 1900:54). Those coming from the north followed the Great Wagon Road, which originated at the Schuylkill River in Philadelphia, traversed through Harrisburg, then south through the Shenandoah Valley and eventually entering the the South Carolina Piedmont (Edgar 2001:3). The Duncan Creek area, settled in 1752 by John Duncan and other Scots-Irish settlers, was the earliest settlement on the Enoree Ranger District of the Sumter National Forest. The Calhoun settlement (Boonesborough township), founded in 1756

along Long Cane Creek, was the earliest settlement on the Long Cane Ranger District. In 1764, 200 French Huguenots settled along Long Cane Creek at New Bordeaux (Hillsborough township) (Steen et al. 1996). In 1765 262 German Palatine settlers founded Londonborough township on Hard Labor Creek near the center of the Long Cane Ranger District (Edmonds 1999). A settlement was also established at Ninety Six near the Long Cane Ranger District in 1751, although an Indian trading post was already operating there by the 1730s. These settlements soon faded in importance to Augusta, which was established as Fort Augusta in 1735. Within five years a road was completed connecting Augusta and Savannah.

The diversity of religions in the back country was nearly as great as nationalities, including Anglicans, Lutherans, Presbyterians, Quakers, Huguenots, Dunkards and "a hundred other Sects" according to Charles Woodmason, an itinerant preacher of the day (Hooker 1953:xxii). Woodmason, an Anglican, also commented on the low standards of law and order and morality in the predominantly non-Anglican back country. He estimated that 94 percent of the women whose marriages he performed were already pregnant and that nine-tenths of the settlers had venereal diseases (Hooker 1953:xxvi).

Most of the early settlers in the back country were farmers (Meriwether 1940:162). Some raised cattle as well, but there were few incentives to raise beef so far from the market when the country was so thinly settled. The early settlers varied greatly in the possessions they brought with them to the back country, with many bringing no more than a few tools and a little clothing. Most brought only a single horse. Wagons became common in the back country only after an area had been fairly well settled.

The choice of settlement location was dictated largely by proximity to other settlers (Meriwether 1940:163). People rarely settled more than 10 miles away from an existing homestead. The earliest settlers typically passed by the larger rivers and even the secondary streams in favor of small creeks.

The first dwellings that the early settlers constructed typically consisted of log cabins or simple shelters of poles covered by branches and earth (Meriwether 1940:165). Archeological investigations have determined that some of the earliest houses were of earth fast post and clapboard, wattle and daub, or brick filled construction (Brooks et al. 2000:79-81; Crass et al. 1997; South 1972:25-26; Steen et al. 1996). More permanent homes of logs and boards were usually constructed within a year. Frame houses were occasionally constructed with planks cut by hand by those who could afford the labor investment. Wooden floors were the rule, but clay floors were not unknown. Glass windows were rare.

After housing, clearing trees for fields was the next most pressing need (Meriwether 1940:165). The settlers usually felled trees within an area of about 5 or 10 acres, using part of the timber for house construction and branches for fences to protect fields. The cleared fields usually began at narrow swamps along creeks. Corn was the first and most important crop for early settlers in the back country. Other garden crops were planted with the corn.

Mills sprang up throughout the back country to grind corn, usually within five miles of the establishment of a settlement (Meriwether 1940:173). Early accounts note conflicts between mill

owners, who depended on dams to power their mills, and fishermen whose supply was cut off by the dams (Chapman 1980:24).

European settlement in the back country often created tension with the Indians. A line separating Cherokee lands from Carolina settlements was drawn along Long Cane Creek in 1747, but fighting broke out in 1759 in what has been termed the Cherokee War (Kovacik and Winberry 1987:81). Bands of Cherokees raided settlements and burned homesteads along the frontier (Van Clayton 1988; Williams 1971). Because of persistent attacks of frontier homesteads by Cherokees, several forts were established on the Long Cane and Enoree Ranger Districts. Among these forts were Fort Boone on the Little River (called Long Cane Creek at that time), Otterson's Fort on the Tyger River in Compartment 23 of the Enoree Ranger District, and Penningston's Fort (38NE99) located between the Tyger and Enoree Rivers on the Enoree Ranger District.

In 1760, the Cherokee raided the Calhoun settlement near Long Cane Creek, killing 23 settlers and taking 20 captives (Ferguson 1993:13). A marker now stands at the reported massacre site south of Long Cane Creek Church. The Vann's Tract Massacre occurred in 1763, when Creek Indians attacked white settlers living along the Savannah River about four miles from its confluence with the Broad River (Anderson et al. 1991:4-7). Fourteen settlers were killed in the attack, which led to the establishment of Fort Charlotte (Caldwell 1974b).

The British army retaliated by attacking Cherokee villages and towns. Colonial forces defeated the Cherokee within a year, and a new boundary roughly following the Anderson and Greenville County lines was laid out in 1766 (Kovacik and Winberry 1987:81). Four new townships were laid out between 1762 and 1765: Boonesborough on Long Cane Creek, Hillsborough on Little River, Londonborough on Hard Labor Creek and Belfast on Stevens Creek.

The period from 1760 to 1775 was marked by rapid growth as the plantation system became established in the low country and as land concessions by the Cherokees opened up more of the interior to settlement (Kovacik and Winberry 1987:76). The population of South Carolina stood at 180,000 in the mid 1770s. Camden was the largest interior town (Kovacik and Winberry 1987:81).

In 1769, the province of South Carolina was divided into seven judicial districts (Bolick 1963:5) created by South Carolina's colonial General Assembly. Three of these, Cheraws, Camden and Ninety Six, encompass the Long Cane and Enoree Ranger Districts of the Sumter National Forest. The Andrew Pickens District was in Cherokee Indian Lands, which later became the Pickens District. Despite the definition of new administrative boundaries, however, there was little political authority in the back country outside of Charleston (Meriwether 1940:180). Concerned residents of the area formed a vigilante group called the Regulators (Klosky 1971). Another group, calling themselves the Scovils, formed to support the existing colonial authorities. These groups would eventually become known as the Whigs and Tories, respectively.

Resistance to the crown was mixed in the back country where people were more concerned about surviving Indian attacks and the natural elements than with representation and commercial regulation (Edgar 2001). When the Revolutionary War "officially" began in 1776, Captains Andrew Williamson and Andrew Pickens were placed in charge of Patriot forces in western South Carolina (Klosky 1971). They marshaled two regiments totaling 10,000 men. The first military enterprise in South Carolina occurred in July of 1775, when a band of Patriots captured Fort Charlotte, located

about 30 miles southwest of Ninety Six (Ripley 1983:2). Fort Charlotte was a stone fortification erected at a crossing of the Savannah River to guard against frequent Creek Indian attacks. The Patriots were dispatched from Ninety Six and "seized" Fort Charlotte with no resistance. Ammunition was confiscated and transported to Ninety Six. One participant, Kirkland, then decided to become a Loyalist, convincing other Patriots to switch sides with him, and the ammunition was seized from the Patriots by the British at Ninety Six without resistance later that same month (Ripley 1983:2-3).

The British, hoping to swing support in the back country toward the crown, set out with the Cherokee and other dissatisfied Indian groups in a campaign of raids and sieges across the frontier. Fortifications again were constructed in some places, such as Fort Independence north of Calhoun Falls, in response to renewed hostilities (Bastian 1982). The Cherokee were decided allies of the British during the Revolutionary War. The Catawbas, located east and traditional enemies of the Cherokee, allied with Patriot forces.

There were several confrontations between Patriots and Loyalists in the back country in the vicinity of the Sumter National Forest, most consisting of small skirmishes (Catawba Regional Planning Council 1976:1; Charles 1987; Collins 1982:32-33; McMaster 1946:151). Perhaps most notable was the battle near Ninety Six at Savage's Old Field, where the first Revolutionary War battle that involved bloodshed occurred in South Carolina on 19 November, 1775 (Ripley 1983:10-11; Watson 1960:5). The Ninety Six fort, constructed by Major Andrew Williamson and his militia, was attacked and lost to Loyalists and British-backed Indians. Soon after, Colonel Richard Richardson marched a force of three thousand men to Ninety Six to reclaim the fort and a shipment of powder and lead taken by Patrick Cunningham, a Loyalist. In December 1775 one of Richardson's detachments surprised the Loyalists and retook the fort (Edgar 2001:33). Following this victory at Ninety Six, Richardson and his men rounded up Cunningham's men who had fled into the woods during the battle. Richardson and his troops then trudged home in the snow, thus naming the recent series of events the "Snow Campaigns" (Ripley 1983:12). Richardson's base of operations was Liberty Hill, located in the vicinity of Compartment 138 on the Enoree Ranger District.

Following the retaking of the Ninety Six fort, Williamson, who resided at White Hall in Abbeville County, responded with a ninety-day campaign against the Cherokees throughout the South Carolina back country during late summer 1776. In so doing, the campaign essentially destroyed all Cherokee settlements in South Carolina and eliminated any fears of attacks by Cherokees upon the white settlers, the majority of whom were of Scots-Irish descent. Cherokee towns that were burned by Williamson were on and around the Andrew Pickens Ranger District and included Sugar Town, Soconee, Keowee, Estatoe, Tugaloo, Tamassee, and Cheowee. By 1777 a treaty with the Cherokee was signed at DeWitts Corner. The Cherokee ceded all land east of the Blue Ridge Mountains (Edgar 2001:36-37) and were effectively expelled from South Carolina. Williamson later established Fort Rutledge at the siege of Seneca (in present day Oconee County) to enforce the treaty (Williams 1971).

South Carolina had little serious Revolutionary War activity for the following 30 months following the 1777 treaty. It was not until General Prevost's rampage through the South Carolina low country in 1779 that alerted South Carolinians to the imminent dangers of the war, thus stimulating militia organization among Patriot forces (Edgar 2001:46-47). After a 42-day siege of Charleston, five thousand Patriot forces, essentially the entire South Carolina army, surrendered (Edgar 2001:51).

Nevertheless, Thomas Sumter and Francis Marion, both of whom, along with Andrew Pickens, became significant heroes of the Revolutionary War, were able to escape capture in Charleston. During the siege of Charleston and realizing the lack of Patriot defenses in the back country, Loyalist forces rampaged settlements throughout the Piedmont. Eventually, Patriot forces lost South Carolina when they surrendered at Ninety Six (Holschlag and Rodeffer 1977), in addition to surrenders at Camden, Cheraw, Long Canes and Georgetown in 1780 (Edgar 2001:53).

The Battle of Long Canes occurred on 11 December, 1780, a few miles northeast of present-day McCormick on Long Cane Creek (Ripley 1983:123-125) in the vicinity of the Long Cane Ranger District's Compartments 227 and 238. The settlement of Long Canes was more inclined toward rebellion in a heavily Loyalist-sided Ninety Six District (Ripley 1983:124). The Loyalists enlisted nearly 500 troops, including 200 British regulars, and it was decidedly a Loyalist victory. An historic marker designates the battle location at approximately four miles west of Troy on the eastern side of Long Cane Creek Church.

While Ninety Six District residents had a relatively large population that sided with the crown, the remaining Piedmont districts in the back country were decidedly Whigs. Within six weeks of these losses, the unexpected uprising in the South Carolina back country had the British fighting for what they believed to have been already conquered (Edgar 2001:54). Hucks Defeat in the Catawba valley was the first Patriot victory since the fall of Charleston and decidedly turned the tide of the southern campaign (Edgar 2001:66-87). Cornwallis contingents, operating from Charlotte, were never able to subdue the South Carolina Patriots. Cornwallis eventually moved on to Virginia in late 1780 and later surrendered the following year at Yorktown.

Among the 27 battles fought in the South Carolina back country, 21 were partisan victories (Edgar 2001:110). The majority of the battles were fought north of the Enoree Ranger District in present-day Spartanburg and Cherokee Counties, and to the east in the Catawba River valley. Battles located close to or on the Enoree Ranger District include Brandon's Defeat, Hammond's Store, William's Fort (or Fort Williams), Briery Ford (or Briery Ferry?), Musgroves Mill, Battle of Meadors (in Union County, Enoree Ranger District Compartment 4), Battle of Fishdam Ford, and the Battle of Blackstocks. Brandon's Defeat was a Partisan loss that occurred about five miles from Union in July, 1980. The battle location was just north of Compartments 26 and 27 on the Enoree Ranger District. Hammond's Store is located close to present-day Clinton and William's Fort is south of Hammond's Store on the Reedy River. Musgroves Mill, the site of a partisan victory, is located west of the Enoree Ranger District, approximately three miles south of Cross Anchor. The location of Brierly's Ford (or Brierly's Ferry) is not clear. A Brierly's Ferry battle is depicted on the Broad River (or Enoree River), possibly within the Enoree Ranger District, directly across the river from Gibson's/Mobley's Meeting House (Gordon 2003:72). Another description places the Brierly's Ford battle at Blackstocks Plantation, located on a hill overlooking the Tyger River (Gordon 2003:121). The battle at Blackstocks Plantation was located a few miles west of Compartment 29 and has recently been acquired by the Palmetto Conservation Foundation (PCF). PCF is erecting a monument and is restoring trails for future interpretation tours.

Fishdam Ford was a battle located on the Enoree Ranger District and approximately three miles east of Carlisle (Ripley 1983:112-114). An historic marker is located on the east side of the bridge crossing the Broad River. Brockington and Associates recently recorded remains of this battle on private property (Butler and Poplin 2003). Their investigations identified two rifle pits (foxholes)

dug into the bank of a deep ravine, discovered the old Fish Dam Road, confirmed terrain features noted on a Fish Dam Ford Battlefied sketch map (Richard Winn's map), identified the battlefield by discovering musket balls and other metal implements left behind, and recovered other metal objects in areas presumed to represent the Patriot encampment (Butler and Poplin 2003:34-40).

Between the Enoree and Long Cane Ranger Districts is the Ninety Six fort, about three miles south of the town of Ninety Six. The Ninety Six fort figured prominently early in the Revolutionary War, as reported above, and also later. The siege of Ninety Six, the Patriot attempt to retake the fort from the British and Loyalists, lasted for nearly one month from 22 May to 19 June, 1781. The attack was beaten off by the British, but they abandoned the post only days later per order of officers stationed in Charleston (Ripley 1983:175-179).

Other battles and skirmishes on and around the Long Cane Ranger District, aside from Ninety Six and the Battle of Long Canes, reported above, include the Battle of Beattie's Mill, the Battle of Horner's Creek, Roger's Plantation (or Battle of Stevens Creek), the Battle of Turkey Creek, and the Battle of Pratt's Mill. The Battle of Beattie's Mill occurred in Abbeville County on 23 March, 1781, somewhere on Little River (exact location is unknown) (Ripley 1983:153) and quite possibly within the Long Cane Ranger District. In April 1781, Partisans attacked Captain Clarke's residence on Horner's Creek in Edgefield County, killing Clarke and capturing his men. The skirmish (Roger's Plantation) occurred in the fall of 1781 on the south side of the present town of Edgefield. The day before the Roger's Plantation skirmish was another skirmish that occurred nearby on Turkey Creek, where the same Loyalists involved at Roger's Plantation defeated a group of Partisans. Later in 1781, the British Major "Bloody Bill" Cunningham attacked Captain Norwood at Pratt's Mill on Little River, about eight miles northwest of Abbeville (Ripley 1983:192-193). The mill was burned and Cunningham captured horses.

The Andrews Pickens Ranger District and the immediate surrounding area saw considerably less Revolutionary War activity. Williamson's rampage through Cherokee villages to end Cherokee raids on Anglo-European settlements was reported above. Andrew Pickens participated in raids on Tamasee (Tomassy), Tugalo and Estatoe in the late summer of 1776. On 11 August, 1776, Pickens and his scouting party of 25 men were ambushed by a large force of Cherokees in a battle called the "Ring Fight." After hand-to-hand combat, the Cherokees were eventually beaten back. The Ring Fight occurred just east of Compartment 27 on the Andrew Pickens Ranger District. This battle was one of many campaigns against the Cherokee in 1776, which eventually led to their removal from South Carolina the following year.

Early Federal Period

After the Revolution, many of the unclaimed lands in the back country were offered to soldiers as payment for their military service (Williams 1971). Most of the soldiers sold their lands within a short period. Before long, the back country was sufficiently populated to require the definition of additional political units (Burton 1985:18). Five of the ten counties that today form the Sumter National Forest were created in 1785 from the old Ninety Six District: Abbeville, Edgefield, Newberry, Laurens and Union (Baker 1931:1; Burton 1985:18; Pope 1973:61; Simpson 1978:11; Union County Historical Foundation 1977). Chester and Fairfield counties were created about the same time from the Camden District (Bolick 1963:1). Oconee County was drawn much later from

the Pickens District in 1868 (Watkins et al. 1968). Greenwood County was formed from Edgefield and Abbeville Counties in 1897 (Burton 1985:14). McCormick County was the last of those comprising the Sumter National Forest to form. It was drawn from parts of Edgefield, Abbeville and Greenwood Counties in 1916 (Edmonds 1999; Stauffer 1994).

In the years following the War of Independence, South Carolina saw great economic prosperity. The invention of the cotton gin in 1796 fueled renewed interest in large scale cotton production. Cotton production originated in South Carolina, and for many years the Piedmont of Georgia and South Carolina were the centers of production (Richter and Markewitz 2001:120). By 1801, South Carolina produced 20 million pounds of cotton, and by 1811 it produced about 40 million (Richter and Markewitz 2001:121). For perspective, national production during these years was 40 and 80 million pounds, respectively.

The typical agricultural regime began with sowing cotton seeds heavily in the early spring and then thinning with a hoe ("chopping out") to around one plant per foot in July (Richter and Markewitz 2001:122). The fields were weeded periodically but otherwise allowed to grow through the summer. Up to three harvests were made in the fall. After the last harvest, the dried stems and foliage were hand clubbed and plowed under. Pests were periodically rampant. To combat insects, the cotton was often burned or rotated with other crops. Turkeys and chickens were sometimes run through the infested fields. Fertilizers became more popular in the mid nineteenth century, but were still not heavily applied (Richter and Markewitz 2001:122). Initially, fertilizers consisted primarily of manure, compost, guano, swamp mud, ground bone, blood and wool.

The population of South Carolina stood at around 250,000 in 1790, a rise of about 25 percent over the late Colonial period (Kovacik and Winberry 1987:88). Slaves constituted about 43 percent of the population, but about 73 percent of them were concentrated in districts along the coast. About 80 percent of the white population of the state, but only 27 percent of the black population, lived in the interior. In ensuing decades as the plantation economy moved into the interior, this pattern changed. In 1790, slaves made up 14 and 19 percent of population in Chester and Fairfield Counties, respectively. By 1830, the proportion had risen to 42 and 55 percent. In early nineteenth century in the southern Piedmont, the proportion of total population who were slaves increased from 20 percent in 1790 to 40 percent in 1820 and again to 60 percent in 1860 (Richter and Markewitz 2001:122). This increase was tied directly to cotton production.

Settlement on the cotton plantations concentrated around the land owner's house, which was usually conspicuously large. Servants and overseers quarters were located nearby, as were slave quarters, barns and other buildings. Orange Hall Plantation was one of the earliest and most prosperous South Carolina Piedmont plantations, and was a major landmark between the Tyger and Enoree Rivers during the late eighteenth and nineteenth centuries (Kibler 1998:209). The "Great House" was probably built in the late eighteenth century but it does not appear on a plat map until 1818. The house was a stately mansion, consisting of two stories made of brick and trimmed with carved granite. It may have had as many as four chimneys and each story had three rooms and a "hall room." Among other structures on the plantation were a freestanding kitchen, a mill, and a store and tavern. The store and tavern were likely a single structure. John Rogers, the owner of Orange Hall, sold imported goods from England to the locals from the store and served travelers en route between the coast and Asheville from the tavern. For nearly a century, the tavern served as a popular meeting place for the residents of the area.

Slaves on a plantation forged their own community and maintained strong ties with one another (Burton 1985:151). Social life centered around the church, but there were also social events such as dances. Planters used religion and churches as devices for social control, hoping that slaves would be more manageable if they listened to biblical passages exhorting obedience to masters (Burton 1985:154-157). But religion also served as a buffer for slaves, offering some protection from abuse.

Not all farm families were plantation owners who could afford slaves. In contrast with the large rice plantation of the Coastal Plain, many of the farms in the Piedmont and Blue Ridge were small and relied on large extended families rather than slaves. Due to the hilly terrain, the farms in these areas were situated on level ridge crests, while the associated fields covered the adjoining slopes and bottomlands.

Poor cultivation methods resulted in severe erosion and the deposition of sediment in stream channels, which also caused frequent flooding. Nevertheless, land was so plentiful that fields could be abandoned once soil fertility was exhausted. Eventually, however, many people decided to move further west after soil fertility declined. The population of South Carolina stabilized in the early 1800s, growing just 2 percent from 1820 to 1830 (Kovacik and Winberry 1987:92). This stabilization reflects a stagnating economy and heavy out-migration to Georgia, Alabama and Mississippi as lands in the state became less productive. Several observers of the day made sharply critical remarks of cotton production. Robert Mills, for example, portended the coming end of King Cotton as early as 1826:

> We wish to see them [planters] giving back to the soil some portion of the nourishment they take from it; otherwise the most deplorable results must follow: short crops, and barren fields, the disappearance of the forests, and a desolate country (cited in Kovacik and Winberry 1987:92).

Despite declining agricultural production by the 1820s, manufacturing still had made only limited inroads into the Piedmont of South Carolina. At the close of the antebellum period, cotton production still accounted for 80 percent of the state's labor force (Kovacik and Winberry 1987:97). There were a few other industries operating in the area, however. Ceramic production was a small but significant industry in some portions of the Piedmont, particularly in Edgefield County where there were deposits of high quality clay for stoneware production. Early Edgefield stoneware producers focused upon the kaolin belt along the Fall Line running along the southern edge of the Edgefield District, later following this belt across the Savannah River, across Georgia and into Alabama (Burrison 1983:111-115). Around 1810, Abner Landrum established a stoneware pottery using African American laborers, both free and slave. At least three other potteries were later established in the county. By 1860, the amount of capital invested in manufacturing in Edgefield County was second only to that in Charleston (Burton 1985:33-34).

A number of mills were established in the Piedmont in the decades following the Revolutionary War. Early nineteenth century mills were either plantation-related or independent commercial operations (Newman 1984). Many of the mills served multiple purposes, including the processing of grain, cotton and lumber. After the Civil War, commercially-operated grain mills became more common than independent operations, along with the development of large scale cotton

milling. Turbine power was introduced prior to 1860 and became the major source of power in the second half of the nineteenth century.

Gold, first discovered in North Carolina in 1799, was being mined in the Greenville District by 1802 (McCauley and Butler 1966:8). The heyday of gold mining was in the decades prior to 1860 (Charles 1987:137-139). William B. Dorn of McCormick County discovered a small amount of gold on his estate in 1835 (Ridgeway Mining Company 1980). In 1852, he made a sizeable strike. The mine, which was worked exclusively with slave labor, was the second most productive in the state and made Dorn a wealthy man.

Gold deposits are concentrated in the northern portion of the Andrew Pickens Ranger District, around the White Rock Scenic Area. Evidence of mining activities that include adits, shafts, creek dredging, flumes and probable smelting furnaces are extensive along Tamassee, Townes, Cheohee, Moody and Cantrell Creeks, dating to the middle nineteenth century. Sloan (1908) reports mines or prospects on Tamassee and Cheohee Creeks. The Kuhtman Mine worked a placer deposit and quartz veins at the headwaters of Cheohee Creek in the 1850s and 1860s (Sloan 1908:23).

Abbeville County was within one of the three largest gold producing areas in South Carolina (McCauley and Butler 1966:8). Within Abbeville County, most of the mining appears to have been concentrated in the vicinity of Parson's Mountain, on the Long Cane District of the forest. An 1873 map by Strueber (on file at the SCDAH) notes "traces of gold" in the vicinity of Parson's Mountain (Castille 1988). Mineral prospecting pits and occasional mining shafts have been noted on several surveys in this portion of the Sumter National Forest (Pluckhahn 2001).

There were at least six mines in the West Springs area of Union County (Charles 1987:137-139). Arranged in a roughly north south line, these included the Harmon, Nott, Scaife, Hopkins, West and Thomson mines. All but the first and last had stamp mills. A large gold strike was supposed to have been made in the bed of the Tyger River in 1827, but it may not have panned out well. Most of the mines were in the uplands and many consisted of "open cast" mines, wherein a whole vein was opened lengthwise from the surface. Mines were often worked by slaves in the off seasons.

Railroad expansion began in the 1840s (Kovacik and Winberry 1987:97). In the 1850s, the size of the system more than tripled, from 289 to 988 miles. Camden, Columbia and Hamburg vied to become the hub of the back country rail system. Columbia prevailed because its citizens subscribed more heavily to the railroad company's stock. Rail service was slower in coming to the Blue Ridge District. The line to Walhalla, located in Oconee County east of the Andrew Pickens Ranger District, was not established until 1861 (Watkins et al. 1968). This line connected Edgefield, Abbeville and Walhalla. John C. Calhoun envisioned a Blue Ridge Line that would continue from Walhalla, connecting Charleston to the industrial Midwest. The line was chartered in 1852 as the Blue Ridge Railroad Company, but because of the Civil War, construction did not commence until 1869. The project was never completed, but remains of railroad beds and tunnels can be found on the Andrew Pickens Ranger District.

On April 12, 1861, Confederate batteries opened fire on Fort Sumter in Charleston Harbor (Kovacik and Winberry 1987:103). The fort surrendered the next day. There was a seven month lull in fighting as strategies were formulated. The Confederacy assumed a defensive posture, placing

10,000 troops to guard the Carolina Coast. Union attempts to capture Charleston in 1863 came to no avail. However, by 1864 Sherman had marched his forces to Savannah. He crossed into South Carolina with 60,000 troops to face a Confederate force only half that size. The Union forces, spread into two wings, broke through confederate lines and moved toward Columbia, which was largely burned to the ground. The war ended later that year. There was no direct military action on the forest during the Civil War, but Jefferson Davis did travel through the forest when fleeing northern forces. He held his last cabinet meeting in Abbeville.

The war brought devastation to much of the Piedmont and Blue Ridge of South Carolina, but particularly those areas in Sherman's path. In Fairfield County, most of the railroad tracks were destroyed (Bellardo 1979:15-17). Many of the railroad bridges were burned, as were both cotton and cotton mills. The destruction was in accord with Sherman's orders:

> As a rule, whenever you are near a railroad...have your men burn bridges, depots, and water-tanks, and break switches; also, all sawmills should be destroyed, not only burned, but the engines and boilers disabled (cited in Bellardo 1979:17).

The editor of a Fairfield County newspaper described the scene there a few months after the invasion of Union forces:

> ...ride up the road from Winnsboro to Chesterville and you will see that for the first eight miles the demon of destruction has done its worst. Dwelling houses, gin houses, barns, stables, corn cribs, and fences burnt, the railroad demolished, dead cattle lying in heaps, dead horses in the road and in the wayside (cited in Bellardo 1979:26).

Roughly 20 to 30 percent of Fairfield County's white men of military age did not return from the war (Bellardo 1979:35)

Postbellum Period

South Carolina was occupied by Federal forces until 1876 (Kovacik and Winberry 1987:103-6). The Reconstruction period was difficult for most Carolinians. The abolition of slavery had a profound impact on economy, stripping away a large part of the wealth of the planter class (Bellardo 1979:viii-x). The war left many planters in debt, since slaves often served as collateral. Emancipation freed the slaves, but did not release their former owners from debt. Adding to the problem were five unsuccessful crops in the first six postwar years. Increased taxes further reduced the wealth of the planters. As more land was put up for sale, its value plummeted (Baker 1931:44; Bellardo 1979:x).

After the Civil War, tenant farming, share-cropping and a cash economy emerged (Richter and Markewitz 2001:47). Tenancy accounted for almost one-half of all farms by 1880 (Kovacik and Winberry 1987:103-6). Average farm size declined almost 75 percent from 569 acres in 1860 to 143 acres in 1880. As a result, the population became more dispersed. Early topographic maps show tenant houses scattered along roads and highways.

Despite the problems associated with Reconstruction, cotton production increased after the War (Richter and Markewitz 2001:124-125). The recovery of the cotton industry is credited to the

introduction of fertilizers, more continuous cultivation and more extensive cultivation. Fields that had previously gone through cycles of fallow or abandonment became more permanent as agricultural practices were modified to include the use of fertilizers, lime and manure (Richter and Markewitz 2001:47). Mechanical improvements in farming were relatively minor until the middle twentieth century (Richter and Markewitz 2001:126). Until the 1940s, people, mules and horses supplied most of the power to manage fields. By the time an effective mechanical cotton picker was marketed in the 1940s, production was declining rapidly.

Some slaves followed Union troops to immediate freedom (Bellardo 1979:64). However, most remained on the plantations to wait for the war's end. In general, blacks learned of their freedom soon after Appomatox, but some did not hear for months or even years later. In Fairfield County, many emancipated slaves remained on their plantations even after hearing of their freedom (Bellardo 1979:67). After disastrous crop failures in 1865, however, most moved on. The two populations soon drew further apart, as the prejudice of whites and the desire of ex-slaves to live their own lives led to the development of separate institutions (Bellardo 1979:106).

The Radical Reconstruction government tried to encourage land ownership by emancipated slaves by buying privately owned plantation tracts and subdividing and reselling them to freedmen through long term, low interest loans (Bethel 1997:20). One such endeavor took place in Abbeville County, on the Marshall tract. The community began in 1870, and within a few years most of the 50 tracts had been sold. As the cluster of black owned farms grew more densely populated it assumed a unique identity and name, Promised Land.

Unlike those in cities, free blacks in rural areas left few records. There were no free black voluntary associations, nor any newspapers. As one historian has noted for Edgefield County, "...as far as is known, no free black kept a diary, accumulated letters, or created other manuscript records..." (Burton 1985:204). A large percentage of the free black households were headed by women (Burton 1985:205-207). Black households tended to move frequently.

The population of South Carolina grew slowly after 1870 (Kovacik and Winberry 1987:121). Three major demographic changes occurred from 1870 to 1940. First, blacks lost their majority, falling from 59 to 43 percent of the state population. Next, the upper Piedmont witnessed heavy growth, accounting for 29 percent of the state population in 1940, compared with 19 percent in 1870. Finally, the proportion of the population classified as urban grew from one-twelfth to nearly one-fourth.

Industrialization became increasingly important in the late 1800s (Kovacik and Winberry 1987:112-114). Between 1870 and 1920, manufacturing employment increased at a rate 6.5 times greater than population growth. About half of the factories were located in the upper Piedmont. Four industries dominated: lumber, cotton goods, fertilizers and cottonseed oil.

The textile industry expanded rapidly in the last few decades of the nineteenth century, and continued to grow into the early twentieth century. Community leaders saw cotton factories as a means to economic success. The industry was supported by the availability of locally grown cotton, increased ease of transportation and plentiful cheap labor (Kovacik and Winberry 1987:114). In the late 1800s in Newberry County, skilled labor to work the new mills had to be imported from the north or from other mills in the south (Graves 1947:68; Robinson 1964). Unskilled labor was drawn

mainly from the surrounding farms. Mills themselves were usually not headed by someone of experience, but instead by a respected member of the community (Collins 1982:124).

Gold production largely ceased with the Civil War and remained low during Reconstruction. After 1880, new processes for the treatment of ore led to an increase in gold prospecting and mining. In the first decade of the twentieth century, an attempt was made to catalog all of the known mines in the state (both active and inactive) (Sloan 1908). Three mines were cataloged in the vicinity of the Long Cane Ranger District. These included the Jones Mine, described as around six miles south of Abbeville on Long Cane Creek. This mine, which was owned by Hampton Jones, was reportedly 80 ft deep. The Lyon Mine, owned by John Lyon, was reportedly seven miles southeast of Abbeville. Finally, the Calais and Douglas Mines, which were located southwest of Abbeville, included a six foot thick quartz vein and a shaft 27 feet deep.

Contemporary Era

A resurgence in cotton prices brought some measure of economic prosperity for farmers in western South Carolina at the turn of the century. Cotton production peaked in 1920, when it reached its greatest areal extent at 1.06 million ha (Richter and Markewitz 2001:151). In their 1913 soil survey of Chester County, McLendon and Crabb (1913:11) noted:

> ...Cotton has been bringing a fair to good price during this time. Nearly all of the land owning farmers have paid their debts and some have become well-to-do, in many instances owning a great deal of land which they rent out. Signs of prosperity are seen in numerous new barns being built and old places better kept, in good farm stock and improved types of machinery, and in the very rapid advance of land values.

The prosperity was unequal, however, as McLendon and Crabb also noted:

> The renters, consisting very largely of negroes, have not made much headway in acquiring property, but are living better than they did 15 years ago.

Most of the acreage—as much as one-half to two-thirds of the land under cultivation—was devoted to cotton. Corn was grown on anywhere from one-third to one-half of the land, and a much smaller acreage was devoted to oats, cowpeas, sorghum, sweet potatoes and other crops grown almost entirely for home consumption. Very few cattle or pigs were raised.

Despite the renewed prosperity, there were already signs of trouble ahead. As McLendon and Crabb (1913:14-15) observed, farmers in the region did not practice any systematic rotation of crops. This led to soil depletion, which required heavier applications of costly fertilizers. In addition, labor was becoming scarcer every year

Depression came to the South Carolina Piedmont in 1921—a decade before the Great Depression—when the boll weevil began decimating the cotton crops (Pope 1992:124). Cotton prices tumbled, banks failed and many farms were foreclosed. By 1940, only 478,000 ha remained under cultivation (Richter and Markewitz 2001:151). By 1960, only 220,000 ha were still cultivated for cotton.

The onset of the Great Depression of the late 1920s and 1930s intensified the failing economy, contributing to a massive emigration of black farm laborers (Richter and Markewitz 2001:151). Those who remained lived mainly in abject poverty on exhausted land. One observer described the southern Piedmont as "...a miserable panorama of unpainted shacks, rain-gullied fields, straggling fences, rattle-trap Fords, dirt, poverty, disease, drudgery and monotony that stretches for a thousand miles across the cotton belt" (Johnson et al. 1935).

Black farmers, most of whom were laboring in a sharecropping or tenant farming system and did not own land, had few options for improving their standard of living in the southeastern Piedmont even prior to the Great Depression. Many lived in abject poverty. The few that owned land in the Piedmont in the early twentieth century typically had relatively small tracts of infertile, eroded parcels that white farmers would not buy (Aiken 1998:345-346). Nevertheless, farming was still a desirable means for achieving economic success for southern blacks. It was not until the decline of the (tenant) plantation system, largely brought on by the boll weevil in the 1920s, that blacks began to emigrate in large numbers from the Southeast (Aiken 1998:81). Black emigration further impaired productivity of the traditional, labor-intensive plantation system.

Because of the rapid growth of industrialization in the United States at urban centers during the early-to-middle twentieth century, the promise of better paying jobs were to be found in these rapidly-growing cities. Industrialization in southern cities lagged behind the pace set by the northern cities, but cities like Atlanta also attracted many former farmers. Many former black farmers moved to northern cities (Aiken 1998:345) like Detroit, the car-manufacturing center, Chicago, Philadelphia, Bethlehem (steel industry) and New York. For the most part, those who left the Southeast were the younger generation and their immediate families. Left behind were their older extended family members, retaining ties with the Southeast.

An early study by the Forest Service documented the poverty in the area that would eventually become the Long Cane Ranger District of the Sumter National Forest (Blackwell 1937; Blackwell and David 1935; USDA Forest Service 1937). The 1935 study identified 3,324 families within the district, which includes portions of Greenwood, Edgefield, Abbeville, McCormick and Saluda Counties (Blackwell 1937:20). Seventy-five percent of these families were engaged in farming. These were classified into five groups of farm operators, which were owners (25%), renters (25%), tenants (26%), share croppers (23%), and squatters (1%) (Blackwell 1937:20). Seventy-five percent of the owners were White, while 79% of renters, 72% of tenants, 92% of share-croppers, and 90% of the squatters were Black. Blackwell describes these categories.

> An owner holds title to the land he operates; a renter pays a cash sum for the use of the land and houses; a tenant pays a stipulated part of his crop for use of the land and houses; a share-cropper furnishes labor only; the landlord furnishes all else and the crops are divided between the two; a squatter lives on the land without permission from the owner (Blackwell 1937:23).

The Forest Service also studied housing and other improvements on the Long Cane Ranger District. The families were divided into five types based on the livelihood and income. Housing types for these five groups were illustrated with representative photographs (Blackwell 1937:24-26). Class A housing is a large white columned frame, Greek Revival house; Class A-1 is a large one-story, central-hall frame house with pyramidal roof; Class B is a frame, unpainted saddlebag house with

a rear extension; Class C is a small two-roomed, unpainted saddlebag house; and the final type is an abandoned frame, saddlebag house. These categories may be roughly tied to farm operation types. These are Class A and A-1 (owners), Class B (renters-tenants), Class C (tenants), and abandoned homes (squatters).

Blackwell (1937:37) described general rural housing conditions on the district as "... abominable, consisting of old log cabins or rickety unpainted frame shacks often with too few windows or no chimney, with no screening, no modern amenities, leaky roofs, and poor water supply." The Forest Service closely examined conditions for 794 families in the proposed Little River Forest Farm Rehabilitation Project in Abbeville and McCormick Counties (Blackwell and David 1935; USDA Forest Service 1937). Of these families, most used kerosene lamps, heated with wood, and had no indoor plumbing. Wells were the most common water source with about one-third of the poorer families using springs. The most well off families had telephones. Automobiles, radios, and sewing machines were widely owned by all five income groups, although in greater percentages by the more well off families. All houses were classified as frame construction with most having four to six rooms (Blackwell and David 1935:18).

Forest Service planners believed much of the South Carolina Piedmont had entered a "death stage of land" (Hester 1999:31). A soil reconnaissance by the New Deal's Natural Resources Board revealed that the Long Cane and Enoree Units encompassed some of the most devastated sections of the eastern cotton farming region (Hester 1999:34). In 1934, the National Forest Reservation Commission approved the purchase of 51,000 ac in the two units (Hester 1999:41). Survey parties inspected the tracts, appraised the land and timber, and mapped land use (Hester 1999:40). Meanwhile, clerks conducted title searches. In many cases, there was no clear title, so the government resorted to condemnation as a legal process needed to clear a clouded title. All land was purchased from willing sellers and no one was forced to sell.

Reaction to the government land acquisition was mixed. Some local residents feared that the affected counties would lose their tax base and jobs and face rural depopulation (Hester 1999:43). A formal opposition group formed in1935 in McCormick County (Hester 1999:45). However, many farmers were reportedly happy to sell their worn out land at $5 to $15 an acre (Pope 1992:166).

In 1936, President Franklin D. Roosevelt created the Sumter National Forest by presidential proclamation out of the Long Cane and Enoree Purchase Units (Hester 1999:68). Land acquisition slowed in 1937, by which time a total of 200,000 acres had been acquired on the Long Cane and Enoree Ranger Districts (Hester 1999:42). The Sumter National Forest has expanded only slightly since, to 247,000 acres in 1973 (Kline et al. 1999:2). The Andrew Pickens District, which was originally part of the Nantahala National Forest, was transferred to the Sumter National Forest in the 1940s.

Much of the early work on the Sumter National Forest—as elsewhere on the National Forest system—was conducted by the Civilian Conservation Corps (CCC). The Forest Service and other agencies planned the actual work to be undertaken by the CCC, and supervised the work forces (Fick 1995:2). The Army took responsibility for the administration, construction and supply of forestry camps and the general welfare of CCC employees. By 1933, there were 18 CCC camps in South Carolina. Over the course of its nine years of operation, the CCC employed 49,266 men in the state (Hudson and Webb 2000:6).

CCC workers performed numerous tasks on Forest Service property. To control erosion on the Piedmont ranger districts they terraced farmland for local tenant farmers, planted pine trees on abandoned farmland and filled in erosional gullies. Tenant houses on existing farms were repaired and painted (Figure III.42). To combat forest fires the CCC built several steel lookout towers in

Figure III.42. CCC Workers Rehabilitating an Old Home on the Sumter National Forest in 1938 (Courtesy of Pictorial Histories Publishing, Stan Cohen, publisher).

McCormick and Oconee Counties, including the Long Mountain Fire Tower on the Andrew Pickens Ranger District. The McCormick County lookout towers were connected by seventy miles of telephone wire (Edmonds 2001:156). CCC enrollees also compiled demographic information, collecting data on farm population, tenancy, standard of living and housing conditions, planted more than 58 million trees and built 129 fire towers and lookout cabins throughout the Sumter National Forest and South Carolina (Edmonds 2001:159).

On the Andrew Pickens Ranger District the CCC located, surveyed, designed and constructed roads (Duncan et al. 1984:41). They also replaced defective timber bridges and improved dirt road surfaces with topsoil and crusher run, produced by rock crushers at several quarries (Edmonds 2001:156). Two were located at Tamassee Road and Stumphouse Tunnel on the Andrew Pickens Ranger District (Duncan et al. 1984:42), and two are recorded sites (38OC337 and 38OC338). The CCC also constructed the Walhalla Fish Hatchery and fish-rearing ponds (38OC325) and built the facilities at Oconee State Park, Stumphouse Ranger Station, and the Chattooga and Yellow Branch Picnic areas (Figure III.43). The CCC also constructed a telephone system that serviced the state park, fish hatchery, Forest Service and fire warden homes, and the Mountain Rest Community (Duncan et al. 1984:46-47).

Six CCC camps were established on or near the Long Cane and Enoree Ranger Districts (Charles 1987; Hester 1999:100) (Table III.3). One camp on the Long Cane Ranger District has been recorded (38MC784) and five CCC-related sites on the Enoree Ranger District have been recorded (38UN631, 38UN661, 38LU167, 38NE437 and 38NE439). 38UN661 is probably Camp F-5 and 38UN631 is a dump associated with the F-5 camp. 38LU167 is the abandoned "Slick Rock Recreation Area" which was built by the CCC. Sites 38NE437 and 38NE439 are dumps probably associated with camp F-6, located at the Indian Creek Work Center. Three more CCC camps were

Figure III.43. CCC-constructed Chattooga Picnic Shelter on the Andrew Pickens Ranger District (USDA Forest Service, James F. Bates photographer).

within the Andrew Pickens Ranger District. Camp F-1, the first camp in South Carolina, was located on private land at Mountain Rest. Camps F-2 and F-75 were located at the Cherry Hill Picnic Area and Oconee State Park, respectively (Duncan et al. 1984). Site 38OC324 records the picnic shelter. Site 38OC325 records fish-rearing ponds constructed by the CCC.

Table III.3. CCC Camps on or near the Long Cane and Enoree Ranger Districts (after Hester 1999:100)**.**

Camp	Name	Location	Date	Company
F5	Camp Jefferson Davis	near Union, Union County	1934 to 1937	0458 (black)
F6	Camp James F. Byrnes	Indian Creek, Newberry County; on National Forest land	1934 to 1942	1407 (white) 4465 (black)
F7	Camp Bradley	Bradley, Greenwood County; on National Forest land	1934 to 1942	1448 (white)
F8	Camp Edgefield	near Modoc, Edgefield County; on National Forest land	1934 to 1935	0425 (black)
F10	Tip-Top Camp	near Clinton, Laurens County	1935 to 1936	4465 (black)
F11	Camp Modoc	Modoc, McCormick County; on National Forest land	1937 to 1941	4475 (black)

The first camp on the Enoree Ranger District opened in November, 1934. Named Camp Bradley F-7, it was located at the town of Bradley, a few miles north of McCormick (Edmonds 2001:152). Camp Modoc F-11 (38MC784) opened soon after. CCC camps often consisted of a mix

of tents and portable buildings to which floors were sometimes added (Fick 1995:2) (Figure III.44). More permanent structures were constructed later (Figure III.45). The main buildings were about 100 x 24 feet and camps typically included four 50-man barracks, a mess hall, and several support and recreational buildings (Edmonds 2001:154). Several of the camp locations recorded on the Sumter National Forest exhibit concrete footings marking the former locations of structures (Fick 1995:2).

Figure III.44. Typical CCC Camp in the 1930s (Idaho) (Courtesy of Pictorial Histories Publishing, Stan Cohen, publisher).

Figure III.45. Warehouse Constructed in the 1930s by the CCC on the Sumter National Forest (Courtesy of Pictorial Histories Publishing, Stan Cohen, publisher).

Similar to the Daniel Boone National Forest programs, the Forest Service planned for an ideal forest community on the Long Cane Unit of the Sumter National Forest. Poor sharecroppers could improve their lot through subsistence farming and forest work (Hester 1999:2). The aim was to use the CCC and other welfare programs to reduce poverty. The Little River Forest-Farm Rehabilitation Project consisted of 100,000 acres to be divided between small subsistence farms and a large forest-work district to supply year-round employment (Blackwell 1935). Initially, the Forest Service planned to resettle 250 families to a new community and repair existing farms of 320 families (Hester 1999:23). They ultimately settled on a program of rehabilitation in place (Blackwell 1935; Hester 1999:24, 65). The program had two components. First, the Forest Service planned to allow the poorest locals to remain as tenants of the government. Second, the government hoped to employ as many people as possible through CCC or WPA projects and sawmill work.

The Forest Service selected 105,000 acres in Abbeville and McCormick Counties because of the high density of homes and the critical need for relief (Hester 1999:61). The first step in the program consisted of determining which tracts could support permanent, part-time farming (Hester 1999:75-76). The next step consisted of repairing the cultivable land, by terracing the farms one by one, and by planting protective cover crops, such as grain, lespedeza, legumes and kudzu. Uninhabitable homes were torn down and materials were salvaged to repair others (Hester 1999:78). In the summer of 1937, five CCC camps with nearly 1000 people operated on the Long Cane and Enoree Ranger Districts, and many of these were put to work on rehabilitation (Hester 1999:84). Between 1937 and 1940, Forest Service staff, CCC workers and special use permittees (as the tenants were known) worked on 205 rehabilitation projects across the Long Cane Ranger District. After WW II, the Forest Service abandoned the rehabilitation work (Hester 1999:90). However, many permittees lived the rest of their lives on the Sumter National Forest. By 1947, 300 families on the Long Cane and 63 on the Enoree Ranger Districts were still under permit to reside on government owned land (Hester 1999:91). The majority of the special use permit dwellings disappeared in the 1950s (Hester 1999:92).

When the Forest Service acquired the lands for the Sumter National Forest, shortleaf and loblolly pine, oak, hickory and blackgum dominated the uplands. White and red oak, red gum, poplar, ash and black walnut composed the canopy in the bottomlands (Hester 1999:112). Pines had already grown up in many abandoned fields, but it would take many years before they were ready for harvest. The Calhoun Experimental Forest, within the Enoree Ranger District, was established in the 1930s as a principal area for research on forest stabilization of eroding agricultural soils and for the management of secondary southern pine forests (Richter and Markewitz 2001:51). By 1936, the CCC began planting loblolly and shortleaf pine throughout much of the Sumter National Forest (Hester 1999:112-13). The majority of districts did not mature for 10 to 20 years, but by 1939 some areas were ready for harvest.

Prior to the establishment of the Sumter National Forest, few residents of the area were involved in logging or milling, and the Piedmont was not known as an area for timber production. With the creation of the National Forest and with the increasing abandonment of much of the former agricultural land, this soon changed. Private companies carried out all of the harvesting and processing of timber on the Sumter National Forest (Hester 1999:111). Operators brought portable saw mills to the cutting site, where they rough-milled the green logs and then air dried them in the woods. In 1939, about 60 of these units operated on private and public land in the area (Hester 1999:114). After drying, wood was hauled by trucks to nearby towns where stationary sawmills or

planing mills completed the finishing work. In 1939, foresters estimated that 130 families on the Long Cane Ranger District were supported by full-time workers engaged in logging and milling operations (Hester 1999:117). Almost all the workers were male and most were black.

The CCC ceased operation with the start of World War II (Fick 1995:2; Hester 1999:110). CCC work centers within the National Forests were transformed into Forest Service Work centers (Fick 1995:2). During the war, several of the former CCC camps (including one that had been transformed in to the Enoree Work Center) held German prisoners.

With the start of World War II, there was an increased demand for wood products (Hester 1999:118-120). Timber production on the Long Cane and Enoree Ranger Districts increased 463 percent from 1943 to 1945. There was a slight slump after the war, but timber sales continued to increase for the next three decades. From 1940 to 1950 the number of locals employed in the forest products industry almost doubled in the 10 counties of the two districts.

Gold production had a resurgence in South Carolina after a large strike was made at a mine near Charlotte in 1932 (Ridgeway Mining Company 1980). Calls and letters reportedly flooded the Charlotte Chamber of Commerce asking for the locations of old and abandoned mines in the Carolinas. Exploration was further stimulated in 1934, when the price of gold increased from around 20 dollars to 35 dollars an ounce. At least 35 different mines were worked in South Carolina between 1934 and 1942.

Major changes took place in South Carolina after World War II. Among these was redistribution of the population from rural to urban (Kovacik and Winberry 1987:149). By 1960, 41 percent of the population was urban. Most of the population growth was in suburban counties adjacent to either one of the state's three major cities, or to Augusta or Charlotte. By 1980, rural residents were in minority for the first time. Nevertheless, some 32 counties remained more rural than urban. McCormick was one of three counties that remained 100 percent rural as late as 1980, according to census bureau definitions.

To summarize broad scale cultural change through time, the earliest human settlement until about 2000 B.C. in the Southeast consisted of an annual subsistence round dependent upon hunting, fishing and plant collection. After 2000 B.C. a variety of wild seed and cereal crops were semi-domesticated, with squash becoming the first fully domesticated crop. Maize was cultivated in some regions of the Southeast as early as the first few centuries A.D. and played a vital role in the development of cultures in the Eastern Woodlands. Yet, in many areas maize agricultrue never eclipsed the older, native seed crops. In these regions hunting and gathering supplemented with the limited harvest of cultivated crops sustained indigenous cultures until contact with European explorers and settlers in the latter part of the sixteenth century. By the end of the prehistoric period, social organization had transformed from the band to the chiefdom level throughout core areas of the Southeast. Villages, sometimes allied into loose confederations, were ruled by clan leaders or chiefs. With the introduction of European diseases, competing foreign policies and new forms of warfare, the indigenous cultures of the Eastern Woodlands were dramatically disrupted and forever changed.

As European settlement gradually expanded westward from the coast to the back country, the native peoples of the region were displaced. A plantation economy developed around cotton

agriculture and slave labor. The Civil War and Reconstruction brought economic and social upheaval. Cotton agriculture rebounded for a time, but was later supplemented by an increase in manufacturing. The boll weevil infestation, coupled with soil exhaustion from years of over farming, brought the end of King Cotton and a gradual shift in population from rural to urban.

Chapter IV
Summary of Major Archeological Investigations On and Near the Sumter National Forest

A considerable amount of archeological investigation, beginning in the nineteenth century, has been conducted in the area that now comprises the Sumter National Forest. Much of this investigation has occurred over the past three decades, largely due to the National Historic Preservation Act. Most of these investigations consisted of small-scale surveys. Relatively few large scale excavations have been conducted on the Sumter National Forest. The cultural history of the Sumter National Forest must therefore rely largely on archeological studies from elsewhere in South Carolina and adjoining portions of Georgia and North Carolina. This section summarizes some of the major archeological investigations conducted to date in the vicinity of the three ranger districts of the Sumter National Forest. This summary draws partially on the draft context statement for the Sumter National Forest prepared by Anderson and colleagues (1991), with additions to cover the past 12 years of archeological investigation. More complete lists of archeological investigations in South Carolina can be found in the *Comprehensive Bibliography of South Carolina Archaeology* (Derting et al. 1991), in computerized files of reports maintained by the South Carolina Institute of Archaeology and Anthropology in Columbia, and in Appendix F, Sumter National Forest Cultural Resource Management report list.

Andrew Pickens Ranger District

The Andrew Pickens Ranger District has garnered less archeological attention than the other two districts, partly because it is smaller and partly because it has had less timber harvesting activity. Although a number of small surveys have been conducted since 1976 (Appendix F), only a few multi-compartment surveys have been undertaken. Major excavations have been conducted at Chatooga Town and archeological testing at Russell Farmstead on the Andrew Pickens District, but few other sites have been investigated beyond the survey level. However, there are a number of excavations in the Appalachian summit of North Carolina and in northwest Georgia that have contributed significantly to our understanding of prehistory and history in northeast South Carolina.

Archeological Survey

Virtually no archeological survey took place on Forest lands prior to federally mandated cultural resource management surveys began in the late 1970s. Among 80 reports kept on file by the Forest, all but seven were conducted in house; that is, by Forest Service archeologists (Appendix F). The vast majority, all but seven, are exclusively reports on archeological surveys. Many of these surveys were of small areas, for instance a proposed road, or one or two stands within a compartment.

The surveys conducted by the Forest Service began in 1976 in advance of proposed earth disturbing activities near a known significant site, Chattooga Town (38OC18). Several localities for

two or three different proposed parking lots were surveyed by Green (1976a, 1976b, 1976c) and Prokopetz and Logan (1978). These initial reports were not always entirely clear on what areas had been examined.

Early surveys on the Andrew Pickens District were reconnaissance level surveys. Often no shovel testing was employed, or only in the most propitious areas. In 1980 a proposed wildlife opening also was surveyed (Logan 1980e). In 1981 another road and a parking lot were surveyed, along with the first survey of a proposed land exchange. Here federal land that was to be exchanged for private land was surveyed before being released. In 1983 the two reports produced were both for proposed roads, but shortly after that surveys of tracts of land scheduled for timber harvesting began to dominate the attention of the Forest Service archeologists. For the remainder of the 1980s to the present, archeological survey on the Andrew Pickens District has focused mostly on stands or tracts scheduled for timber harvesting.

In addition to the nearly 60 reports on surveys of timber stands submitted since 1984, there have been a handful dealing with other undertakings. Two proposed roads were surveyed in 1988 and one in 2001. Proposed trails were surveyed in 1999 and 2002 and a set of firelines in 2000. Land exchange tracts were surveyed in 1989 and 1999. A proposed powerline corridor in 1989 and a portion of a campground in 1990 were surveyed. In 1995 and 1996 three reports were prepared for surveys of pine beetle infestations. As of 2002, 182 archeological sites have been recorded on the Andrew Pickens Ranger District.

Excavation and Other Investigations

Several testing and excavation projects have been undertaken on the Andrews Pickens Ranger District by Forest Service personnel (Figure IV.1). Bates (1985b) tested three sites on Compartment 27, each with shovel tests and single test units. Site 38OC207 produced diagnostic artifacts of the Middle Archaic (Morrow Mountain), Early Woodland (Swannanoa Stemmed, Pigeon Side Notched, quartz tempered pottery), Mississippian (Lamar pottery) and Historic Cherokee (Qualla pottery) periods. Bates' investigation of site 38OC211 revealed evidence of a Cherokee structure, which he noted may be the only such feature recorded in the uplands to date. The site also exhibited Late Archaic and Middle Woodland components. Finally, site 38OC212 produced a Middle Archaic Guilford PP/K and pottery associated with the Early Woodland and Mississippian periods.

Additional sites test excavated by Bates (1987g, 1989h, 1990ee, 2004) include 38OC109, 38OC228, 38OC229, 38OC231, 38OC253 and 38OC420. All but one of these sites (38OC253) are lithic and ceramic scatters. These sites encompass components ranging from Late Archaic (Otarre points without ceramics) through the Mississippian period (Pisgah ceramics). All sites with ceramics had variations of Connestee series designs. None of these sites produced Early or Middle Archaic components, but 38OC109 produced a Dalton-like point indicating a Late Paleoindian occupation.

Chattooga Town

Prior to the more intensive work by the University of Tennessee (described below), Forest Service personnel conducted limited survey and testing at the Chattooga Town site (38OC18) (Figure

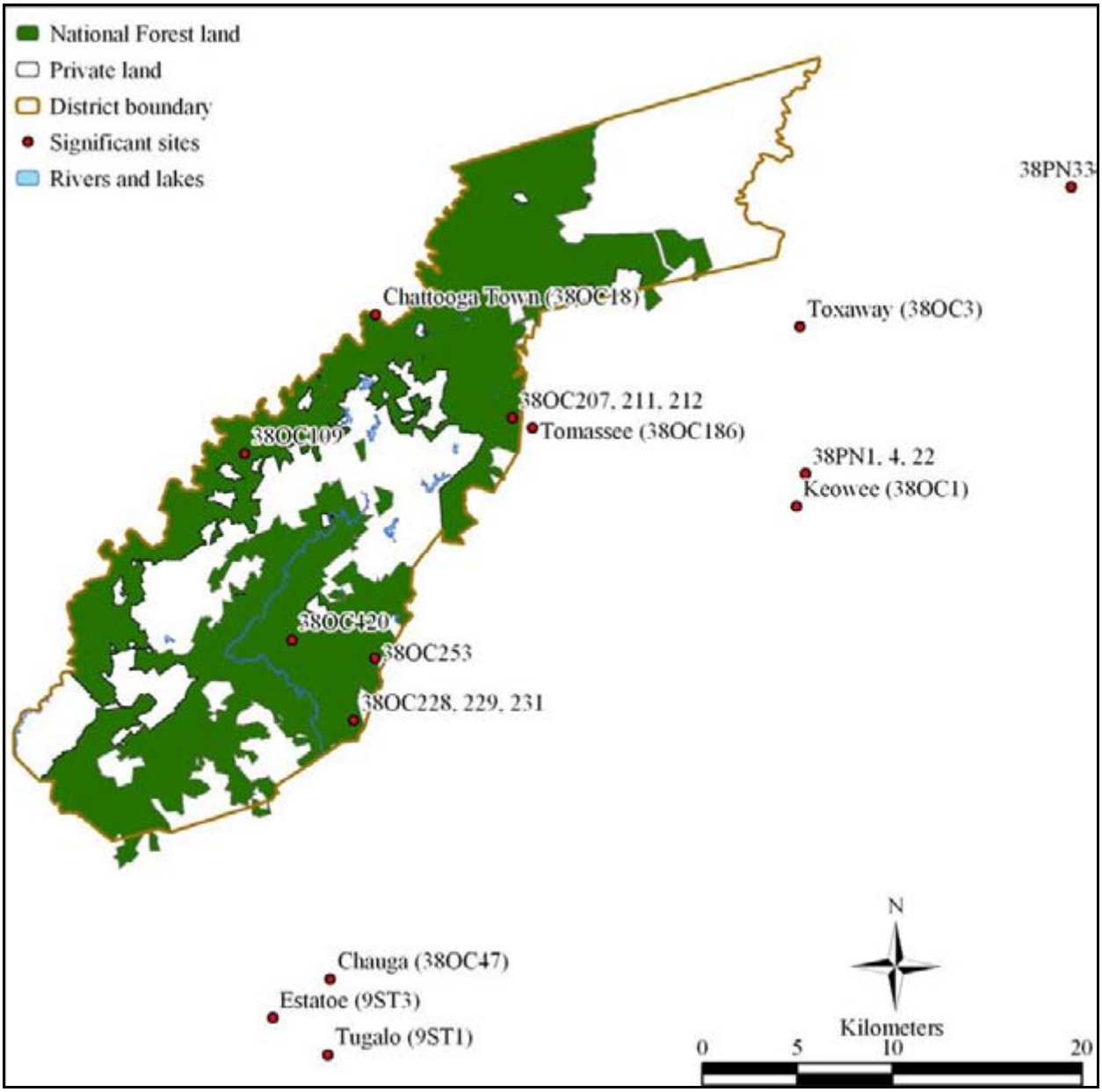

Figure IV.1. Locations of Significant Sites On and Near the Andrew Pickens Ranger District.

IV.1). The site was first recorded by Brockington in 1969 (Elliott 1984f). Green (1976c) cleared a portion of the site for construction of a parking lot, an appraisal that was reversed after further work by Prokopetz and Logan (1978). Logan (1979b) surveyed a new parking lot site, which she recommended was too disturbed to warrant any additional investigation. Later, Elliott (1984f) conducted limited test excavation at Chattooga Town. Elliott (1984f) excavated a total of 16 square meters and determined that the site contained intact subsurface deposits from the eighteenth century Lower Cherokee town and from the Archaic period. Five cultural features were identified, four of which appeared to be truncated, shallow, basin-shaped pits located immediately beneath the plowzone and probably dating to the Mississippian or Historic Cherokee occupations. Three of these four had only a few artifacts but the fourth appeared to contain two dog burials. The last of the five features was considerably deeper (60-90 cm below surface) and was identified after excavation as a rock hearth containing fire-cracked rock, charcoal and charred hickory nut shell.

Certainly the most intensive excavations to date on the Andrew Pickens District is the work at the Chattooga Town site (38OC18) by the University of Tennessee. Although a complete report of the excavations has not been prepared, Schroedl (1993, 1994) and Schroedl and Riggs (1990a, 2002) have produced summaries, and various facets of the work have been summarized by Cutts (1998), Howard (1997), Myster et al. (1989), Schroedl and Parmalee (1997) and Schroedl and Riggs (1990b).

Chattooga Town was identified in the 1721 census, where it was described as a small Cherokee village of 80 individuals (Elliott 1984f). The town may have been deserted by 1730, and it was certainly no longer on the Chattooga River by 1752, likely having relocated to Monroe County, Tennessee (Elliott 1984f:6). However, the former town location may have been occupied sporadically until Removal in 1816.

Preliminary investigations at Chattooga Town in 1989 consisted of detailed mapping, systematic surface collection and the excavation of 50 1-x-1-m test units. Through 1994 approximately 100 1-x-1 m test units were excavated in the identified townhouse area and two domestic structures areas south of the townhouse area (Howard 1997:18, Figure 2.2). These efforts revealed that Cherokee remains were present in undisturbed horizons buried as much as one meter below the ground surface in some portions of the site. Systematic surface collections determined 8 probable structure areas (Howard 1997:97), five of which had not been excavated. Domestic structures at Chattooga Town were determined to be separated by 50-100 meters (Howard 1997:97). In addition, non-intrusive techniques, such as protonmagnetometer and ground penetrating radar, were conducted over several grids (Cutts 1998). Several strong anomalies were apparent in the magnetometer data, in areas that also showed high concentrations of artifacts. Test units in these areas revealed charred posts, fired daub, pits, post molds and a prepared clay hearth, suggesting the presence of structures. Later block excavations focused on these probable structure areas, which defined the townhouse area (Figure IV.2) and two domestic structures to the south. The burned Cherokee townhouse dates to around 1720 to 1740.

Russell Farmstead

Another intensively excavated site on the Andrew Pickens Ranger District is contiguous with Chattooga Town and located just to the south. This is the nineteenth century farmstead known as the Russell Farmstead, which was placed on the National Register of Historic Places in 1988. Historic and architectural research was conducted the previous year (Preservation Consultants 1987) to facilitate its listing on the National Register. Shortly thereafter the main house burned down and in 1990 O'Steen and Chapman (1991) conducted archeological testing and architectural re-evaluation of the complex. The testing included the excavation of 45 shovel tests on a grid (18 of which were positive) and three 1-x-2-m test units near two of the structures. They concluded that the complex was no longer eligible, due to loss of integrity and lack of research potential, and the property was later removed from the National Register. Even though the site adjoins Chattooga Town, no Cherokee artifacts, and only a single piece of quartz, were recovered. This reinforced that the southern boundary of Chattooga Town delineated by Schroedl (1994) was correct. Gresham located a small site (38OC412) with four Cherokee sherds about 100 m south of Chattooga Town, but because of the intervening area that was found by O'Steen and Chapman (1991) to be devoid of Cherokee material, this was made a site separate from Chattooga Town.

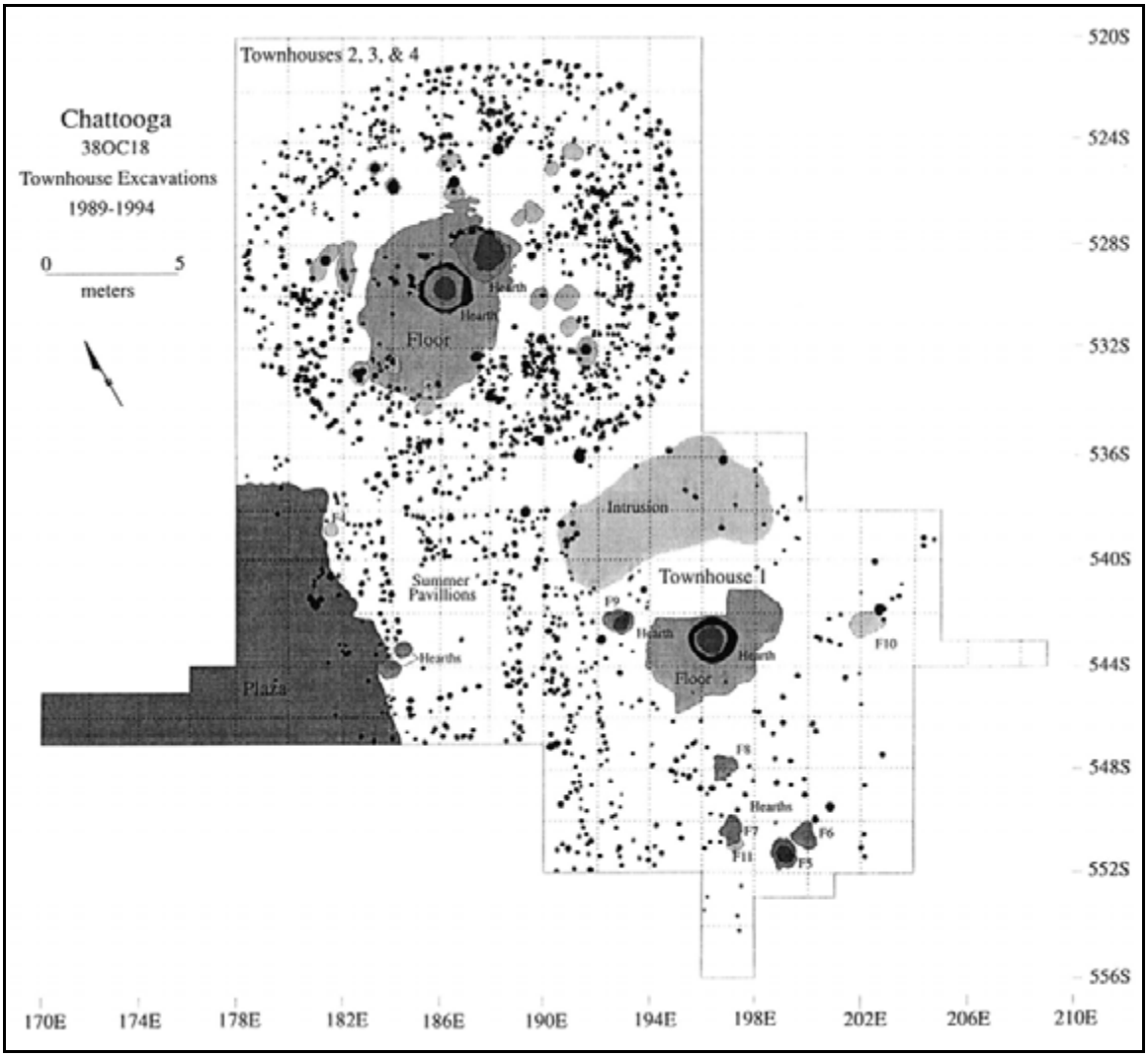

Figure IV.2. Townhouse Posthole Pattern at Chattooga Town (courtesy of Gerald Schroedl).

There have been a few non-archeological cultural resources investigations on the Andrew Pickens Ranger District. There was an original documentation and evaluation of the main house and nearly ten outbuildings at the Russell Farmstead (Preservation Consultants 1987) and an architectural re-evaluation in 1990 (O'Steen and Chapman 1991). The original evaluation described the main house and about nine outbuildings and provided historic background on this 1880s complex that once served as an inn for the area. The report concluded that the complex was eligible for the National Register and the following year it was placed on the Register. In Chapman's re-evaluation, he argued that with the loss by fire of the main house, the loss by deterioration of several outbuildings, and the deteriorated condition of the remaining outbuildings, that the complex would no longer be eligible for the National Register. It was subsequently removed from the National Register.

In 1991 Chapman evaluated a ca. 1915 house, barn and shed complex on Compartment 45, concluding that it was not eligible for the National Register (Chapman 1991b). Chapman (1991a) also evaluated two other related complexes that together comprise the District headquarters on Highway 28. One complex consisted of an historic (older than 50 years) warehouse/shop, along with a non-historic (less than 50 years old) garage, shed and office building. The other nearby complex

was the Ranger's residence and garage. The three historic buildings (and the others) were built by the U.S. Forest Service. The historic buildings were built in 1941, but have been modified several times over the years. Chapman (1991a) concluded that none of the three buildings were eligible for the National Register due to modifications, alterations and lack of association with important events or persons.

Investigations Near the Andrew Pickens Ranger District

Major archeological investigations have been conducted in the area immediately surrounding the Andrew Pickens District, mainly as the result of the construction of large reservoirs such as Lake Hartwell, the Keowee-Toxaway Reservoir and Lake Jocassee. However, as Anderson et al. (1991:4-20) noted in their synthesis of the archeology of the Sumter National Forest more than a decade ago, while our knowledge of the prehistory of the region has been increased by the data generated by these investigations, the effort associated with many of the projects was wasted because they have been inadequately reported.

Survey of the Hartwell Reservoir. Prior to the construction of Lake Hartwell, on the upper Savannah River south of the Pickens District in the early 1950s, the University of Georgia conducted a representative sample survey of the project area and produced a brief report of the investigations (Caldwell 1974a). The work, which was sponsored by the National Park Service and the Smithsonian Institution, focused on land adjacent to the uppermost eight miles of the Savannah River Valley, as well as 40 miles of the Tugaloo River and 32 miles of the Seneca-Keowee River. The survey recorded 70 sites, ranging from the Archaic through Mississippian periods. Three of the sites consisted of the Cherokee towns of Tugalo, Chauga, and Estatoe (Figure IV.1). These three sites were later portrayed in greater detail, as described below.

Excavation of the Chauga Site. Excavations at the Chauga Mound site (38OC47) were conducted by the University of Georgia for the National Park Service, under the direction of Kelly and Neitzel (1961). As was noted above, Chauga was a historically known Cherokee town. However, work at the site revealed a number of earlier occupations. Excavations of the mound at Chauga indicated that it was constructed in several stages. None of the ten stages that were identified dated to the historic period, although historic material was recovered in the wash of the final construction episode (Smith 1992:46). A concentration of burials was noted on the southeast side of the mound. Some of these included Southern Cult items such as copper plates and shell gorgets. Limited excavations were undertaken in the village at Chauga. Several features produced eighteenth century Cherokee ceramics. A variety of European trade goods were also found at the site.

Excavation of the Tugalo Site. Caldwell (1956) conducted excavations of the Tugalo site (9ST1) for the River Basin Survey of the Smithsonian Institution. Tugalo is located on the eastern bank of the Tugalo River, near its confluence with Toccoa Creek, south of the Andrew Pickens Ranger District (Figure IV.1). The mound at Tugalo (or Tugaloo) was also constructed in several stages. The premound level contained evidence of Middle Woodland occupations. The final mound stages included material associated with the Cherokee settlement on the site. Unfortunately, little of the excavation data from the village at Tugalo was published. However, Hally (1986) uses ceramics from the site in his description of Cherokee pottery. In addition, Witthoft (n.d.) (probably around 1953 or 1954) and Harmon (1986) have described the assemblage of trade goods.

Excavation of the Estatoe Site. The lower Cherokee town of Estatoe (Figure IV.1) was located about six miles north of Tugalo on the west side of the Tugalo River. Limited test excavations were conducted at the site in the early 1950s (Miller 1959). More intensive excavations were later completed by Kelly and de Baillou (1960). Both Miller's (1959) and Kelly and de Baillou's (1960) excavations concentrated on a potential mound located on a narrow terrace remnant between the Tugalo River and a former river channel. The area was at that time and for some time prior to the excavation under cultivation. It was the landowner who alerted Miller to an unusual concentration of rocks. Recently, Williams (2004) has shovel tested Estatoe.

Miller (1959) excavated a series of ten foot squares parallel with the axis of the landform within the rock distribution. He found all stones to be waterworn, probably extracted from the Tugalo River bed, and determined that an ovoid-shaped, conical rock mound once stood at this location. After excavating through the rocks he found a floor of compact clay with a large circular pit measuring nearly four feet in diameter and almost one foot in depth. The pit was filled with whitish ash and the surrounding area appeared to have been baked a brick red color. Beneath the pit was another floor consisting of brown soil, beneath which was another pit of the same dimensions and fill as the first pit. The excavation continued until discovering an additional three floors and three pits. Post holes were also recorded around the pit. No artifacts were encountered during Miller's excavation.

Kelly and De Baillou's (1960) excavation the following year confirmed Miller's findings but also discovered considerably more information. They interpreted each "cap" beneath successive pits as living floors, representing five mound stages. Large posts were erected at the corners of the rock distribution, each representing a cardinal direction. They determined that the rock mound was actually clover-shaped, rather than ovoid. The entire mound was encompassed by a lattice-like screen of saplings. The final stage of the mound construction was covering the stone with basket loads of clay, upon which a structure was erected. The structure on top of the mound was presumably Cherokee. A dump on the northeast side of the mound produced trade beads, bottles, crockery, gun flints, trade pipes and other artifacts of the proto-historic period. "Lamar" pottery was also found in the northeast dump.

Investigation at Tomassee. Another lower Cherokee town, Tomassee (38OC186), was excavated in the mid 1980s to document recent disturbances from deep plowing and vandalism (Smith et al. 1988). Tomassee is located a few kilometers east of the Andrew Pickens Ranger District (Figure IV.1). Investigation revealed a substantial Middle Woodland Connestee phase occupation, in addition to the eighteenth century Cherokee occupation. The total extent of the Cherokee occupation was not determined, but results indicated that Tomassee clearly was a significant cultural resource that deserved preservation and additional archeological research.

Investigations in Lake Keowee-Toxaway and Lake Jocassee. Extensive survey and excavation were conducted along the Keowee River in the 1960s, in preparation for the planned construction of a nuclear and hydroelectric plant. The work was conducted by the South Carolina Department of Archaeology, the precursor to the South Carolina Institute of Archaeology and Anthropology, under the direction of William Edwards (Combes 1969). The survey identified 33 sites, of which nine were tested and six were excavated. Unfortunately, little of the work was reported. One of the excavations produced a monograph (Grange 1971). In addition, a brief summary of the field work was presented by Beuschel (1976), who worked from the small amount of surviving documentation. Most of the

maps and notes of the excavations, as well as many of the artifacts, have been lost or have little provenience.

Much of the work at Keowee-Toxaway focused on the excavation of Fort Prince George (38PN1) and the Cherokee villages of Toxaway (38OC3) and Keowee (38OC1) (Beuschel 1976). Toxaway was mentioned in censuses from the 1750s, and warriors from the town are known to have joined an uprising in 1759 (Crane 1956:173). In 1760, Colonel Montgomery looted and burned the town, but it may have already been abandoned in favor of fortified settlements at Conasatchee and Estatoe (Crane 1956:201-209). Keowee, which was visited by William Bartram, was recognized as the governing town of the Lower Cherokee (Corkran 1962:3). In 1753, Fort Prince George was established near Keowee. Excavations at Toxaway revealed two Cherokee house patterns measuring about 4 by 10 m, as well as a Qualla phase component (Beuschel 1976). The records of the excavations at Keowee and Fort Prince George are of such poor quality that little can be stated regarding their findings or significance.

The only excavation at Keowee-Toxaway that produced a published monograph consisted of the work at the I.C. Few site (38PN2), which was described by Grange (1971). The site was located on a floodplain on the east bank of the Keowee River in Pickens County, near the sites of Fort Prince George and Keowee village. Excavations of a low rise in the floodplain identified a number of burials, some of which were accompanied by shell beads, pipes, and gorgets. Major occupations dated to the Connestee phase of the Middle to Late Woodland periods and to the Mississippian period. A Historic Cherokee settlement was also noted.

Excavations were also undertaken at the Wild Cherry site (38PN22), on the east bank of the Keowee River. Because the excavations apparently lacked any control over provenience, Beuschel (1976) analyzed all of the material from the site as a surface collection. Based on her analysis, the site appears to have represented a single occupation dating to the Connestee phase. Basic component data from the excavations at the Pine Tree Nursery (38PN33) and Rock Turtle (38PN4) sites indicate that these date primarily to the Pigeon and Historic Cherokee phases, respectively.

Survey was also conducted prior to the construction of Lake Jocassee, and a brief statement of the results were presented by Beuschel (1976). Seven sites were identified and two were tested. Little component information is available for these sites, but Beuschel noted that pottery producing sites were less frequent here than in Lake Keowee, suggesting that most dated to the Archaic period.

The Cherokee Archeological Project. Between 1963 and 1971, the Research Laboratories of Archaeology of the University of North Carolina conducted extensive surveys in western North Carolina, as well as adjacent portions of South Carolina, Tennessee, and Georgia. Over 1400 sites were identified, and several of these were excavated. The results of some of the research have been synthesized by Dickens (1976) and Keel (1976). The project also conducted excavations at several sites.

Keel (1976) reported on excavation of three multi-component sites in the Appalachian Summit of North Carolina, north and northeast of the Andrew Pickens District: Tuckasegee (31JK12), Garden Creek (actually a cluster of five sites) and Warren Wilson (31BN29). The Tuckasegee site, located on the north bank of the Tuckasegee River, first appeared on the George Hunter map of 1730 as a Cherokee town (Salley 1917). Keel (1976) explored a total of 1,075 square

feet of Tuckasegee, consisting of three 5-x-5-ft test excavations, nine10-x-10-ft block excavations and a 5-x-20-ft step trench excavated down the cut bank of the river floodplain. A burned, circular Cherokee structure preserved in place was encountered during excavations. The structure contained at least 15 perimeter posts and four sets of paired posts for the roof supports. Burned roof rafters radiating out from the center of the collapsed structure were clearly visible. In addition to the Cherokee occupation, diagnostic artifacts were recovered dating from the Early Archaic (Palmer and Kirk corner notched), Late Archaic (Savannah River Stemmed and soapstone vessel sherds), Early Woodland (Coosa notched and Swannanoa ceramics and stemmed point), Middle Woodland (Pigeon ceramics and side notched points), Late Woodland (Connestee ceramics and Garden Creek triangular) and Mississippian (Pisgah ceramics and Madison triangular points) periods.

The Garden Creek sites consist of five sites on the east bank of the Pigeon River near Canton, North Carolina. Three of these sites are mounds (designated Mounds 1-3) and the other two are villages associated with Mounds 1 and 2 (Keel 1976:65). Excavations of Mound 2 produced solid chronological evidence to form a Woodland through Mississippian sequence (Swannanoa, Pigeon, Connestee, Pisgah) and Mound 1 produced chronological evidence that Qualla followed Pisgah. Significantly, the Garden Creek sites also revealed that communication existed between the Connestee phase people and the Hopewell culture of Ohio. The morphology of prismatic blades made from chalcedony and gray and black chert were found to be statistically similar to those produced in the Ohio valley (Keel 1976:136).

The Coweeta Creek site, a mound and village site in the Little Tennessee River valley in Madison County, North Carolina, was extensively excavated in the late 1960s. The site dates to the Historic Native American period, but probably has a prehistoric origin, and thus was an ideal site for the Cherokee Project to study origins of Cherokee culture. The public townhouse on the mound was the subject of the most intensive excavations, but other portions of the site were also tested and large quantities of artifacts and ecofacts were recovered. The site data have recently been revisited in a special edition of *Southeastern Archaeology* (Volume 21, Number 1, 2002). Among other articles, Rodning and VanDerwarker (2002) discuss the layout and chronology of the site, Lambert (2002) discusses the bioarchaeology of the site, and Keel et al. (2002) provide an overview of the site and the Cherokee Project.

The Warren Wilson site (31BN29), situated on the northern floodplain of the Swannanoa River, is a stratified multi-component site with occupation encompassing the Middle Archaic through Mississippian periods. Keel (1976) focuses on the Swannanoa phase of the Early Woodland period to better define the period. At least 12 cultural features were attributed to the Swannanoa phase, 11 of which were rock-filled pit hearths. The remaining feature was identified as a ceremonial cache. In another feature, a cache of 25 Otarre Stemmed points was attributed to the Savannah River phase of occupation. All remaining features within the Late Archaic through Early Woodland zones were designated as Savannah River phase rock-filled pit hearths.

Dickens (1976), who was field director during Keel's excavations, concentrated on the Pisgah phase at the Warren Wilson site. His intent was to define the Pisgah phase through sites, structures, features, burials, artifacts, ceramics and food remains from two major excavations. He found that the Pisgah ceramic distribution centers around Asheville, North Carolina, but it occurs as far south as the confluences of the Tugaloo and Chauga Rivers and the North and South Saluda Rivers. Large Pisgah phase villages contained platform mounds and smaller villages reused substructures of

Connestee phase mounds. Burials typically were located within the house floors and sometimes immediately adjacent to the house. Dickens dated the Pisgah phase to A.D. 1000 to 1450. By 1450 he notes a merger between Lamar and Pisgah ceramic decorative styles. Moore (2002) has conducted additional analysis of the plan and layout of the 17 domestic structures and seven palisade walls dating to the Pisgah Phase to conclude that such small Mississippian villages disply organization and planning similar to that seen in larger villages.

Excavations at Brasstown Valley. New South Associates, Inc., completed excavations at three sites (9TO45, 9TO48 and 9TO49) in the Brasstown Valley of Town County, Georgia (Cable et al. 1997). These investigations are some of the largest ever conducted in the region, uncovering some 24,000 square meters and identifying more than 11,500 features. The work revealed major occupations from the Early Woodland (Dunlap), Middle Woodland (Cartersville), Early Mississippian (Etowah, Woodstock) and Late Mississippian or Historic Cherokee (Lamar/Qualla) periods. Possible circular post structures were noted in association with the Middle Woodland habitation of the sites. More definitive circular post structures and portions of palisades were credited to the Early Mississippian occupation. The Lamar/Qualla settlement included subrectangular winter houses, rectangular summer houses and circular corn cribs. Results of these investigations have been published in *Early Georgia* (Volume 28) with each article of the volume focused on a particular aspect of the work conducted at Brasstown Valley (see Cable 2000a, 2000b; Cable and Reed 2000; Joseph 2000; Raymer 2000; Raymer and Bonhage-Freund 2000).

Cultural Resources Overview of Chattahoochee National Forest. The Chattahoochee National Forest encompasses a large portion of the Blue Ridge Mountains, so its geography and patterns of human land use are very similar to the Andrew Pickens Ranger District. Jack Wynn (1982) summarized the cultural resources on Chattahoochee National Forest. Wynn's (1982) overview provides information on cultural resources investigations on or near Chattahoochee National Forest and describes the known cultural resources on the Chattahoochee National Forest. Summaries of known cultural resources include descriptions for specific sites and for particular site types known to occur on the Chattahoochee National Forest.

Enoree Ranger District

The archeological record of the Enoree Ranger District of the Sumter National Forest contains a considerable number of surveys that have been conducted. However, few sites have been tested and still fewer have been excavated (Appendix F) (Figure IV.3). In addition, the surrounding area seems to have drawn less attention from archeologists, perhaps because of the lack of large reservoir projects such as those in the Savannah River Valley. Nevertheless, scattered large survey and excavation projects have been conducted in the region, as the following review of projects on and near the Enoree Ranger District demonstrates.

Archeological Survey

Archeological survey on the Enoree Ranger District began in 1977 with several small surveys of proposed construction activities. Some cursory surveys of larger tracts scheduled for land exchanges also occurred at this time. Timber stands scheduled for harvesting were surveyed for the

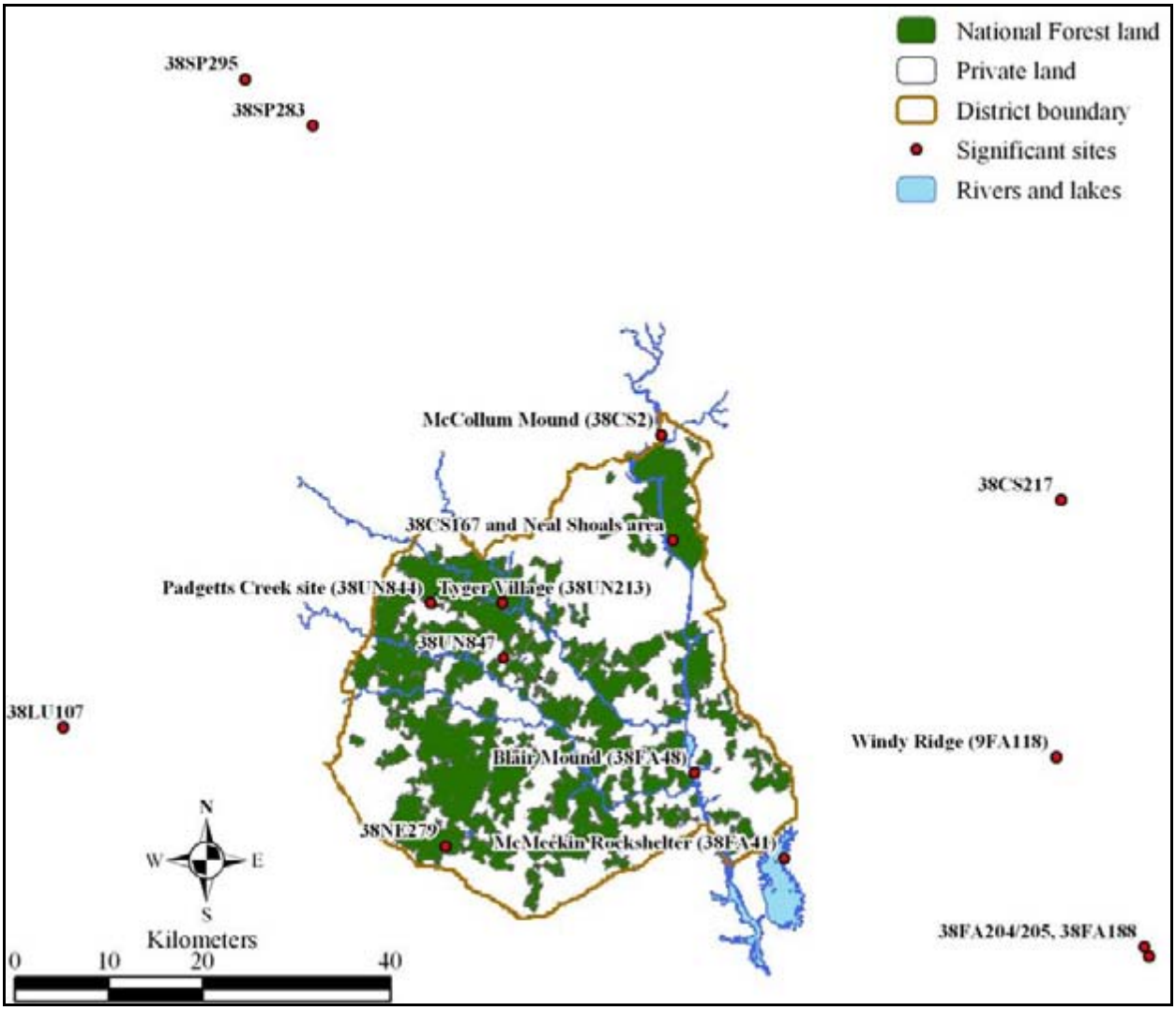

Figure IV.3. Locations of Major Sites and Project Areas On and Near Enoree Ranger District of the Sumter National Forest.

first time in 1978 and after 1982 became the main reason for archeological survey. The bulk of the initial survey work on the Sumter National Forest, from 1977 through 1990, was reconnaissance level and performed by Forest Service archeologists. Some timber stand surveys resulted in very short reports covering area of limited size, but some, especially those conducted by outside archeological consultants, are considerably larger reports covering multiple timber stands (Appendix F). In 1990 the Forest Service began contracting larger timber stand surveys. Survey of larger land tracts under prescribed methodologies using more rigorous field procedures resulted in larger, better quality and more readily accessible site data compared to the earlier surveys.

Through 2002, a total of 1,696 sites have been recorded on Forest Service land on the Enoree Ranger District.

Excavation and Other Investigations

A few intensive investigations have been conducted on the Enoree Ranger District by Forest Service personnel. Elliott (1984f, 1984h) conducted test excavations at the Tyger Village site (38UN213) (Figure IV.3), which had first been noted by archeologist Tommy Charles. Elliott recorded post features arranged in parallel rows, suggestive of a rebuilt rectangular structure. One pit feature yielded an uncorrected radiocarbon date of 550+/-80 B.P. (Beta-10056), which would place the occupation in the 1300s or 1400s.

Bates (2000c) tested two sites in a proposed land exchange. The Padgetts Creek site (38UN844) (Figure IV.3) yielded a sherd assemblage similar to the Pisgah series, as well as that found at the Tyger Village. Work at site 38UN847 produced quartz tempered sherds typical of the Woodland period.

More testing and excavation has been conducted by private consultants on the Enoree Ranger District. Price's (1991b) testing of a plowed, upland lithic scatter (38NE279) yielded evidence of four discrete, relatively intact activity areas. The site contained evidence of biface manufacture and use during the Morrow Mountain phase, implying that quarry/procurement sites and base camps are not always clearly distinguishable. The demonstration that behavioral information may be recovered from such upland sites gives hope to the possibility that excavation data from more of these sites may eventually refine our understanding of settlement in the inter-riverine zone of the Piedmont.

Louis Berger and Associates, Inc. completed cultural resources survey, testing and data recovery for re-licensing of the Neal Shoals Hydroelectric Project on the Broad River on the Enoree Ranger District (Ahlman 2004; Duplantis 2004; Kratzer and Rinehart 1996) (Figure IV.3). Thirteen sites were test excavated, revealing a full range of prehistoric components from Late Paleoindian through Mississippian periods. Most sites were in terrace/bluff and rockshelter settings. Most notable was the recovery of Hardaway Side Notched and Hardaway Dalton PP/Ks from site 9CS167, located on a bench adjacent to the river. The two Paleoindian points were recovered from Stratum C, which was otherwise sterile across most of the site (Rinehart 1998). Data recovery was conducted at 38CS112, a multicomponent site with diagnostic artifacts from the Early Archaic through the Mississippian periods (Ahlman 2004). Considerable damage to the site from years of agriculture and erosion curtailed the ability of the researchers to critically evaluate this site in light of regional settlement-mobility models. Data recovery excavations at 38UN374, a site consisting of a rock overhang with Middle Woodland period artifacts (Swift Creek, Connestee and Yadkin) distributed directly beneath (Duplantis 2004) (Figure IV.4) revealed that the artifacts beneath the overhang had actually washed in from the Broad River.

Two complexes of standing structures were evaluated on the Enoree Ranger District. Chapman (1991b) examined a ca. 1930s house and related barn on Compartment 73 and recommended the complex ineligible for listing on the National Register due to their severely deteriorated condition. He also examined a complex of two houses and a barn on Compartment 50 that dated to between 1880 and 1920. Although interesting for the use of squared logs in both houses, the structures were judged to be too severely deteriorated to be eligible for listing on the National Register. None were associated with the early settlement of the area.

Figure IV.4. Excavations in Progress at 38UN374 (USDA Forest Service, James F. Bates photographer).

In 1995, Sarah Fick evaluated the Dispatcher's House at the Enoree (Indian Creek) Work Center (Fick 1995). The work center was built by the CCC in 1934-35 and the Dispatcher's House was built ca. 1936 (Fick 1995:1). Because the Dispatcher's House had been moved and had undergone extensive alterations, it was recommended as not eligible for listing on the National Register (Fick 1995).

Investigations Near the Enoree Ranger District

The Parr Reservoir Survey and Excavations. The Parr Reservoir on the Broad River north of Columbia and just south of the Enoree Ranger District was surveyed by the South Carolina Institute of Archaeology and Anthropology in 1972 (Teague 1979). The project included the Parr and Monticello Reservoirs and two proposed nuclear plant sites. The survey recorded 27 sites, using a combination of surface inspection along transects and the excavation of test units in selected high probability areas. Occupations were noted from the Early and Middle Archaic, later Woodland, Mississippian and Historic periods. Most of the sites were shallow and lacked preservation integrity. The Blair Mound (38FA48) and the McMeekin Shelter (38FA41) (Figure IV.3) were reasonably intact and were selected for more intensive investigations.

The McMeekin Shelter consisted of a rock shelter on the south bank of a tributary of Frees Creek. Six stratigraphic units yielded a modest sample of pottery and lithics that included evidence of occupation from around 2000 B.P. to the nineteenth century. Check and simple stamped sherds were found in the lower levels, with undecorated, smudged and burnished types more common in

the upper levels. Teague (1979:41) suggested the site represented a small camp associated with a larger settlement on the Broad River.

The Blair Mound was situated on a terrace of the Broad River (Teague 1979). Excavation produced a number of Early to Middle Mississippian features, including a bundle burial found off the mound. Work in the mound revealed a substantial wattle and daub structure with paired upright posts. Charcoal from a cooking hearth associated with the structure produced a radiocarbon date of A.D. 1195. The structure had apparently burned and the earthen mound was constructed over its remains. Pottery from the site resembled the Pisgah and Pee Dee complexes of North Carolina, with the former being most common.

The I-77 Survey. In the mid 1970s, the South Carolina Institute of Archaeology and Anthropology surveyed 31 miles of the proposed I-77 corridor located along the divide between the Broad and Catawba Rivers in Fairfield and Chester Counties (House and Ballenger 1976). The survey, which consisted of a 20% stratified random sample with additional investigation of selected areas, recorded 59 sites. Most of the prehistoric sites were low density lithic scatters, interpreted as temporary hunting camps located throughout the uplands and along larger streams. Generally, the I-77 corridor was used most often by Archaic period people, with larger, possibly permanently occupied sites located in river valleys. Semi-sedentary occupations occur in larger upland creek valleys and a wide range of temporarily occupied resource extraction sites lie scattered throughout the uplands (House and Ballenger 1976:77). Woodland and Mississippian occupation of the corridor was sparse.

Excavations at Windy Ridge. In 1977, House and Wogamon (1978) of the South Carolina Institute of Archaeology and Anthropology conducted excavations of the Windy Ridge site (38FA118) (Figure IV.3), originally discovered during the I-77 survey (House and Ballenger 1976). The work represents the first upland lithic scatter in the Piedmont of South Carolina to be intensively investigated. Although stratigraphic data was lacking, House and Wogaman (1978) demonstrated that artifact distributions can reveal meaningful spatial and behavioral information, even from low density, disturbed sites. Projecting from their excavated sample, the authors speculated that the Middle Archaic scatter at Windy Ridge was from 10 to 20 m in diameter and contained 50 to 150 Morrow Mountain hafted bifaces and 515 kg of debitage. House and Wogamon (1978) presented archeological correlates of base camps and extraction stations, as well as a model of prehistoric utilization of the inter-riverine zone. They suggested that Windy Ridge was repeatedly occupied for brief periods, probably for the hunting and processing of deer.

Investigations at Soapstone Quarries. In the late 1960s students and staff of Woffard College began documenting prehistoric soapstone quarries in Spartanburg County. In the late 1970s Terry Ferguson re-examined the data and the sites and produced a masters thesis (Ferguson 1976) and manuscript on this series of bowl manufacturing sites (Ferguson 1979). This was essentially a survey-level investigation.

Investigations at the Ridgeway Mine. Archeological survey of 865 acres at the Ridgeway Gold Mine in Fairfield County by Garrow and Associates resulted in the identification of 79 sites, representing Early Archaic through Middle Woodland and nineteenth through twentieth century components, occupying an inter-riverine setting at the Piedmont/Coastal Plain interface (Elliott

1987; Elliott and O'Steen 1987). The area was most intensively used during the Archaic period, especially the Middle Archaic.

Testing on one site (38FA188) (Figure IV.3) in the Ridgeway tract produced evidence of intact subsurface deposits from the Middle Archaic, Woodland and Historic periods (Elliott 1987). Elliott (1987) compared the more significant Morrow Mountain component with data from Windy Ridge (House and Wogaman 1978) and Doerschuk (Coe 1964) sites and found the component to fall between House and Wogaman's (1978) definition of a base camp and an extractive camp (Elliott 1987:79).

Another site (38FA204/205) in the Ridgeway tract (Figure IV.3) was tested and later excavated by O'Steen (1994). The investigations revealed evidence of occupation in an inter-riverine, lower Piedmont setting from the Middle Paleoindian through Middle Woodland periods. Three shelters or structures dating to the Late Archaic period (ca. 1600 B.C.) were inferred from artifact and feature distributions. In addition, possible evidence of an Early Archaic structure and two Paleoindian activity areas were identified. Middle Woodland material was confined primarily to the disturbed plowzone.

Excavations at the Rabon Creek Site. Wood and Gresham (1982) conducted testing, including systematic shovel testing and nine 2-x-2-m test units, at the Rabon Creek site (38LU107) in Laurens County (Figure IV.3), west of the Enoree Ranger District. The excavations resulted in the identification of a number of features, including a large pit, several post molds, and a rock-filled hearth. The major period of occupation appears to date to the Middle Woodland period, as indicated by the presence of Connestee Check Stamped and Simple Stamped ceramics. Two Guilford and eight Morrow Mountain points attest to a fairly intensive Middle Archaic settlement of the site as well. In addition, four small triangular points were recovered, suggesting that the site was utilized during the Mississippian period.

Examination of Rosemont Plantation. Archival research and archeological investigation was conducted at Rosemont Plantation, an Antebellum plantation and Postbellum plantation/tenant farmstead in Laurens County (Trinkley et al. 1992). The research tracked Rosemont's difficult prosperity during the Antebellum period and its eventual disintegration in the later Postbellum period. Artifacts supported Rosemont's prosperity during the Antebellum period, consisting of the more expensive creamwares and transfer printed wares rather than lead glazed wares (Trinkley et al. 1992:66). Though ravaged by scavengers, erosion and time, Rosemont still produced a valuable glimpse of the planter elite in the South Carolina Piedmont with its archeological remains.

Broad River Backhoe Testing. Archeologists with the South Carolina Institute of Archaeology and Anthropology conducted deep testing in the Broad River floodplain north of Columbia, in order to evaluate procedures for locating deeply buried sites and to look for such sites in Piedmont settings (Goodyear and Colquhoun 1987). Using a backhoe, testing was conducted at seven localities. Historic period deposits were found in many of the areas, often at appreciable depth. Terraces above the floodplain and somewhat removed from the main river channel exhibited the greatest likelihood for undisturbed sites.

Excavations at Nipper Creek. Testing of the Nipper Creek site (38RD18) by the South Carolina Institute of Archaeology and Anthropology produced evidence of intact deposits over 1 m

deep (Wetmore and Goodyear 1986). The Nipper Creek site is located near the confluence of Nipper Creek and the Broad River, south of the Enoree Ranger District. Relative artifact densities at various levels indicated that the site was occupied almost continuously from the Paleoindian period through the Mississippian period (Goodyear et al. 2003) with the most intensive occupations occurring during the Morrow Mountain phase of the Middle Archaic period and the Late Archaic period. About 20 m^2 has been excavated at the site. Nipper Creek was revisited in 2002 specifically to evaluate the potential for using optically stimulated luminescence (OSL) to date sediments in the absence of good C^{14} samples (Goodyear et al. 2003). OSL dates returned ages close to the ages of the Early Archaic and Clovis period artifacts recovered from those levels, suggesting that OSL dating is an adequate alternative to C^{14} dating where sediments have not been altered by pedogenesis or a significant amount of bioturbation. Typically, this requires samples beneath 1 m in depth in sandy soils.

Excavations at McCollum and Blair Mounds. Further up stream on the Broad River, excavations on the McCollum Mound (38CS2) (Figure IV.3) near Neal Shoals on the Enoree Ranger District by Ryan (1971) revealed ceramics similar to Pee Dee, Irene, Pisgah and Savannah II series, suggesting occupation between A.D. 1200 and 1400. A buried Late Archaic zone was also discovered. Teague (1979) excavated portions of the Blair Mound (Figure IV.3), located further south on the Broad River, and distinguished two stages of mound construction. Dates from pre-mound midden place the earliest stage of construction after A.D. 1300. Ceramics recovered from the site appear most similar to the Pisgah phase, although some Pee Dee and Etowah sherds were noted. Both of these mound sites are located within the Enoree Ranger District, but not on Forest Service property.

Investigations at Lake Blalock. Survey, testing, and data recovery were conducted north of the Enoree Ranger District at Lake Blalock in Spartanburg County. An initial reconnaissance survey of the proposed lake was conducted by the South Carolina Institute of Archaeology and Anthropology in 1977 (Most 1977). Surface inspection revealed 13 sites, consisting mainly of non-diagnostic quartz lithic scatters. No additional work was conducted before the lake was completed. However, intensive survey and site testing were recently completed by Southeastern Archeological Services, Inc. in anticipation of the raising of the lake level by 4 m (Benson and Callahan 1999). Approximately 51 km of shoreline was surveyed, resulting in the identification of 16 sites. Twentieth century historic components were most common, but prehistoric occupations ranging from the Middle Archaic through Mississippian periods were also identified. Three sites were tested. One of these (38SP290), a single component Late Archaic site, produced large amounts of debitage but few tools and no features. Testing at site 38SP283 revealed Middle Archaic, Early Woodland, Middle Woodland and Mississippian occupations. No features were identified, but the artifact assemblage provided good evidence of longer term occupation, perhaps most notably during the transition between the Late Archaic and Early Woodland periods. Finally, testing of a Late Woodland period site (38SP295) produced a number of Connestee phase ceramics and a few sherds with a mixture of sand and soapstone temper. Three features were encountered, including one post and two dense clusters of fire-cracked rock.

Archeological Data Recovery for the I-85 Northern Alternative, Spartanburg. New South Associates, Inc. conducted testing and data recovery excavations at four sites that included a Middle and Late Archaic encampment, two historic period cemeteries and an historic period farm. No features were found associated with the Middle and Late Archaic site (38SP97), but through surface artifact distributions four distinct encampments were defined. Tool manufacture and maintenance

were primary tasks conducted at these four loci. 38SP101, the Finch Farm, received the most intensive archeological attention on the project. Social class distinctions were expressed through housing and landscaping, rather than through artifacts left behind by the owner and tenants. Refuse patterns reflected awareness of the value of cleanliness during the late nineteenth and early twentieth centuries. "Romanticizing" death was expressed by clothing of the interred during the mid nineteenth century on cemetery site 38SP105 and was expressed by coffin hardware during the later nineteenth and early twentieth century on 38SP106.

Excavations at the Williams Place in Spartanburg County. The Williams Place is a nineteenth century Scotch-Irish farmstead that retained ten buildings of log construction at the time of its testing phase excavation (Resnick 1988:1). The standing structures allowed detailed mapping of a nineteenth century farmstead layout and helped to determine its degree of integration in the surrounding cultural system by the presence/absence of certain structural units. Resnick (1988:72) outlines five main conclusions based upon research conducted at the Williams Place: 1) the Williams Place adhered to the Upland South intrasite settlement pattern, a mixture of German, English and Scotch-Irish cultural traditions; 2) economic and ecological factors influenced farm layout; 3) historical, architectural and archeological data indicated that the Williams' were relatively wealthy; 4) the site contained an intact archeological record; and 5) archeological investigation identified an earlier (early nineteenth century) component not documented by historic sources.

Excavations at the Richburg Quarry Site. New South Associates, Inc., completed data recovery at the Richburg Quarry site (38CS217) (Figure IV.3), a quartz quarry and lithic workshop in eastern Chester County (Cantley 2000). The work, which included dispersed sampling units and large block excavations, led to the definition of a number of distinct activity areas where tool manufacturing tasks were completed. Cantley (2000:108) concluded that the structure of the site reflected an unsystematic use of space, with little attempt to organize tasks into separate areas. Although only Late Archaic and Early Woodland diagnostics were recovered, the dominant occupation was dated to the Middle Archaic period, based on morphological similarities among the large number of preforms that were recovered and the Morrow Mountain and Guilford types. Placing the excavations in the context of other work in the central Carolina Piedmont, Cantley (2000:109) argues that increasing population and decreasing territorial range placed greater constraints on settlement during the later portions of the Middle Archaic. Higher quality quartz outcrops, which are less common in the region than many have assumed, would thus have become more valued.

Long Cane Ranger District

The Long Cane Ranger District lies adjacent to one of the most thoroughly studied portions of Georgia and South Carolina—the middle Savannah River Valley. Northwest of the district, extensive archeological survey, testing and excavation was conducted in the 1980s prior to the completion of Lake Russell. Less thorough, but still relatively intensive, work was conducted before the construction of J. Strom Thurmond Lake (Clarks Hill Reservoir) in the late 1940s and early 1950s. Strom Thurmond Reservoir and the Savannah River form the western boundary of the Long Cane Ranger District. In addition, a number of archeological studies of varying intensity have been conducted at the Savannah River Site located about 30 km to the southeast. A considerable amount of archeological work also has been conducted in metropolitan Augusta and at Fort Gordon, Georgia, located about 15 km to the south.

Comparatively little archeological excavation has been conducted on the Long Cane Ranger District itself (Appendix F). However, a few large scale Phase I surveys and Phase II testing projects have been undertaken by Forest Service archeologists and outside consultants. Figure IV.5 documents the locations of the major sites and project areas on and near the Long Cane Ranger District.

Through 2002, a total of 1,974 sites have been recorded on the Long Cane Ranger District.

Archeological Survey

Archeological survey on the Long Cane Ranger District has been similar to that of the Enoree Ranger District. Initial cultural resources surveys were geared toward proposed road construction projects, land exchanges, recreational facilities and other specific land improvement projects or activities. These predominantly were conducted by archeologists from the Forest Service. Survey of land scheduled for timber harvests began in 1982. The vast majority of the 165 survey reports from 1983 to the present by Forest Service archeologists and private contractors deal with surveys of stands or other tracts of land scheduled for harvesting or timber related activities. Beginning in 1989, the Forest Service began contracting with consultants for archeological surveys of often large assemblages of land parcels scheduled for harvesting.

Excavation and Other Investigations

Forest Service personnel have completed several Phase II testing projects on the Long Cane Ranger District. Elliott (1984f) tested three sites (which he referred to as the "Huckleberry Group") on Compartment 246 (Figure IV.5). Two of the sites (38MC426 and 38MC427) were shallow, plow-disturbed artifact scatters with multiple prehistoric components. The third of the Huckleberry sites (38MC428) consisted of a stratified levee deposit with Late Archaic through Mississippian occupations. This site was better preserved.

Bates (1988r) conducted testing at two sites on Compartment 268. Work at site 38MC690 revealed Middle Archaic (Morrow Mountain), Early Woodland and Late Woodland components. The second site (38MC692) produced evidence of Middle Archaic (Morrow Mountain), Late Archaic (Savannah River) and Early Woodland (Yadkin) occupations. In addition, Bates (1987ii) completed limited testing of site 38MC627 prior to a land exchange with the De la Howe School. The site revealed evidence of Middle Archaic and Late Archaic settlement, diagnosed by Morrow Mountain, Guilford and Savannah River Stemmed PP/Ks.

A few testing and excavation projects have been completed on the Long Cane Ranger District by private consultants. One of these, undertaken by Southeastern Archeological Services, Inc., (Benson 1992b), focused on a multicomponent site (38AB527) (Figure IV.5) previously identified by Bates (1992a) in the drained Parsons Mountain Lake. Early Archaic (Palmer PP/K), Late Archaic (broad stemmed PP/Ks), Early Woodland (Swannanoa PP/Ks), Middle Woodland (Yadkin and Duvall PP/Ks and Cartersville pottery) and Late Woodland/Early Mississippian (Madison PP/Ks) components were noted, with an apparently semi-sedentary occupation during the Middle and Late

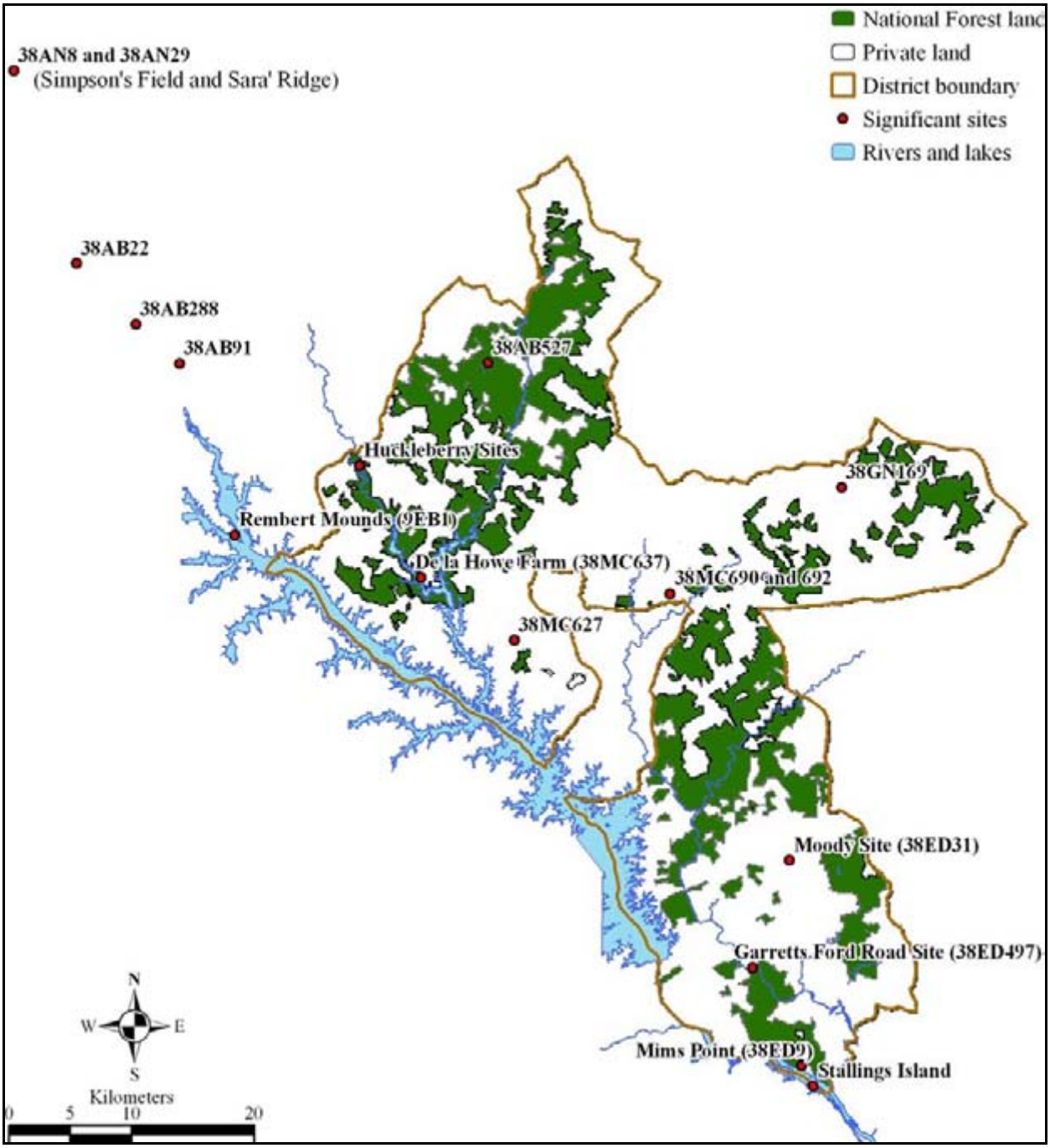

Figure IV.5. Locations of Major Archeological Sites On and Near Long Cane Ranger District of the Sumter National Forest.

Woodland periods. No features or discrete activity areas were located, largely due to extensive site disturbance from lake construction.

More extensive testing was reported by Kratzer et al. (1996) of Lewis Berger and Associates, Inc., who tested 16 sites for the re-licensing of the Stevens Creek Hydroelectric facility. Not all of the sites were located on the property of the Forest Service. Of those components that could be identified, those dating to the Woodland period were the most common, occurring on five sites. Few of these could be assigned to a more specific subperiod or phase of the Woodland period. Middle

Archaic (Morrow Mountain) were nearly as frequent, having been identified at four sites. Early Archaic, Late Archaic and Mississippian components were each identified at single sites.

The most intensive work on the Long Cane Ranger District consists of the work by Sassaman (1993b) at the Mim's Point site (38ED9) (Figure IV.5). Mim's Point is a multicomponent site on Compartment 329, at the confluence of Stevens Creek and the Savannah River. The site was visited by Claflin (1931) and Bullen and Green (1970) during their investigations at the nearby Stallings Island site. Elliott (1983o, 1984g) later conducted test excavations at Mim's Point while an employee of the Forest Service.

Intensive investigations by Sassaman (1993b) included the stripping of 68 square meters in the core area of a shell midden. These excavations revealed intensive occupations during the Middle Archaic, Late Archaic and Late Woodland periods. Excavations at Mims Point recovered a large sample of Middle Archaic bifaces, various Late Archaic artifacts and complicated stamped pottery that appears to represent a Late Woodland occupation. One Late Archaic structure was indicated by a series of post holes and an interior hearth. Three burials were also identified. Nutshell from two of these features produced uncalibrated dates of 4025+/-65 B.P. and 5730+/-70 B.P. (AA-8840). A comprehensive report of these more recent investigations at Mim's Point is currently under preparation.

Several evaluations of standing structures have taken place within the District. Chapman (1991b) examined and evaluated seven complexes of standing structure. These consisted of a ca. 1900-1920 shed on Compartment 296, a ca. 1900-1920 house and barn on Compartment 298, a ca. 1890-1910 badly deteriorated house, shed and later carport on Compartment 281, a much altered ca. 1920-1935 house with a barn and two sheds on Compartment 282, an early twentieth century (ca. 1910) I-House with two barns and a shed on Compartment 241, a ca. 1900 house (Georgian cottage) and shed on Compartment 223, and a ca. 1900 house (center hall cottage) and shed on Compartment 229. Chapman (1991b) debated about the I-House on Compartment 241and ultimately concluded that none of these seven complexes were eligible for listing on the National Register.

Chapman also described and evaluated the Bradley Work Center, a complex of work buildings used by the Forest Service and built in the mid-1930s by the Civilian Conservation Corps (Chapman 1993). The complex consists of eight structures, two of which were historic (older than 50 years). One of these, a powder magazine, was located a good distance away and was not included in the survey. The building that was examined is the work center/warehouse, a simple rectangular frame building used for storage and as a workshop. Mainly citing numerous alterations of the structure, and loss of associated other buildings, Chapman concludes that this building is not eligible for the National Register.

Investigations Near the Long Cane Ranger District

The Greenwood County Archaeological Reconnaissance. Archeologists affiliated with Lander College surveyed 1905 ha (4707 ac) of clear cut tracts and shoreline in Greenwood County (Rodeffer et al. 1979). The survey, which comprised a 2 percent sample of Greenwood County, resulted in the identification of 358 sites, including 295 with prehistoric components and 167 with historic components. Site densities varied from 15 to 20 sites per square km in the uplands near the

headwaters of major creeks, 1 to 2 sites per square km in the northern areas and down the Saluda-Savannah divide, and 19 to 48 sites per square km along major drainages. A large proportion of sites contained diagnostic artifacts, giving many assemblages temporal context, but the lack of well-defined sequences and assemblages prevented a thorough understanding of the changes in technologies and settlement systems through time. However, using environmental data and controlled surface collections, the authors were able to address many of the theoretical constructs developed by House and Ballenger (1976) and Goodyear et al. (1979), as well as propose directions for further research.

Archeological Survey of the Primary Connector from Laurens to Anderson. In 1978, the South Carolina Institute of Archaeology and Anthropology conducted a survey of a 31.5 mile long, 500 ft wide corridor in Laurens and Anderson Counties, north of the Long Cane Ranger District and west of the Enoree Ranger District (Goodyear 1978; Goodyear et al.1979). The survey relied primarily on surface collection, although subsurface testing was conducted along creek margins. The survey identified 164 sites, 137 with prehistoric components and 28 with historic components. Nearly all of the prehistoric sites consisted of low density lithic scatters in upland areas, but occasional ceramics were noted on a few sites located near streams. The survey identified widespread evidence for occupation during the Early Archaic period (Palmer phase), with particular emphasis upon occupation of ridge divides between major rivers (Goodyear 1978:12). However, Goodyear and colleagues (1979) noted the most intensive habitation dated to the Middle Archaic. Late Archaic components were also common, with most of these producing only lithics.

The Laurens to Anderson survey produced strong evidence of Early and Middle Woodland habitation, with most of the sites from these eras found on south facing slopes away from the major streams. In contrast, very few Mississippian sites were identified. The few examples consisted mainly of isolated triangular PP/Ks, suggesting that the area was used primarily for hunting rather than more intensive habitation.

Survey and Excavation in Lake Thurmond. A number of cultural resources investigations were conducted as a result of the construction of Clarks Hill Reservior/Lake Thurmond. The reservoir extends 37 miles up the Savannah River, 17 miles up the Little River in South Carolina and 29 miles up the Little River in Georgia, forming most of the western boundary of the Long Cane Ranger District.

An initial reconnaissance of Lake Thurmond was conducted by Caldwell and Miller in 1948 as part of River Basin Survey Program of the Smithsonian Institution (Miller 1974). Their survey resulted in the identification of 125 prehistoric archeological sites, covering the full range of occupation from Paleoindian to Mississippian periods. The National Park Service conducted a survey of historic sites the following year (Riley 1949). Four major categories of historic sites were identified: military fortifications, "dead towns," gold mines and other historic sites. The latter included the Long Cane and Vann's Tract Massacre sites and the site of the Revolutionary War battle of Long Cane. Complete accounts of the surveys in Lake Thurmond were never published. However, Elliott (1995) presents a valuable overview of the original survey and subsequent excavations, based on primary documentation at the Smithsonian Institution and other entities. Limited excavations were conducted at only 18 of the sites that were identified in Lake Thurmond (Elliott 1995:i). Further, only a few of these excavations were reported in detail.

Following initial testing by Miller (1949), Caldwell (1951) conducted excavation at the Lake Springs Shell Heap, located within the impoundment area between Little Lake Springs Creek and the Savannah River. The upper layers at Lake Springs consisted of a stratified Late Archaic shell midden measuring about 130 by 90 feet and 3.5 feet thick. Faunal remains indicated heavy exploitation of deer and small mammals, as well as turtles and several varieties of birds and fish. The excavations revealed small hearths and fired areas, suggesting that some type of relatively permanent shelters may have been present. In addition, 17 human burials were identified. The Late Archaic levels produced Stallings fiber tempered pottery and Savannah River Stemmed projectile points, as well as a number of ground stone and bone artifacts. Beneath the Late Archaic levels, Caldwell found an older stratum related to what he termed the "Old Quartz Industry" (Caldwell 1954). Subsequent investigations have demonstrated that the artifact complex that Caldwell described often contains Morrow Mountain points, indicative of Middle Archaic association.

The Rembert Mound site (9EB1) (Figure IV.5), located above the confluence of the Broad and Savannah Rivers, also was tested by Caldwell (1953) before the creation of Lake Thurmond. The mounds had been noted by William Bartram (Van Doren 1955), George White (1849) and C.C. Jones, Jr. (1873). The latter produced a map of the site showing one large mound surrounded by four smaller ones. The site was later investigated by John Rogan, as described by Cyrus Thomas (1894). Still later, WPA investigations were conducted at the site in 1939 (Wauchope 1966). Although the site was flooded by the lake, recent investigations suggest valuable information remains (Anderson et al. 1994). Diagnostic artifacts from investigations at the Rembert Mounds site date primarily to the Woodland and Mississippian periods (Elliott 1995:34-35).

Caldwell (1974b) also conducted excavations at the site of Fort Charlotte, located in McCormick County about four miles below the confluence of the Savannah and Broad Rivers. Fort Charlotte was constructed in 1766 to provide protection from Indian raids for the backcountry settlers of the area.

Since the completion of the lake, much of the land immediately surrounding Lake Thurmond has been converted to recreational facilities and wildlife management areas under the supervision of the U.S. Army Corps of Engineers, which has sponsored a number of large surveys of these areas. Some of the more intensive studies include those by Adams et al. (2001), Blick et al. (1996), Braley (1999), Buchner et al. (1997), Grover and Lolley (1996), Grover et al. (1999), Price (1993), and Southerlin and colleagues (1994). Together these eight surveys covered more than 61,768 acres and recorded or revisited 1810 sites.

The survey data suggest a very low incidence of Paleoindian sites in the area (Adams et al. 2001: 398-411; Buchner et al. 1997; Elliott 1995). Early Archaic components are more common and fairly widely distributed. The Middle Archaic is well represented, and there are several distinct clusters of sites near Little River and Fishing Creek. This clustering could correlate with quartz veins in these areas. Similar clustering was also noted in the distribution of Late Archaic components.

Woodland period sites—particularly those from the Early and Late Woodland—appear to be relatively uncommon in the Lake Thurmond area (Grover et al. 2001:403-404). However, Braley (1999) noted a higher incidence of Middle Woodland sites near the Broad River, where one small mound of this period is present. Occupation of the Lake Thurmond area increased in the Early and Middle Mississippian periods. Consistent with models suggesting the abandonment of the central

Savannah River Valley during the Late Mississippian period, such components are very rare on surveys in the region. Nevertheless, Braley (1999:393) noted a few Late Mississippian components near Anthony Shoals on the Broad River in Georgia. He suggests that the shoals may have been visited regularly, perhaps to take advantage of anadromous fish runs in the spring.

Historic era house sites are ubiquitous in the Lake Thurmond area, with the majority dating to the late nineteenth and twentieth centuries (Grover et al. 2001:408-412). Liquor stills and gold prospecting pits are sometimes encountered in the area. Rock piles, presumably related to historic agriculture, are common in many areas (Cridlebaugh 1983; Gresham 1985).

Despite the extent of the survey in the Lake Thurmond area, relatively few sites on Corps of Engineers property have been investigated in greater detail since the creation of Lake Thurmond. One important exception is the Anthony Shoals site (9WS51) on the Broad River in Wilkes County, Georgia, which was evaluated for the effects of looting by Wood and Smith (1988). Excavations revealed stratified deposits from the Late Archaic (Savannah River), Early Woodland (Kellogg) and Late Mississippian (Lamar) periods. A number of features were encountered, including a large stone hearth. Unfortunately, the work demonstrated that as much as one-quarter of the site had been destroyed by looting.

Gresham (1986) conducted data recovery on two upland lithic scatters, 9LC21 and 9LC22, situated above Lake Thurmond in Lincoln County, Georgia. Lithic artifacts from the larger of the two sites, 9LC21, were distributed along a ridge crest encompassing a knoll and saddle. Diagnostic artifacts from 9LC21 were limited to the Early and Middle Archaic periods. The smaller site, 9LC22, was limited to a knoll of a ridge nose and was predominantly occupied during the Middle Archaic period. Both were found to be plow zone sites of limited preservation integrity. No cultural features were found on either site. In spite of the substantial amount of excavation conducted on the two sites, Gresham (1986:68) reports that the endeavor did not substantially add to our interpretation of Early and Middle Archaic use of the uplands, that both sites appear to represent repeated occupations of short duration and limited activity.

Cridlebaugh (1983, 1985a, 1985b) conducted reconnaissance-level survey, intensive survey and site testing in Lincoln County, Georgia and McCormick County, South Carolina in the Lake Thurmond/Clarks Hill reservoir. Cridlebaugh (1983) test excavated two rock cairn sites, one in Lincoln County, Georgia and the other in McCormick County, South Carolina. Her survey of the Clarks Hill Cherokee Recreation Area in Lincoln County and the Catfish Recreation Area in McCormick County covered ca. 311 ha and recorded 54 prehistoric and historic period sites (Cridlebaugh 1985a). A subsequent testing phase project in the Catfish Recreation Area investigated five sites. Two of these were multicomponent prehistoric and historic sites, one was a Late Archaic camp and two were rock cairns (Cridlebaugh 1985b).

Archeological Reconnaissance of the Little River Development. Holschlag and Rodeffer (1976) conducted a reconnaissance survey of a 1000 acre tract in southwestern McCormick County, on the western edge of the Long Cane Ranger District and adjacent to Lake Thurmond. Their work resulted in the identification of 49 sites, including four historic era cemeteries, 19 historic era house sites, a section of the eighteenth century Savannah River Road, 19 prehistoric lithic scatters, and six sites with rock cairns.

Archeological Survey of the Little River-Buffalo Creek Tract. Drucker and Anthony (1984) conducted a 931 ha (2,300 ac) cultural resources survey along Clarks Hill Lake/Strom Thurmond Reservoir in South Carolina. They recorded 108 previously unrecorded archeological sites. These sites included prehistoric campsites, nineteenth-twentieth century homesteads, nineteenth century cemeteries, and historic period rock piles. Among these sites was a stratified Paleoindian campsite, James L. Petigru's Badwell plantation, a probable black yeoman farmstead, a tenant farmstead and a rural black schoolhouse.

Surveys in Lake Russell. Lake Richard B. Russell is located on the Savannah River northwest of the Long Cane Ranger District. The lake covers about 29 miles of the river between the dam site just above Thurmond Lake and Lake Hartwell to the north. From the late 1960s to the mid 1980s, an extensive archeological survey program was conducted in the area of effect for the lake. The work, which was funded by the Corps of Engineers and directed by the National Park Service, generated a plethora of archeological reports. The results of the investigations were also summarized in a two- volume technical report (Anderson and Joseph 1988) and a popular report (Kane and Keeton 1993).

Preliminary archeological surveys of Lake Russell were conducted by the South Carolina Institute of Archaeology and Anthropology and the University of Georgia. Hutto (1970) recorded approximately 48 prehistoric and historic sites in the Georgia portion of the reservoir. Archaic period sites were particularly well-represented, with 27 pre-ceramic Archaic and six Late Archaic Stallings Island phase sites identified. Evidence of Woodland period settlement was, by contrast, limited. Mississippian occupation was more substantial, as indicated by the identification of eight presumed village sites. Mounds were noted at the Beaverdam Creek and Tate sites. On the South Carolina side of the river, preliminary survey by the South Carolina Institute of Archaeology and Anthropology revealed 32 sites (Hemmings 1970a, 1970b). As on the Georgia side, most of these sites dated to the Archaic period. No Woodland or Mississippian period sites were recorded, which Hemming attributed to the lack of extensive floodplains.

In the late 1970s, more intensive surveys of Lake Russell were conducted by the South Carolina Institute of Archaeology and Anthropology. Taylor and Smith (1978) recorded 490 sites on their survey of approximately 16,188 ha (40,000 ac). A total of 417 sites (85.1%) were found on upland landforms and 65 (13.3%) sites were found on lowland landforms. Among the remaining eight sites, one was located on an island in the Savannah River and the other seven were comprised of old dams and fish weirs. All prehistoric periods except for Paleoindian are represented by diagnostic artifacts and historic period occupation is documented from the mid-to-late eighteenth century through the middle twentieth century. A total of 818 components were identified (607 prehistoric and 211 historic), but 353 of the prehistoric components were non-diagnostic. Among prehistoric components, Middle Archaic was most prevalent, comprising 16.6 percent (n=101) of all prehistoric components. Woodland period components (Early, Middle and Late Woodland combined) were least prevalent, comprising only 4.3 percent (n=26) of all prehistoric components. A comparison between Georgia and South Carolina sides of the project area revealed greater relative prevalence of Late Archaic through Mississippian period components on the Georgia side and a greater relative prevalence of Early and Middle Archaic components on the South Carolina side.

Additional intensive survey and testing projects were conducted in the Savannah River floodplain, on islands in the river and along the routes of highways, pipelines and railroads that were

relocated for the lake (Anderson and Joseph 1988). In all, about one-quarter of the total area to be affected by the project—a sample of approximately 15,000 acres—was systematically inspected. More than 700 archeological sites were recorded as a result of all of the surveys associated with the lake construction. Also as part of the archeological investigations, paleoenvironmental studies were conducted along the Savannah River and adjacent landforms in the vicinity of the lake. These investigations were detailed in a series of technical reports (Foss et al. 1985; Segovia 1985; Sheehan et al. 1985) and in the volumes summarizing the archaeology of the lake (Anderson and Joseph 1988).

Excavations of Prehistoric Sites in Lake Russell. Following the surveys, a number of large-scale archeological excavations were completed in the flood pool of Lake Russell during the early and mid 1980s. As with the preliminary survey work, these excavations generated a number of technical reports. The results of the investigations were also summarized in a two volume technical report (Anderson and Joseph 1988) and a popular report (Kane and Keeton 1993).

The Beaverdam Creek Mound site, located near the mouth of the creek of the same name, was initially investigated in 1971 by Joseph Caldwell of the University of Georgia, as reported by Lee (1976). More comprehensive excavations were undertaken in the early 1980s by Rudolph and Hally (1985). Vandalism and erosion had severely impacted the mound, complicating excavation and interpretation. Rudolph and Hally proceeded by clearing out Caldwell's excavation in the center of the mound and then by excavating a series of radiating trenches. Their work revealed at least four mound structures and two submound earth lodges. Nearly 50 burials were uncovered, including one with copper ear spools, marine shell ornaments and over 7000 small shell beads. Although portions of the village had been lost to agriculture and erosion, numerous features were identified, including several burials and a structure. Rudolph and Hally suggested that the site was occupied between A.D. 1200 and 1250, which they named the Beaverdam phase.

Other sites (9EB219, 9EB207, 9EB92 and 9EB208) near the mouth of Beaverdam Creek were investigated by New World Research, Inc. The primary occupations of the four sites date to the Mississippian period, possibly representing outlying hamlets associated with the Beaverdam Creek Mound. Possible structures were identified at two of the sites.

Large-scale excavations were also directed at the Bullard Group of sites, 9EB76 and 9EB348, on levees paralleling the Savannah River in Elbert County, Georgia. Work by Commonwealth Associates, Inc., (Anderson et al. 1985) revealed minor components spanning the Middle Archaic through Mississippian periods. Features were relatively common, including the remains of a probable Late Woodland or Early Mississippian house. A carbon sample taken in direct association with Late Archaic fiber tempered pottery yielded a date of 4500+/-135 B.P., among the earliest known for artifacts of this type.

The South Carolina Institute of Archaeology and Anthropology directed intensive excavations at the Gregg Shoals and Clyde Gulley sites, located at the confluence of Pickens Creek and the Savannah River (Tippitt and Marquardt 1984). Work at the former site revealed intact cultural horizons extending more than 3 m below the ground surface, with components ranging from Early Archaic through Mississippian. In the Mississippian layers, several post holes and small pits suggested the presence of a small structure. At Gregg Shoals, Early Archaic and Early Mississippian

(Etowah) components were noted. Components here were stratified horizontally, rather than vertically.

Professional Analysts, Inc., conducted excavation at three sites (38AB22, 38AB91, and 38AB288) in Abbeville County, South Carolina. Each site was found to contain artifacts and features dating from the Middle Archaic through Mississippian periods. Subsequent excavations were conducted by Commonwealth Associates, as reported in Anderson and Schuldenrein (1985) and Anderson and Joseph (1988). The later work documented a sealed Late Archaic midden at site 38AB91, possibly stratified Late Archaic deposits at site 38AB288 and a number of Late Archaic and Woodland features at site 38AB22. The latter site also contained a sealed Mississippian deposit, possibly representing the remains of a small hamlet.

The most extensive investigations of prehistoric occupations in Lake Russell were directed at the three sites comprising the Rucker's Bottom group (Anderson and Joseph 1988; Anderson and Schuldenrein 1985). Rucker's Bottom, the largest of these sites, covered an area of over 60 hectares north of the confluence of Van Creek with the Savannah River. Excavations of the site revealed limited occupation during the Paleoindian period and stratified deposits from the Early, Middle, and Late Archaic periods. Woodland and Mississippian occupation layers at Rucker's Bottom were confined mainly to the plowzone, but mechanical stripping revealed several thousand features, including a number of houses, burials and two overlapping ditch and palisade lines. Cartersville and Connestee ceramics marked the Woodland period settlement. More common, however, were Savannah and Early Lamar ceramics of the Mississippian period. The Van Creek site (9EB382) also yielded evidence of Early Archaic through Mississippian settlement. Here, however, the deposits were limited to disturbed, plowzone contexts. The Mississippian assemblage consisted almost exclusively of small triangular PP/Ks, which has been interpreted as evidence that the site served as a hunting or butchering station associated with the more sedentary and substantial village at Rucker's Bottom. Finally, the Harper's Ferry site (9EB75), contained a Woodland occupation marked by Cartersville Simple Stamped ceramics in a buried A horizon.

Southeastern Wildlife Services, Inc., conducted excavations at five sites in the flood pool for Lake Russell (Wood et al. 1986). The sites were equally divided between Anderson County, South Carolina, and Elbert County, Georgia. Excavations at Paris Island South (9EB21) and Sara's Ridge (38AN29) identified large and dense Late Archaic middens. The artifact assemblages from these sites included large numbers of PP/Ks, fragments and perforated soapstone slabs. Many features were identified, and a possible structure was noted at Sara's Ridge. The sites appear to represent base camps that were occupied for relatively long periods. Excavations at the other four sites focused mainly on Early and Middle Woodland settlements that appeared to have been less permanent. However, at Simpson's Field (38AN8) the excavators also noted occupations from the Late Woodland and Mississippian periods. The former included a mixture of Swift Creek and Napier Complicated Stamped ceramics. Associated features included large pits, possible earth ovens and a possible structure. One of the Late Woodland features produced a date of around A.D. 750. The Mississippian occupation included Late Savannah and Early Lamar ceramics.

Investigations of Historic Period Sites in Lake Russell. Prior to mitigation, the History Group, Inc., (1981) prepared an overview of the history of the Lake Russell area. Their study demonstrated the range and limitations of the documentary evidence that was available for the area, and provided suggestions for the excavations of historic sites to complement the archival data.

Subsequent to the historical study, excavations were undertaken at several historic sites in the flood pool of Lake Russell, as well as in the rights-of-way for associated infrastructure and recreation areas. Carolina Archeological Services, Inc., conducted work at the Allen Plantation and the Thomas Clinkscales Farm, both in Abbeville County, South Carolina (Drucker et al. 1982). Archeological, oral history, and archival work indicated the Clinkscales site was occupied by people of lower socio-economic status during the postbellum era. The Allen Plantation, on the other hand, was a higher status white residence both before and after the Civil War. Activity areas at the site were different, but disposal patterns were similar, with an emphasis on sweeping the living area and depositing the refuse into gullies and ravines (termed the "Piedmont Refuse Disposal Pattern").

Wapora, Inc., mitigated another five nineteenth and twentieth century farm sites in the Lake Russell area (Gray 1983). The excavations suggested that the five farms were occupied by four families representing four distinct socio-economic classes: black small farmer, white small farmer, "average" white planter and white large-scale planter. Differences in intra-site patterning (especially the layout of buildings) and artifact assemblages among the farms were correlated with these classes.

Building Conservation Technology, Inc., investigated the site of Fort Independence, with the aim of finding the remains of the fort and assessing their archeological integrity (Bastian 1982). Initially a frontier plantation, Fort Independence was purchased by South Carolina in 1777. The fort functioned primarily as a deterrent to Native Americans in the backcountry and as a Whig enclave in an area otherwise dominated by Tory sentiment. The excavations identified the fort as a square, log stockade with three bastions surrounding a log plantation house. Evidence of burning was identified, consistent with archival records indicating the fort was burned by Tories in 1779.

Extensive investigations were conducted at Millwood Plantation by the Mid-American Research Center of Loyola University (Orser 1988; Orser and Nekola 1985; Orser et al. 1987). The plantation, which was occupied by James Edward Calhoun from 1834 to 1889, included at least 30 structures, most of which were examined archeologically.

Newman (1984) investigated seven water-powered mill sites in the Lake Russell impact area. His research indicated that six of the mills were turbine powered and that the seventh was driven by an undershot wheel. Although structural remains were incomplete at most of the sites, three of the mills had turbines preserved in place. Newman provided data on the development of water powered industry in the area.

Summary of Savannah River Region Eighteenth Century Towns. Elliott (1991) summarizes what is known and not known about Colonial period towns in the Savannah River region. The summary synthesizes information about the state of investigations concerning both European and Native American settlements and provides examples of opportunities to increase our understanding of the Colonial period in the Savannah River region.

Prehistoric Investigations at the Savannah River Site. Large areal surveys and site testing from the Savannah River Site provide important information on prehistoric settlement in the area south of the Sumter National Forest, in the upper Coastal Plain and Fall Line Sandhills. Much of the work on the prehistoric archaeology of the Savannah River Site was summarized by Sassaman et al. (1990).

Early Archaic settlement of the Savannah River Valley was modeled by Anderson and Hanson (1988) with subsequent refinement by Sassaman and colleagues (1990), based mainly on the work at Savannah River Site. Their model depicts a logistically organized, mixed foraging and collecting strategy in the Piedmont during the winter and late spring. During these seasons, large base camps were established along the terraces of the Savannah River and foraging was conducted in a 10 km zone in the surrounding area. Smaller groups traveled occasionally to secure more distance resources, such as high quality chert. The model suggests that the settlement system was characterized by greater residential mobility during the summer and fall. During these seasons, base camps splintered into smaller groups and moved frequently, particularly in the Piedmont. Anderson and Hanson (1988) suggest that bands were tied to particular watersheds. Regional integration of bands from different watersheds occurred on occasion at settlements near the Fall Line.

The record of the Middle Archaic at the Savannah River Site, like that across much of Georgia and South Carolina, consists of relatively small sites that are little differentiated by artifact density or type (Sassaman et al. 1990). Local raw materials predominate. These trends have been interpreted as evidence that residential mobility was high, albeit within limited territorial ranges (Blanton and Sassaman 1989; Sassaman 1983; Sassaman et al. 1990). In other words, people moved frequently, but not far to fulfill their subsistence needs.

For the Late Archaic period, the archeological record of the Savannah River Site and surrounding portions of the Savannah River Valley suggests a model of greater seasonal aggregation and dispersal (Sassaman 1983; Sassaman et al. 1990). In the spring, aggregation occurred at sites near the Fall Line such as Stallings Island and Lake Springs, when anadromous fish and shellfish were plentiful. Such sites exhibit abundant evidence for activities other than subsistence procurement, such as craft production and ceremonialism. Another, somewhat smaller and less permanent level of settlement is represented by sites at the mouths of the major tributaries of the Savannah River. These are taken to represent the locations of residential groups "gearing up" for ensuing trips into the surrounding uplands during the fall and winter to take advantage of resources such as deer and nuts that might have been more prevalent in these areas.

Archeologists at the Savannah River Site note abrupt changes in settlement strategies following the Late Archaic period (Sassaman et al. 1990:315). The large sites at the Fall Line along the Savannah show little evidence for Early Woodland occupation, and there is little evidence for seasonal population aggregation. Instead, sites are widely dispersed, prompting archeologists at the Savannah River Site to characterize this as a period of population infilling. Some concentration of settlement is apparent on the central portions of tributary streams. These concentrations may have served as loosely connected centers for the exchange of information and goods.

The Middle Woodland period witnessed a continued infilling of the uplands and smaller tributaries of the Savannah River Site (Sassaman et al. 1990:300). In addition, however, many of the terraces at the mouths of the major tributaries were reoccupied, after a hiatus during the Early Woodland. Many of these sites are large and contain dense deposits, suggesting permanent or repeated occupation.

A distributional (siteless) study also was conducted on a 550 ac tract on the Savannah River Site (Cabak et al. 1996). The approach provided more detailed information concerning the

organization of hunting, seasonality of habitation, and activity differentiation that would not have been recognized using the traditional site-identification approach.

Historic Investigations at or near the Savannah River Site. Brooks and colleagues (2000) investigated a Colonial period cattle-raising site, the Catherine Brown site (38BR291), on the Aiken Plateau in South Carolina. The investigation identified two dwelling structures, a smokehouse, probable locations of two sheds, and two activity areas, the cowpen and an animal processing area (Brooks et al. 2000:180). Excavations provided a detailed record of the material culture, as well as valuable intrasite data on early historic cattle raising.

Brooks and Crass (1991) documented historic period settlement patterns on the Savannah River Site. Site distribution was evaluated in relation to specific environmental variables. These variables, as they had for the prehistoric period on the Savannah River Site, proved to be significant determinants to historic period site location (Brooks and Crass 1991:47). Site distribution was tracked among four temporal periods: the Colonial Period (ca. 1730-1780), the Revolutionary War/Early National Period (ca. 1780-1830), the Antebellum Period (ca. 1830-1865) and the Postbellum/Modern Period (ca. 1865-1951). Colonial period and Revolutionary/Early National period settlement was strongly influenced by locations of flowing water. Rank 1 streams were important for early settlers because they were more numerous than other ranked streams and Rank 4 streams were important for transportation (Brooks and Crass 1991:49-52; 83). Antebellum period sites were found slightly further from water sources compared to Colonial and Revolutionary/Early National period sites and Postbellum/Modern period sites were located furthest from water sources (Brooks and Crass 1991:62-67). Historic sites from the Colonial to Antebellum periods were located close to main roads and as settlement disbursed further into the uplands during the Postbellum/Modern period, sites were located further from main roads. Land availability might have been a particularly critical factor in determining settlement patterns (Brooks and Crass 1991:86).

Also at the Savannah River Site, Cabak and Inkrot (1997) studied changes in material culture among modern (1875-1951) rural farmsteads in Aiken County, South Carolina. They found that modernization of Aiken County rural farmsteads did not progress uniformly. Local architecture and land tenure, where greater than 50 percent of farmers in 1950 were tenants, changed little over the 75-year period. Nevertheless, all rural households, regardless of tenure class, purchased a wide range of commercially produced goods. This analysis required a reconstruction of material culture in the project area between 1875 and 1950, using archival information from 112 farmsteads and archeological information from 54 farmsteads.

Crass et al. (1997) investigated several sites at New Windsor Township, South Carolina, a Colonial period settlement of Swedish immigrants. The most intensive excavations took place at the Bartley House Site (the Meyer House Plantation). They identified three main areas: Area 1 – the house complex, which consisted of the main house with a chimney and an adjacent shed; Area 2 – the slave quarter, which consisted of a house, privy and shed; and Area 3 – a barn and privy (Crass et al. 1997:67). Structures were comprised of earthfast construction. A household garden was centered among the three areas.

Other investigations conducted by Crass et al. (1997) at New Windsor include shovel testing at Fort Moore, the search for potter Andrew Duche', shovel testing and feature identification at the David Zubly, Jr. Site, feature identification at the Ulrich Eggar Site, identification of iron shops and

a fortified house at the John Tobler Site, and shovel testing and ground penetrating radar investigations at the George Galphin Silver Bluff Site. Their efforts at the George Galphin Silver Bluff Site discovered Galphin's brick house, outbuildings or slave quarters, possibly his log warehouses, and perhaps an old road trace.

Data recovery excavations were conducted at three Postbellum archeological sites (38BR619, 38BR629 and 38BR522) dating to ca. 1900-1951 (Crass and Brooks 1995). The goal of these excavations was to further refine the material correlates of tenant and yeoman settlements (Rinehart 1995:5). Materials recovered from these sites were compared to documented consumer behavior during the middle twentieth century. Some results of this study found that ownership was not an effective variable in artifact patterning and that assemblage diversity correlates with tenure group (Crass 1995:214-215). Research priorities for Postbellum/Modern farms were also outlined defining productive and non-productive topics for further study (Crass 1995:216-219).

Bobby Jones Expressway Investigations. Southeastern Archeological Services, Inc., completed data recovery at three sites in the path of the Bobby Jones Expressway Extension Project (Elliott et al. 1994). Two of the sites—Phinizy Swamp (9RI178) and Lovers Lane (9RI86)–contained important remains from the Archaic period. The Old Dike site (9RI34) was found to be too disturbed to have significant research potential.

The Phinizy Swamp site contained stratified Early and Middle Archaic deposits on a relict sand ridge. The presence of an Early Archaic shelter was inferred, but the most intensive occupation of the site came during the Middle Archaic period and at the transition between the Middle and Late Archaic periods. Diagnostic artifacts associated with these occupations included Morrow Mountain, MALA and Brier Creek PP/Ks. A radiocarbon date of 4805 +/- 139 B.P. was obtained from the transition Middle/Late Archaic occupation.

At Lovers Lane, the dominant occupation occurred during the Late Archaic period, as indicated by Savannah River and Kiokee Creek PP/Ks and Stallings Island and Thoms Creek pottery. A minimum of six Late Archaic structures were identified at Lovers Lane, mainly through post hole patterns and associated pits and artifact concentrations. Ten radiocarbon dates were obtained at Lovers Lane, but only half of these dated to the Late Archaic period as expected.

Combining the work at the Phinizy Swamp and Lovers Lane with other excavations in the region, Elliott and his colleagues (1994) posited a revised sequence of artifact phases for the late Middle and Late Archaic periods in the central Savannah River Valley. Their sequence includes a Phinizy Swamp complex (3500 to 2500 B.C.) followed by Paris Island (2500 to 2200 B.C.), Mill Branch (2200 to 1850 B.C.) and Lovers Lane (1850 to 1350 B.C.) phases, concluding with the Dickens Complex (1350 to 900 B.C.).

Excavations at Taylor Hill. Elliott and Doyon (1981) test excavated six archeological sites on the floodplain of the Savannah River in Augusta for a proposed railroad relocation project, which never took place. One of the six sites is the Taylor Hill site (9RI89), which produced Late Paleoindian artifacts (Dalton PPKs). The broad range of tool types recorded on this site suggested that the location was repeatedly visited throughout the Late Paleoindian and Early Archaic periods–one of several locations likely utilized on a seasonal basis. A range of activities was represented by the tool assemblage. Elliott and Doyon (1981:152) note that the physiographic

location of 9RI89 is similar to that of Early Archaic sites found in the Columbia, South Carolina area. Two other sites that were excavated on this project (9RI45 and 9RI85) also produced Early Archaic diagnostic artifacts, but both were low density lithic scatters in disturbed contexts.

The Late Archaic period was also represented among four of the six sites that were tested by Elliott and Doyon (1981). Two of the four sites, 9RI45 and 9RI89, did not appear to represent intensive occupations. The other two sites, 9RI86 and 9RI88, produced a significant amount of material and also contained features, suggesting longer-term occupations during the Late Archaic period. 9RI86 appeared to have been occupied throughout the Late Archaic-Early Woodland transition, where both pre-ceramic and ceramic phases of the Late Archaic are represented by the occupations. 9RI88 appears to have been a strictly pre-ceramic. Both sites produced numerous perforated soapstone objects and both displayed evidence of food processing and consumption. 9RI86 was later mitigated for the Bobby Jones Expressway extension project (Elliott et al. 1994) (see above).

Excavations at Rae's Creek, Augusta. Rae's Creek is a deeply stratified site located on an alluvial terrace of the Savannah River just north of Augusta. Crook (1991) excavated about 60 m^2 to as deep as 4 meters, revealing Early Archaic to historic period deposits. The focus of investigation was the Middle Archaic Morrow Mountain stratum, from which over 11,000 artifacts and three radiocarbon dates were obtained. Three dates were also obtained from a Late Archaic Stallings Island component on the site. No features were encountered and carbon for dating came from the identified stratum.

Survey of Dry and Long Cane Creeks. Dan and Rita Elliott, Kathy Mulchrone and Joel Jones conducted a surface survey of a ca. 245 ac, recently cleared tract located adjacent to Compartment 176 on the Long Cane Ranger District (Elliott 1993). The survey area consisted primarily of upland landforms. Diagnostic hafted bifaces observed were Morrow Mountain, Late Archaic and Jacks Reef. Prehistoric ceramics were limited to three isolated occurrences, two of which likely dated to some time during the Woodland period.

Excavation of the Moody Site. Within the confines of the Long Cane Ranger District, but not on Forest Service property, is the Moody Site (38ED31) (Figure IV.5). The site produced numerous examples of Late Archaic hafted bifaces made from metavolcanic stone (Moody et al. 1985). Measurements of these points made by Ledbetter (1995:234-237) for comparison among other site-specific groups of Late Archaic points suggest that the metavolcanic hafted bifacess from the Moody Site are Paris Island points.

Excavation of the Mill Branch Sites. Southeastern Archeological Services, Inc., completed large block excavations on the Mill Branch sites (9WR4 and 9WR11) within the upper Brier Creek drainage in Warren County, Georgia (Ledbetter 1991a, 1995). The data recovery produced evidence of Early Archaic, Middle Archaic, Late Archaic, Early Woodland and Mississippian occupations. However, the period of most intensive occupation for each site was during the Late Archaic period. Radiocarbon dates recovered from Late Archaic features on site 9WR4 ranged from 3928 ± 97 to 3631 ± 102 B.P.. A single date of 3549 ± 134 was obtained from a Late Archaic feature on site 9WR11. In addition to a dense midden deposit, excavations at 9WR4 revealed a well preserved semi-subterranean structure about 5 m long and 4 m wide with post holes lining the interior walls of the

pit. The house fill yielded large metavolcanic Savannah River projectile points, large quantities of perforated soapstone disks and small amounts of fiber tempered pottery.

Investigations at Fort Gordon. Extensive surveys at Fort Gordon Military Reservation, in the Georgia Sandhills just west of Augusta, have resulted in a large and comprehensive database (Benson 1995c; Braley 1991a; Braley and Price 1991; Campbell et. al. 1981). The survey data demonstrate a low incidence of Paleoindian sites, with the few examples marked mainly by Dalton PP/Ks and thus dating very late in the period (Benson 1995c:110-122). Early Archaic sites are more common and show a diversity of size and artifact density, suggestive of a division between logistic camps and more permanent residences. Middle Archaic sites are common, but relatively redundant in their size and artifact assemblages, as is common in the region (Sassaman et al. 1990). This is taken to indicate high residential mobility, at least within a certain territory. Benson (1995c) suggests that Fort Gordon may have been occupied only during the wetter phases of the climatic fluctuations of the Middle Archaic.

Late Archaic components are relatively common on Fort Gordon (Benson 1995c:114-15). Components from this period that are located near main creek channels often display greater artifact diversity, including such things as soapstone and ceramics, probably reflecting more permanent occupation. In contrast, the upland sites are smaller and less diverse, indicating more specialized and temporary settlement. The Early Woodland settlement of the reservation looks similar. This continuity is reflected in the fact that nearly one-half of the Late Archaic sites identified on one major survey (Benson 1995c) were reoccupied during the Early Woodland.

Middle Woodland components are more evenly distributed across Fort Gordon than those of any other prehistoric period (Benson 1995c:121). As with the preceding period, sites in the bottomlands tend to be larger and have more diverse artifact assemblages, but on Fort Gordon the differences between upland and bottomland sites are even more marked. There is a tendency for pairing of sites, which Benson (1995c:188) suggests could be related to site abandonment and relocation in the face of soil depletion.

As in much of the Savannah River Valley, Late Woodland sites are relatively rare at Fort Gordon (Benson 1995c:118). Sites are thinly distributed across the reservation, with most occurring near permanent water sources and thus perhaps reflecting an increased reliance on horticulture. A few lithic sites are located high above water sources, however. The same pattern holds true for the Early and Middle Mississippian periods. Fort Gordon may have been almost entirely abandoned by the Late Mississippian.

Although the survey data from the reservation is thorough, few sites on Fort Gordon have been investigated more thoroughly. Grover (1997) tested ten sites at Fort Gordon, recommending four of these eligible for listing on the National Register. The investigation recovered artifacts from the top one meter of sediment with concentrations around 30 cm below surface, which is a typical vertical distribution for prehistoric sites in sandy soil. The testing project was able to identify components not identified during the survey phase of investigation on some sites, but was not able to confirm other components that were identified during the survey phase of investigation. Among the four recommended eligible sites, Middle Archaic was most often represented and appears to account for the majority of the artifact inventory. One of the four sites is a complex of historic period

structures representing a probable site for lignite processing. The actual location of the lignite mine was not discovered, however.

Investigations at the Ninety-Six National Historic Site. A number of archeological investigations have been conducted by various agencies at the Revolutionary War period settlements and battlefield at the Ninety-Six Historic Site, east of the Long Cane Ranger District. The first season of research, which was conducted by the South Carolina Institute of Archaeology and Anthropology, focused on defining the locations of cultural resources and excavating a series of fortifications (South 1970). Later, South excavated the sites of Holme's Fort and Williamson's Fort, as well as a section of the town of Cambridge (South 1971, 1972; South et al. 2006). In association with this work, Steven Baker (1972) reported on the excavation of a cellar in the town of Cambridge.

After the initial investigations by the South Carolina Institute of Archaeology and Anthropology, several seasons of field research were undertaken at Ninety-Six by the Greenwood County Historical Commission. Holschlag and Rodeffer (1976b, 1976c, 1978) completed excavations at the Holme's and Williamson's Forts and directed investigations at the siegeworks and jail. Later, they conducted exploratory excavations in the village of Ninety-Six (Holschlag and Rodeffer 1977).

In the late 1970s, the Ninety-Six site was transferred to the National Park Service. In 1977, the Park Service's Southeast Archeological Center conducted test excavations in an attempt to locate Nathaniel Greene's 1781 Revolutionary War camp. In addition, the Midwest Archeological Center conducted a magnetometer survey of Gouedy's Trading Post, as well as parts of the towns of Cambridge and Ninety-Six (Anderson et al. 1991:4-5). Prentice (2002) provides a summary of archeological investigation conducted at Ninety-Six during the 1996 field season and Prentice and Nettles (2003) provide an archeological overview and assessment of the National Historic Site.

Excavations at the John de la Howe Farm. In the mid 1990s Diachronic Research conducted excavations at the John de la Howe Farm (38MC637) (Steen 2002; Steen et al. 1996) within the Long Cane Ranger District on state-owned land (Figure IV.5). The farm was occupied from the 1760s to around 1806. Three seasons of field research revealed evidence of 15 structures, mostly log buildings on fieldstone foundations. Notably, the excavations revealed that de la Howe's residence was constructed of a French style known as *poteaux en tierre*, consisting of upright posts chinked with clay. Also noteworthy was the recovery of large amounts of African-American made Colono-ware pottery, rarely identified in the Piedmont. Steen and his colleagues suggest that these ceramics were produced by slaves transplanted from the coast. The excavation report presents a wealth of information on French settlement in McCormick County.

Excavation of Site 9LC24, Lincoln County, Georgia. Southeastern Archeological Services conducted data recovery at site 9LC24, west of Strom Thurmond Lake in Lincoln County, Georgia (Gresham 1985). The site consisted of a lithic scatter with seven rock piles. Mitigation of the site included the complete excavation of six of the piles, excavation of small test units, excavation of a small block and extensive soil chemistry analysis. The site, which contains a vein of high quality quartz, was heavily utilized as a quarry and workshop, primarily during the Late Archaic period. The rock piles were interpreted as the result of historic period agricultural practices.

Investigations at the Guillebeau House. Archeological and architectural investigations were conducted at the Guillebeau House, near the Long Cane Ranger District in McCormick County (Lewis 1979). The architectural studies indicated that the house, which is still standing, was constructed in the late 1700s. Archeological investigation revealed the remains of several later outbuildings. The Guillebeau House provides a rare example of intact early Colonial period Huguenot architecture, with a mix of French and British building traditions.

Investigations of Stoneware Potteries. Several studies have been undertaken on stoneware factories in the vicinity of the Long Cane Ranger District of the Sumter National Forest. Novick and colleagues (1980) conducted archival research and test excavations at the Chandler and Trapp Stoneware Factory (38GN169). Later, Landreth (1985) completed additional archeological work to identify raw material sources, examine the internal site structure and define the stages and technology of production. He identified a waster dump and kiln at the site.

Landreth (1985) also examined the Thomas M. Chandler pottery, near the Long Cane Ranger District, which operated from 1850 to 1852. A workshop, kiln and waster dump were identified through a program of intensive survey, mapping and small scale excavation. More recently, Castille et al. (1988) examined five pottery production sites in the old Edgefield District adjacent to the Sumter National Forest.

Chapter V
Sumter National Forest Cultural Resource Database

Summary Statistics of Archeological Sites

Below is a series of six tables, two for each of the three ranger districts, that outline general summary statistics of known archeological sites. These tables are duplicated in Appendix A (Archeological site distribution on the Sumter National Forest), along with many more summary and statistics tables. They do not include recorded and evaluated standing structures. A summary of standing structures on the Sumter National Forest is presented at the conclusion of this chapter.

The summary tables draw from two databases, differentiated by their respective ending dates for site record acquisition. The larger of the two is an inventory of site records kept by Forest Service Archeologists, which, at the time of analysis, included site records through the close of 2002. The database contains information on archeological components, site types, eligibility recommendations, site names and occasional comments for each site. This information was collected when the respective sites were recorded in the field. The other, smaller database is a GIS-based record of sites on the Sumter National Forest through the close of 2000. This database includes geographic location and site shape (point or polygon). A considerable amount of effort was expended to make these two site databases compatible and useful for general analyses. Details of this process, summary statistics, and comparative and statistical analyses of the site database by ranger district are presented in Appendix A. Results of this process, the finalized database, is provided in Appendix H.

Andrew Pickens Ranger District. The Andrew Pickens Ranger District has received the least amount of Phase I archeological survey on the Sumter National Forest. Thus, it contains the fewest number of archeological sites. The total number of archeological sites recorded through 2002 is 182 (Table V.1). Among these, 60 (33%) have been recommended as eligible or possibly eligible for listing on the National Register of Historic Places (NRHP). This percentage is high compared to 10 to 14 percent in the other two ranger districts. At one time two historic properties on the Andrew Pickens Ranger District were listed on the National Register. One is Ellicott Rock, situated at the intersection of Georgia, North Carolina and South Carolina. It does not have an official state site number. The other property was the Russell House, located adjacent to Chattooga Town. Since its listing, the house burned and was subsequently reevaluated, determining a significant loss of integrity. It was therefore removed from the National Register. The Andrew Pickens Ranger District also contains the only recorded Cherokee sites on the Sumter National Forest.

Table V.2 provides proportions of archeological components recorded through 2002 in the Andrew Pickens Ranger District. Two different perspectives, represented by separate columns, include or exclude unidentified lithic (UD Lithic) sites. Proportions relate to percent of all recorded components (% Total Components) and percent of all identified components (% Identified Components) within each broad archeological period, i.e., prehistoric, Cherokee and historic. The average number of components per site is 1.2.

Table V.1. Site Database Sources for Andrew Pickens Ranger District (84,266 ac).

Site Database	Total Number
Forest Service sites through 2002	182
GIS database: all sites within ranger district proclamation boundary (2000)	183
GIS database: all sites on Forest Service property (2000)	157
Total components through 2002 (includes unidentified components)	218
*Total identified components through 2002 (68 prehistoric, 7 Cherokee and 79 historic)	154
Total identified components through 2000 (used for site data analysis and comparison among archeological periods in Appendix A and Chapter VI)	93
Total Class I and II (eligible and possibly eligible) sites through 2002	60

*Includes sites identified as Woodland/Mississippian and Unidentified Woodland but not Unidentified Lithic.

Table V.2. Number and Proportion of Components among 182 Sites on the Andrew Pickens Ranger District.

Component	#	% Total Components	% Identified Components
Unidentified Lithic	**67**	**31.2**	NA
Late Paleoindian	1	0.5	1.6
Early Archaic	3	1.4	4.8
Middle Archaic	8	3.6	12.7
Late Archaic	7	3.2	11.1
Total Paleo/Archaic	**19**	**8.6**	**28.6**
Late Archaic/Early Woodland (LA/EW)	**1**	**0.5**	**1.6**
Early Woodland	7	3.2	9.5
Middle Woodland	8	3.6	11.1
Late Woodland	6	2.7	7.9
Unidentified Woodland	4	1.8	6.3
Late Woodland/Early Mississippian	2	0.9	3.2
Mississippian	15	6.8	20.6
Woodland/Mississippian	7	3.2	11.1
Total Woodland-Mississippian	**48**	**21.6**	**69.8**
Total Prehistoric	**135**	**60.8**	**100 (n=64)**
Cherokee	**7**	**3.2**	**100**
19th Century	12	5.4	15.1
19th-20th Century	45	20.7	57.0
20th Century	22	9.9	27.8
Total Historic	**79**	**35.6**	**100**
Unknown	**1**	**0.5**	**NA**
Total Components	**222**	**100**	**NA**

Enoree Ranger District. Through 2002, 1,696 archeological sites have been recorded on the Enoree Ranger District. The GIS database has 253 fewer sites (Table V.3). No sites on the Enoree Ranger District are listed on the National Register. As of 2002, 179 (10.6%) have been recommended eligible or possibly eligible for listing on the NRHP.

Table V.3. Site Database Sources for the Enoree Ranger District (161,120 ac).

Site Database	Total Number
Forest Service sites through 2002	1696
GIS database: all sites within ranger district proclamation boundary (2000)	1549
GIS database: all sites on Forest Service property (2000)	1443
Total Components through 2002 (includes unidentified components)	1990
*Total Identified Components through 2002 (358 prehistoric and 851 historic)	1209
Total Identified Components through 2000 (sample used for environmental data acquisition and analysis among archeological periods in Appendix A and Chapter VI)	600
Total Class I and II (eligible and possibly eligible) sites (2002)	179

*Includes sites identified as Woodland/Mississippian and Unidentified Woodland but not Unidentified Lithic.

Among 1,696 sites, 1,209 components have been identified with diagnostic artifacts. Nearly all historic period sites were assigned a temporal frame when they were recorded, so 70.4% of sites with identified components are historic. Four historic period sites were recorded as "unidentified." "Unknown" sites refer to rock piles. Table V.4 provides a breakdown of cultural components and their relative proportions on the Enoree Ranger District. The average number of archeological components per site is 1.2.

Table V.4. List and Relative Proportion of Components among 1,696 Sites on the Enoree Ranger District.

Component	Number	%All Components	% Identified Components
Unidentified Lithic	766	38.5	NA
Late Paleoindian	3	0.2	0.8
Early Archaic	39	2.0	10.9
Middle Archaic	131	6.6	36.6
Middle Archaic/Late Archaic	1	0.1	0.3
Late Archaic	54	2.7	15.1
Unidentified Archaic	6	0.3	1.7
Total Paleoindian/Archaic	**234**	**11.8**	**65.4**
Late Archaic/Early Woodland	6	0.3	1.7
Early Woodland	23	1.2	6.4
Middle Woodland	20	1.0	5.6
Late Woodland	4	0.2	1.1
Unidentified Woodland	8	0.4	2.2

Component	Number	% All Components	% Identified Components
Late Woodland/Early Mississippian	8	0.4	2.2
Mississippian	16	0.8	4.5
Woodland/Mississippian	39	2.0	10.9
Total Woodland-Mississippian	**118**	**5.9**	**33.0**
Total Prehistoric	**1124**	**56.5**	**100 (n=358)**
18th Century	1	0.1	0.1
18th-19th Century	23	1.2	2.7
18th-20th Century	3	0.2	0.4
19th Century	110	5.5	12.9
19th-20th Century	497	25.0	58.4
20th Century	217	10.9	25.5
Unidentified Historic	4	0.2	NA
Total Historic	**855**	**43.0**	**100 (n=851)**
Unknown	11	0.6	NA
Total Components	**1990**	**100**	**NA**

Long Cane Ranger District. The Long Cane Ranger District contains the most recorded archeological sites among the three ranger districts (n=1,974) (Table V.5). Four-hundred-and-nine fewer sites are registered in the GIS database compared to the 2002 total. Among the 1,974 sites recorded through 2002, 268 (13.6%) are recommended eligible or possibly eligible for listing on the National Register. No sites on the Long Cane Ranger District are listed on the National Register.

Table V.5. Site Database Sources for Long Cane Ranger District (118,440 ac).

Site Database	Total Number
Forest Service sites through 2002	1974
GIS database: all sites within ranger district proclamation boundary (2000)	2333
GIS database: all sites on Forest Service property (2000)	1565
Total Components through 2002 (includes unidentified components)	2401
*Total Identified Components through 2002 (549 prehistoric and 937 historic)	1486
Total Identified Components through 2000 (sample used for environmental data acquisition and analysis among archeological periods in Appendix A and Chapter VI)	776
Total Class I and II (eligible and potentially eligible) sites (2002)	268

*Includes sites identified as Woodland/Mississippian and Unidentified Woodland but not Unidentified Lithic.

Among the 1,974 recorded archeological sites on the Long Cane Ranger District, 1,486 archeological components have been identified (Table V.6). A marginally lower proportion of identified archeological components consist of historic period components (63.0%), compared to the

Enoree Ranger District. Again, "Unknown" components refer to rock piles. An average of 1.2 components have been identified on archeological sites on the Long Cane Ranger District.

Table V.6. List and Relative Proportion of Components among 1,974 Sites on the Long Cane Ranger District.

Component	Number	% All Components	% Identified Components
Unidentified Lithic	**882**	**36.7**	**NA**
Late Paleoindian	3	0.1	0.5
Early Archaic	57	2.4	10.3
Middle Archaic	145	6.0	26.3
Middle Archaic/Late Archaic	7	0.3	1.3
Late Archaic	120	5.0	21.7
Unidentified Archaic	3	0.1	0.5
Total Paleoindian/Archaic	**335**	**14.0**	**60.7**
Late Archaic/Early Woodland	**7**	**0.3**	**1.3**
Early Woodland	57	2.4	10.3
Middle Woodland	22	0.9	4.0
Late Woodland	7	0.3	1.3
Unidentified Woodland	15	0.6	2.7
Late Woodland/Early Mississippian	9	0.4	1.6
Mississippian	38	1.6	6.9
Woodland/Mississippian	62	2.6	11.2
Total Woodland-Mississippian	**210**	**8.7**	**38.0**
Total Prehistoric	**1434**	**59.7**	**100 (n=552)**
18th Century	6	0.2	0.6
18th-19th Century	22	0.9	2.3
18th-20th Century	10	0.4	1.1
19th Century	101	4.2	10.8
19th-20th Century	565	23.5	60.2
20th Century	234	9.7	25.0
Historic	19	0.8	NA
Total Historic	**957**	**39.9**	**100 (n=938)**
Unknown	**10**	**0.4**	**NA**
Total All	**2401**	**100**	**NA**

Summary and Statistics of Eligible and Possibly Eligible Sites

Of the 3,852 sites recorded on the Sumter National Forest through 2002, approximately 13.2 percent (n= 507) are recommended eligible (Class I) or possibly eligible (Class II) (Table V.7). Only three sites are recorded in the site inventory as Class I. One is Chattooga Town (38OC18) on the Andrew Pickens Ranger District. The other two are on the Long Cane Ranger District (38MC362 and 38MC692). One of the two on the Long Cane Ranger District is the Badwell Cemetery (38MC362). Some other sites that had been recommended as Class II probably now have Class I recommendations, such as Tyger Village on the Enoree Ranger District. Most Class II sites on the Sumter National Forest remain possibly eligible for listing on the NRHP but are unevaluated, since very little Phase II testing excavations are conducted on the Sumter National Forest.

Table V.7 shows that the Andrew Pickens Ranger District has a much higher proportion of Class I and II sites than the other two ranger districts. This difference probably reflects a genuinely higher number (and thus percentage)of better preserved sites. Andrew Pickens differs from the other two ranger districts by having much better soil preservation and consequently, better archeological preservation. Agriculture and timber harvesting was far less intensive on the Andrew Pickens Ranger District compared to the Piedmont ranger districts.

Table V.7. Number of Class I and Class II Sites by Ranger District.

Ranger District (acreage)	Andrew Pickens (84,328 ac)	Enoree (160,971 ac)	Long Cane (118,759 ac)	Total (118,759 ac)
Total Sites (2002)	183	1,696	1,974	3,852
Class I Sites	1	0	2	3
Class II Sites	59	179	268	506
Percent Class I/II	33.0	10.6	13.6	13.2

Class I and II sites are those which have the most potential for yielding important information. The Forest Service Heritage Resources Program manages these sites to protect them and maintain qualities which make them eligible or possibly eligible for the National Register of Historic places.

Andrew Pickens Ranger District. Table V.8 tallies Class II sites by component for all sites on the Andrew Pickens Ranger District as of 2002. Twelve Class II sites (23%) are comprised of two or more components. It is probable that some components in Table V.8 were not intended to be possibly eligible for listing on the National Register, but they are nonetheless protected because they were recorded on sites that were recommended Class I or II.

Among prehistoric components, Woodland-Mississippian components are clearly favored. Nearly 70 percent of all Woodland through Mississippian components are protected and less than 50 percent of all Paleoindian through Archaic components are protected on Class I/II sites (Table V.8). All Paleoindian (n=1) and all Early Woodland (n=7) components that have been recorded on the Andrew Pickens Ranger District are protected. Approximately 60 percent of all Class I/II components are prehistoric sites and nearly 35 percent are historic period components. Cherokee

components provide the remainder (Table V.8). In respect to relative proportions of Class I/II components ("Percent of All Components" column in Table V.8), prehistoric and historic period components are nearly equally protected on Class I/II sites. Among historic period components, nineteenth-twentieth century components are protected more often than nineteenth century or twentieth century components on Class I/II sites (Table V.8).

Table V.8. Number and Proportion of Components on Class II Sites on the Andrew Pickens Ranger District.

Site Components	Number of Components for all Sites	Number of Components for Class I/II Sites	Percent of Respective Components	Percent of all Class I/II Components
Unidentified Lithic	67	9	13.4%	10.5%
Paleoindian	1	1	100.0%	1.2%
Early Archaic	4	2	50.0%	2.3%
Middle Archaic	8	2	25.0%	2.3%
Late Archaic	7	4	57.1%	4.7%
Total Paleoindian/Archaic	**19**	**9**	**47.4%**	**10.5%**
Late Archaic/Early Woodland	1	0	0.0%	0.0%
Early Woodland	7	7	100.0%	8.1%
Middle Woodland	8	6	75.0%	7.0%
Late Woodland	6	4	66.7%	4.7%
Unidentified Woodland	4	3	75.0%	3.5%
Late Woodland/Early Mississippian	1	1	100.0%	1.2%
Mississippian	15	11	73.3%	12.8%
Woodland/Mississippian	7	1	14.3%	1.2%
Total Woodland-Mississippian	**48**	**33**	**68.8%**	**38.4%**
Total Prehistoric	**135**	**51**	**37.8%**	**59.3%**
Cherokee	7	5	71.4%	5.8%
19th Century	12	4	33.3%	4.7%
19th-20th Century	45	18	40.0%	20.9%
20th Century	22	7	31.8%	8.1%
Total Historic	**79**	**29**	**36.7%**	**33.7%**
Unknown*	1	1	100.0%	1.2%
Total	**222**	**86**	**38.7%**	**100.0%**

* Petroglyph

Among prehistoric site types, all non-camp site types (n=4) are Class I/II sites. Two are quarry/outcrop sites with no diagnostic artifacts and two are village sites dating to the Cherokee period. Historic period sites include a fairly wide variety (Table V.9). Among historic period site types that have a total value greater than one (e.g., only one school is recorded on the Andrew Pickens Ranger District and it was recommended Class II), mining/prospecting sites are most often recommended Class II (60% of all mining/prospecting sites recorded on the Andrew Pickens Ranger District). Among house/farm site types, 25 percent (1 of 4) of nineteenth century, 35 percent (7 of 20) of nineteenth-twentieth century, and 23 percent (3 of 13) of twentieth century house/farms site types have been recommended Class II on the Andrew Pickens Ranger District.

Table V.9. Historic Period Class II Site Types on the Andrew Pickens Ranger District.

	Site Type								
Site Component	**House/ Farm**	**Other Structure**	**Mining**	**Kiln**	**Still**	**CCC Camp**	**Railroad**	**Quarry**	**Petroglyph**
19th Century	1			1			2		
19th - 20th Century	7	2*	6	1	1				1
20th Century	3				1	1		2	
Total	**10**	**2**	**6**	**2**	**1**	**1**	**1**	**2**	**1**

*One unidentified stone structure and one school.

Enoree Ranger District. Table V.10 tallies Class II sites by component in the ranger district as of 2002. Forty-two sites (29%) have two or more components. Like the Andrew Pickens Ranger District, not all components in Table V.10 were likely the determining factor for Class II recommendations, but they are nonetheless protected because they are on Class II sites.

Fifty percent or more of all Paleoindian (100%), Middle Woodland, Late Woodland, Mississippian and eighteenth-twentieth century components are protected on Class II sites. The single eighteenth century component in Table V.10 is an isolated artifact on a multicomponent prehistoric site. Generally, their protected status reflects their relatively rare occurrences on the Enoree Ranger District. Woodland-Mississippian components are protected on Class II sites nearly twice as often as Paleoindian-Archaic components (Table V.10). Among all components on Class II sites, there are about ten percent more prehistoric components than historic components. Although, in respect to total numbers of components recorded, they are nearly equal (Table V.10).

Among prehistoric site types that are not recorded as camps, five of nine quarries and the only prehistoric village (Tyger Village) recorded on the Enoree Ranger District are protected. The historic period records a much greater variety of site types. Historic habitation sites dominate the total of historic period Class II sites (Table V.11). Among non-habitation historic sites, cemeteries are most often recommended Class II. The majority of these cemeteries date to the nineteenth century. Some types are somewhat vague, such as “structure”, “scatter” and “stonework.” Two of the three twentieth century dumps (included under “Other” in Table V.11) are single component and thus are the aspect that led to a Class II recommendation. One of these was noted as being associated with a World War II CCC/POW camp.

Table V.10. Number and Proportion of Components on Class II Sites on the Enoree Ranger District.

Site Components	Components of all Sites	Components of Class II Sites	Percent of Respective Components	Percent of all Class II Components
Unidentified Lithic	766	40	5.2%	16.2%
Paleoindian	3	3	100.0%	1.2%
Early Archaic	39	10	25.6%	4.0%
Middle Archaic	131	22	16.8%	8.9%
MALA	1	0	0.0%	0.0%
Late Archaic	54	16	29.6%	6.5%
Unidentified Archaic	6	1	16.7%	0.4%
Total Paleoindian/Archaic	**234**	**52**	**22.2%**	**21.1%**
Late Archaic/Early Woodland	6	3	50.0%	1.2%
Unidentified Woodland	8	3	37.5%	1.2%
Early Woodland	23	10	43.5%	4.0%
Middle Woodland	20	11	55.0%	4.5%
Late Woodland	4	2	50.0%	0.8%
Late Woodland/Early Mississippian	8	2	25.0%	0.8%
Mississippian	16	10	62.5%	4.0%
Woodland/Mississippian	39	13	33.3%	5.3%
Total Woodland-Mississippian	**118**	**51**	**43.2%**	**20.6%**
Total Prehistoric	**1124**	**146**	**13.0%**	**59.1%**
18th Century	1	1	100.0%	0.4%
18th-19th Century	23	11	47.8%	4.5%
18th-20th Century	3	2	66.7%	0.8%
19th Century	110	28	25.5%	11.3%
19th-20th Century	497	47	9.5%	19.0%
20th Century	217	12	5.5%	4.9%
Historic	4	0	0.0%	0.0%
Total Historic	**855**	**101**	**11.8%**	**40.9%**
Total	**1979**	**247**	**12.5%**	**100.0%**

Table V.11. Historic Period Class II Site Types on the Enoree Ranger District.

	Site Type							
Site Component	House/ Farm[1]	Structure[2]	Cemetery	Prospecting	M ill	Quarry	CCC Camp	Other[3]
18th Century								1
18th - 19th Century	4		2		1			
18th - 20th Century	3							
19th Century	15	1	10					2
19th - 20th Century	46	1	4	1		2		3
20th Century	4	1				1	2	3
Total	**72**	**3**	**16**	**1**	**1**	**3**	**2**	**9**

1 Includes plantations (n=2) and artifact scatters (n=8).
2 Includes outbuildings (n=1).
3 Includes dumps (n=3), stonework (n=1), brick pile (n=1) and isolates (n=4).

Long Cane Ranger District. Table V.12 tallies Class I and II sites by component on the Long Cane Ranger District through 2002. Forty-two protected sites (29%) have two or more components.

More than 50 percent of all Middle Woodland, Late Woodland, Unidentified Woodland, Mississippian, eighteenth-twentieth century and unknown components are protected on Class II sites (Table V.12). Unknown components are rock piles in Table V.12. Eighteenth-twentieth century components have the highest rate of protection (90%), and unidentified lithic and twentieth century components have the lowest rate of protection (6-7%). Woodland-Mississippian components are approximately 20 percent more likely to be protected than Paleoindian-Archaic components. Overall, prehistoric period components enjoy about a 6 percent higher protection rate than historic period components (Table V.12). This difference is considerably greater on the Long Cane Ranger District than on the Andrew Pickens and Enoree Ranger Districts.

Among prehistoric site types, five of six prehistoric villages recorded on the Long Cane Ranger District are on Class II sites. All five of the prehistoric villages are preserved on one Class II site, Mims Point, where a village occupation was assigned for the Late Archaic through Mississippian period occupations. The one prehistoric component that was assigned a village status and is not on a Class I/II site is a Late Archaic shell midden (38ED8) recorded by Claflin in 1931. Nineteen prehistoric quarry sites have been recorded on the Long Cane Ranger District through 2002. Among these, four are preserved on Class II sites.

Historic habitation sites dominate the total of historic period Class I/II sites (Table V.13). Among non-habitation historic sites, mining/prospecting sites are most often protected. Cemeteries and a variety of structure types that include stone ruins, a fire tower, a school and a store/post office are equally represented on Class I/II sites. Other rare historic period site types are in the "Other" category of Table V.13. This category includes an improved spring and a bridge.

Table V.12. Number and Proportion of Components on Class II Sites on the Long Cane Ranger District.

Site Components	Components of all Sites	Components of Class II Sites	Percent of all Components	Percent of all Class II Components
UD Lithic	882	59	6.7%	14.6%
Unidentified Archaic	3	0	0.0%	0.0%
Paleoindian	4	2	50.0%	0.5%
Early Archaic	57	16	28.1%	3.9%
Middle Archaic	145	38	26.2%	9.4%
MALA	7	3	42.9%	0.7%
Late Archaic	120	48	40.0%	11.8%
Total Paleoindian/Archaic	**335**	**107**	**31.8%**	**26.4%**
Late Archaic/Early Woodland	**7**	**2**	**28.6%**	**0.5%**
Early Woodland	57	23	40.4%	5.7%
Middle Woodland	22	12	54.5%	3.0%
Late Woodland	7	6	85.7%	1.5%
UD Woodland	15	9	60.0%	2.2%
Late Woodland/Early Mississippian	9	3	33.3%	0.7%
Mississippian	38	27	71.1%	6.7%
Woodland/Mississippian	62	28	45.2%	6.9%
Total Woodland-Mississippian	**210**	**107**	**51.0%**	**26.6%**
Total Prehistoric	**1434**	**275**	**19.2%**	**68.0%**
18th Century	6	2	33.3%	0.5%
18th-19th Century	22	8	36.4%	2.0%
18th-20th Century	10	9	90.0%	2.2%
19th Century	101	19	18.8%	4.7%
19th-20th Century	565	71	12.6%	17.5%
20th Century	234	14	6.0%	3.5%
Historic	19	0	0.0%	0.0%
Total Historic	**957**	**123**	**12.9%**	**30.4%**
Unknown	10	7	70.0%	1.7%
Total All	**2402**	**406**	**16.9%**	**100.0%**

Table V.13. Historic Period Class II Site Types on the Long Cane Ranger District.

Site Component	Site Type							
	House/ Farm[1]	Structure[2]	Cemetery	Mine/ Prospecting	Mill	Quarry	CCC Camp	Other[3]
18th Century	1				1			
18th - 19th Century	6		2					
18th - 20th Century	5		1		1	1		1
19th Century	17			1	1			
19th - 20th Century	53	4	3	9				2
20th Century	9	2					1	2
Total	**91**	**6**	**6**	**10**	**3**	**1**	**1**	**5**

1 Includes plantations (n=2), slave row (n=1), and artifact scatters (n=6).
2 Includes stone ruins (n=1), store/post office (n=1), school (n=1) and firetower (n=1).
3 Includes dumps (n=1), improved spring (n=1), bridge (n=1) and isolates (n=2).

Summary of Prehistoric Site Types

Prehistoric site types, defined by characteristics other than archeological period (component), are limited compared to the historic period because most archeological information comes from limited survey investigations and not excavations. Far less is understood about prehistoric social, political and economic structures and systems compared to the historic period. The vast majority of prehistoric sites are simply artifact scatters, usually distinguished as either lithic or lithic/ceramic scatter. These can and do reflect a range of activities, intensity of use, number of individual occupations, and length of occupation, but often there is not sufficient information to distinguish these variables. The theoretical list of site types could be very long, especially compared to realistically derived types based on secure data. Using terms gathered from site forms and from various discussions of prehistoric use and occupation of the Piedmont and Mountains of South Carolina, the following is a list of actual and possible prehistoric site types on the Sumter National Forest.

Lithic scatter
- camp
- workshop
- village
- isolate
- limited activity
- base camp
- upland residential foraging
- logistic

- quarry/lithic source
- Lithic scatter (continued)
  - source testing
    - types of quarries
    - types of stone:
      - soapstone
      - metavolcanic,
      - quartz
      - chert
- Lithic/Ceramic
  - camp
  - village
  - workshop
  - resource extraction
  - limited activity
  - base camp
  - upland residential foraging
  - logistic
- Ceramic
  - camp
  - village
  - base camp
- Mounds
  - temple
  - burial
  - stone
- Shell midden
- Petroglyph
- Pictograph
- Rock shelter/overhang
- Cave
- Fish dams or wiers
- Burial ground
- Trail
- Dugout canoe
- Traditional cultural property
- Sacred site
- Other

The actual range of prehistoric site types recorded on the Sumter National Forest is very small, with the overwhelming majority being a lithic or lithic/ceramic scatter. Most of the subdivisions of the three types of scatters (lithic, lithic/ceramic and ceramic) are very difficult to define based on typical survey level data, and really are more theoretical constructs than practical site types. With very few rock shelters, no rock mounds clearly of prehistoric origin and no petroglyphs, weirs or mounds, prehistoric sites on the Sumter National Forest fall into only a very few discernible categories that are essentially descriptive in nature.

Six prehistoric site types are listed with counts and relative proportions (Table V.14). On the Sumter National Forest site database specific site types are listed as either "lithic scatter" or "lithic and ceramic scatter," or derivations of these two types for most prehistoric sites. Exceptions are those identified as "village" or "quarry." Generic terms were adopted for this Overview. "Camp" represents most settlements and likely encompasses a broad range in respect to occupation duration. Generally, if a site does not yield any information that suggests structures or specific activities it was identified as a Camp. Use of this broadly representative term is essentially a consequence of limited information about occupation duration and site-specific activities. "Camp" is modified by "lithic," "ceramic" or "lithic/ceramic," indicating the types of artifacts found on these sites. Site types are correlated with components, so each component (archeological period) has an associated type. Figures in Table V.14 represent all sites through 2002.

Table V.14. List, Count and Proportion of Prehistoric Site Types by Ranger District on the Sumter National Forest.

	Andrew Pickens Ranger District		Enoree Ranger District		Long Cane Ranger District	
Site Type	**#**	**%**	**#**	**%**	**#**	**%**
Lithic camp	92	66.7	1016	90.4	1218	84.9
Ceramic camp	2	1.4	1	0.1	4	0.3
Lithic/ceramic camp	38	27.1	87	7.7	172	12.0
Village	4	2.8	1	0.1	6	0.4
Soapstone quarry	2	1.4	0	0	0	0
Flaked stone quarry	0	0	9	0.8	20	1.4
Isolate	0	0	10	0.9	14	1.0
Total	**138**	**100**	**1114**	**100**	**1434**	**100**

A further distinction among prehistoric site types is presented below. Table V.15 simply divides potential ceramic-bearing components (Late Archaic through Cherokee) between those with only lithic artifacts and those with ceramic artifacts. By default, all Woodland/Mississippian components are sites with ceramics, since Woodland/Mississippian components have been identified with non-diagnostic pottery. The table shows that there are many more Woodland than Mississippian period sites in all three ranger districts. There are 22 securely Woodland sites in the Andrew Pickens Ranger District and 13 Mississippian sites. In Enoree, there are 55 Woodland and 16 Mississippian sites, while in Long Cane there are 96 Woodland and 38 Mississippian sites. However, large numbers of sites in all three ranger districts are classed as Woodland/Mississippian, and resolution of these could significantly alter the ratios. Virtually all of these Woodland and Mississippian period sites consist of a small number of sherds and slightly larger numbers of lithic artifacts (which may or may not be contemporaneous) found in shovel tests and patches of surface exposure. There is little available information to allow a more detailed and comprehensive analysis of these sites, in terms of function, seasonality, duration of occupation, activities conducted, site layout and lifeways.

Table V.15. Breakdown of Archeological Periods with and without Ceramic Artifacts.

	Andrew Pickens Ranger District		Enoree Ranger District		Long Cane Ranger District	
Archeological Period	**Lithic**	**Ceramic**	**Lithic**	**Ceramic**	**Lithic**	**Ceramic**
Late Archaic	7	0	54	0	123	4
Early Woodland	4	2	12	11	14	43
Middle Woodland	3	4	7	13	5	12
Late Woodland	0	5	1	3	1	6
Unidentified Woodland	1	3	1	7	4	11
Late Woodland/Early Mississippian	0	2	5	3	1	8
Mississippian	0	13	2	14	2	36
Woodland/Mississippian	0	7	0	38	0	62
Cherokee	0	7	NA	NA	NA	NA
Total	**15**	**43**	**82**	**89**	**150**	**182**

The vast majority of prehistoric sites on the Sumter National Forest are lithic scatters. Though site and artifact information presently on the Sumter National Forest databases inform little on site function, archeologists have constructed analytical techniques for lithic artifact assemblages at South Carolina Piedmont sites. For instance, House and Ballenger (1976) organized tools and tool manufacture debris into categories that reflect phases of bifacial tool reduction. The analysis was meant to define differences in lithic assemblages, using an early stage reduction index and a biface discard index. The results of this analysis were not especially successful for determining site activities (Canouts and Goodyear 1985:188). Nevertheless, House and Ballenger (1976:153-156) defined a number tentative functional prehistoric site types that include lithic quarry/workshop sites, Archaic habitation sites, Mississippian habitation sites, and extraction sites.

Price (1991c:156-157) applied House and Ballenger's (1976) early reduction and biface discard indices to the lithic artifact assemblage recovered from 38NE279, a site that received Phase II testing investigation on the Enoree Ranger District. Lithic artifacts were distributed across two knolls separated by a saddle. Artifact concentrations were found on each knoll and at two loci on the saddle (Figure V.1). A Morrow Mountain point was found on one of the knolls and all artifacts were quartz. Very few hafted bifaces were recovered, one of which was a Morrow Mountain point, so the biface discard index was very low across the site. The early reduction index was generally high, suggesting that 38NE279 primarily hosted earlier stage or primary reduction "workshop" activities. However, the early reduction index varied considerably across the site and expedient tools (flakes with evidence of use) were common, suggesting a host of every-day-living activities also occurred on 38NE279.

A similar effort to differentiate Piedmont upland lithic scatters from one another based upon lithic assemblages was attempted by Goodyear and colleagues (1979). They performed factor analyses among three lithic debris classes and four lithic core classes to analyze site formation in

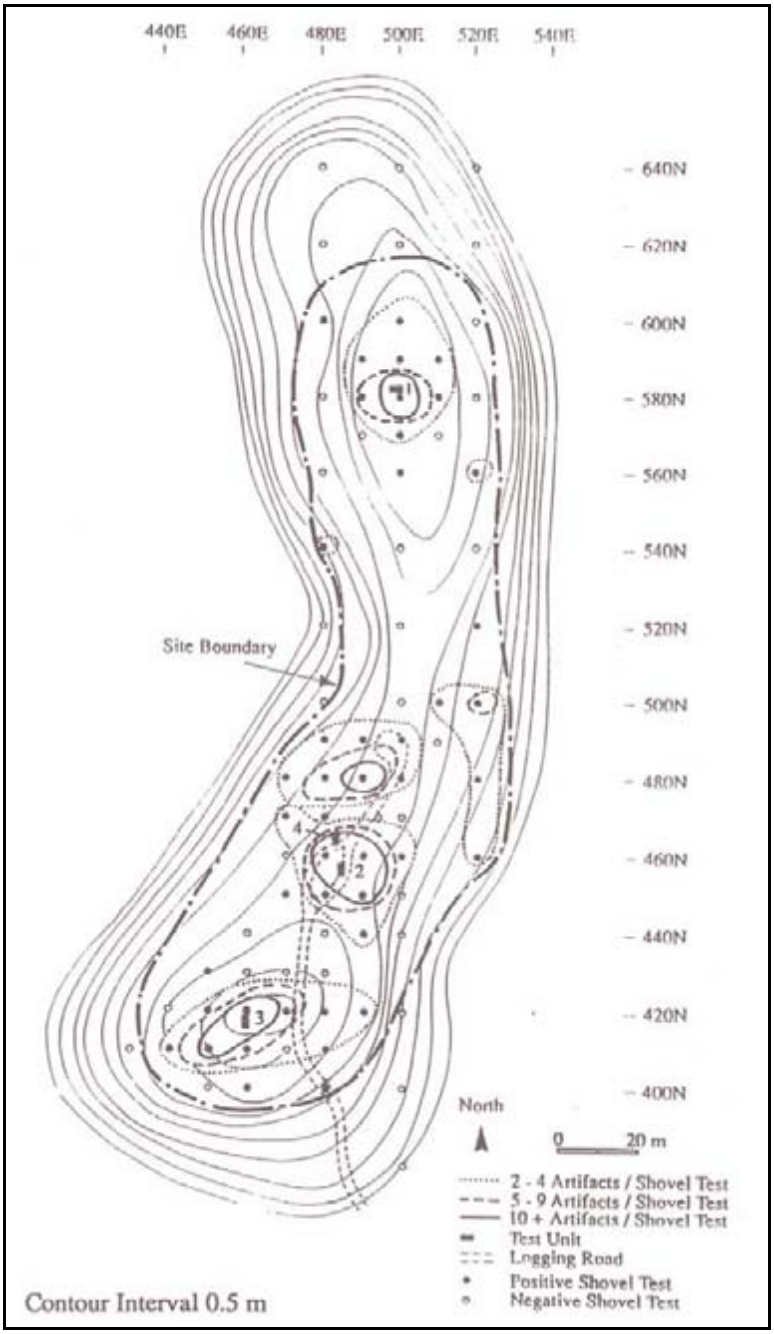

Figure V.1. Sketch Map of Tested Site 38NE279 (Price 1991c:153).

regard to tool manufacture and use (Canouts and Goodyear 1985:189). Results indicated that bifacial tools/cores (points/fragments, preforms and bifacial blanks) moved through the settlement system together and manufacturing debris remained at the locus of tool production (Canouts and Goodyear 1985:189). Both the House and Ballenger (1976) and Goodyear et al. (1979) analyses provided a general characterization of upland Piedmont lithic scatters based upon tool manufacture and use/discard patterns, but they were not geared toward identifying specific non-tool manufacturing activities or lithic use systems within respective cultural periods. Lack of finer spatial and temporal resolution among Piedmont upland sites is partly due to homogeneous lithic raw material distribution and use (House and Ballenger 1976:99), which is quartz, and partly due to the high frequency of reoccupation through time at many upland locations (Goodyear et al. 1979:164-165).

Canouts and Goodyear (1985:188-189) also indicate that there are differences in quality among the variety of quartz sources available in the Piedmont and the these differences do appear among quartz artifacts on archeological sites. Particular quartz sources might have been targeted based upon quality and local availability throughout prehistoric use of the Piedmont. Preferences might be temporally related. Identification of specific quartz outcrops/quarries based upon quality and visual characteristics may yield specific land use patterns. Particular quartz types on sites can clarify both intrasite and intersite variability in the Piedmont uplands. Variability in lithic raw material frequency was used in the Fall Line Hills of North Carolina to discern specific occupations related to different time periods within the confines of archeological sites and between archeological sites (Benson 2000a, 2000b). It was the ability to macroscopically identify different types of rhyolite among lithic debris classes that enabled linking artifact concentrations with temporally specific occupations.

Presently, the numerous lithic scatters across the Sumter National Forest have been identified in terms of cultural affiliation (Table V.15), by presence or absence of quarrying activity (Table V.14) or by density (e.g., scatters versus isolates). Most lithic scatters are comprised entirely of quartz and are non-diagnostic with no evidence of quarrying activity. Lithic scatters with quarrying activity were typically identified with a preponderance of broken early stage bifaces, amorphous cores and chunks and high proportions of early reduction flakes. Some of these sites with quarrying activity are located on top of the raw material outcrops and can be identified as primary reduction locations. Workshop sites, as identified by House and Ballenger (1976), are not necessarily located at the source material outcrops, like 38NE279 described above. These are located at certain distances from the outcrops and are comprised of relatively high proportions of earlier reduction flakes, amorphous cores and larger biface thinning flakes. Discarded broken preforms and biface blanks display sinuous lateral edges with no evidence of use or resharpening. Such sites, like 38NE279, also contain evidence of basic living activities represented by expedient tools.

Efforts directed toward characterizing sites in regard to settlement-mobility systems in the South Carolina Piedmont uplands have focused mostly on the Archaic period, since the majority of these upland sites appear to contain Early, Middle and/or Late Archaic components. Woodland and Mississippian period sites mostly are identified by diagnostic ceramics (Table V.15). The majority of sites with ceramics on the Sumter National Forest are non-diagnostic. Presently we have no criteria for discerning differences among these sites to classify sites based upon a settlement-mobility system. In other words, apart from the few sites that have been identified as villages, we do know how to identify Woodland and Mississippian sites in terms of occupation duration, group size or mobility frequency. Recommendations for creating better resolution at the Phase I level of investigation are provided in Chapters VII and IX.

The above summary of prehistoric cultural resources was presented to give a broad-brushed view of what the Sumter National Forest contains. Greater detail concerning site types, site distributions in respect to environmental variables and analytic comparisons among components within each ranger district is presented in Appendix A and Chapter VI. Appendix A also details methods used for compiling and analyzing the data, identifies biases in the analytic methods and databases, identifies errors contained in the various databases that were used for data syntheses and provides definitions of terms used in this overview. Appendix H provides the primary data.

Summary of Historic Period Site Types on the Sumter National Forest

Historic site types are more varied than prehistoric site types. Historic period activities were more varied and these sites have greater archeological visibility, in that they are more recent and are more likely to have altered the landscape leaving visible surface features. During Phase I archeological survey investigation, historic sites are more likely to be identified through visual inspection of the ground surface and landscape features than by excavation of shovel tests. Sites are often visually identifiable by site type as houses, mills, farmsteads or cemeteries.

Two studies that examine historic period sites and contexts in Georgia are applicable to the historic sites found on the Sumter National Forest. One of these, *Historical Archaeology in Georgia* (Joseph et al. 2004), is a contribution to Georgia's Comprehensive Archaeological Preservation Plan.

It provides an inventory of known historic archaeological sites among six physiographic provinces in Georgia. Historic site distributions are tabulated and mapped. Historic period sites are typed in association with particular cultures, functions, time periods and in some cases particular regions (Joseph et al. 2004:2). It also provides a good resource for methodology employed in assessing historic period resources, including references for source material on historic period artifacts. The second document, *Tilling the Earth: Georgia's Historic Agricultural Heritage, A Context* (Messick et al. 2001) focuses upon Georgia's agricultural heritage. This resource provides an agricultural typology and an overview of agricultural landscapes and buildings, and in some respects, concentrates more upon the archeological aspect of the historic period than does Joseph et al. (2004). One particularly significant recognition illustrated by these two documents is that time period and agrarian historic site types can be identified based upon disposal patterns in the absence of clearly diagnostic artifacts. Complementary to these two studies is Charles S. Aiken's (1998) *The Cotton Plantation South Since the Civil War*, where changes in the use of space on southern plantations is documented through time.

As with prehistoric sites, the list of possible site types is longer than actual, documented types. Partly this reflects that some types have not been located and recorded on the Forest, but it also reflects differences in how, and how specifically, archeologists label and define site types. Some site types, such fish hatchery, fire tower, or a recreation site, might be recorded as an archeological site by some researchers. Another factor is that many site types cannot be distinguished with survey-level data. Non-residential structures such as stores, churches and barns might be difficult to distinguish. The following is a list of actual and possible historic site types on the Sumter National Forest.

- Historic Native American
  - village
  - camp
  - scatter
  - isolate
- Frontier
  - camp
  - cattle pen
  - building
- Agrarian/domestic
  - plantation house complex (elite house, several outbuildings, historic documentation)
  - farmstead (farm house with outbuildings, yard, site complexity)
  - house site (isolated house, chimney base)
  - outbuilding (isolated building or structure)
  - settlement (several houses/buildings)
- Public
  - school
  - church
  - store
  - building
- Transportation
  - bridge
  - ford/ferry

- railroad
    - tunnel
    - earthworks
    - stonework
    - road cut
    - unfinished materials
- road/trail
    - earthwork
    - road bed
    - stonework

CCC/USFS

- building
- structure
- camp
- dump
- fish hatchery
- recreation site
- shelter
- administrative site
- fire tower
- stonework
- road
- other

Cemetery

- family
- community
- church
- unknown historic

Industrial

- water powered mill
    - dam
    - building
    - mill race
- sorghum furnace
- pottery
    - fabrication site
    - waster dump
- portable saw mill
- quarry
    - cut stone
    - gravel
    - mill stone
- mine
    - adits
    - smelter
    - prospect pit/trenches
    - placer/hydraulic

shaft
building
lime kiln
dam
liquor still
Military
fort
battlefield/skirmish
camp
muster ground
bombing range (WWII)
POW camp (WWII)
foxholes
training
aircraft
isolate
Other
standing building
historic scatter
trash dump
stone monument
rock pile
machinery (auto, tractor, farm, etc).
historic landscape
well
improved spring

The vast majority of historic period sites on the Sumter National Forest are rural occupation house and farmstead sites.

Agrarian Sites

Joseph et al. (2004) divide agrarian sites into three classes–plantations, tenancy and farmsteads. Each class is summarized below. A useful overview concerning Piedmont agrarian sites in South Carolina, specifically the tenant plantation system, is Charles Orser's *The Material Basis of the Postbellum Tenant Plantation* (1988). The book provides a good review of the archeology of southern plantations. Millwood Plantation in Abbeville County, excavated during the Russell Reservoir investigations (Orser et al. 1987), is a case study for Orser's historical research that provides a temporal and spatial context within which Millwood Plantation operated.

Agrarian sites on the Sumter National Forest can be loosely tied to those house/farm types identified on the Long Cane Division in 1935 by the Forest Service (USDA Forest Service 1937). They categorized house/farm types as follows:

Class A	elite land owner, large frame Greek Revival or Federalist style
Class A-1	land owner, large one story central hall, or two story I-house
Class B	renters, smaller unpainted saddlebag/hall and parlor house with rear extension

Class C tenants, unpainted 2-4 room saddlebag/hall parlor house

These house/farm types correlated with types found on the Sumter National Forest would be as follows:

Class A plantation house complex (Figure V.2)
Class A-1 farmstead (Figure V.3)
Class B house site (Figure V.4)
Class C house site (Figure V.5)

Figure V.2. Example of a Class A, Elite Landowner's Plantation House on Private Land on the Long Cane Ranger District (USDA Forest Service, James F. Bates photographer).

Determining to which class an agrarian historic archeological site belongs requires archival research. While Classes A and A-1 might be discernible from each other and probably clearly discernible from Classes B and C, archeology alone would not be able to distinguish physical differences between Classes B and C, especially at the Phase I level of investigation.

Plantations

Joseph et al. (2004) outline four main attributes that distinguish plantations from other agrarian sites: 1) the separation of labor and management, 2) the use of a non-familial labor force, 3) an agricultural focus on cash crops and 4) large landholdings. Like Georgia, the main cash crop grown in the South Carolina Piedmont was cotton, but South Carolina Piedmont plantations often were involved in a variety of economic endeavors. For instance, Trinkley et al. (1992) demonstrate that the Rosemont Plantation in Laurens County grew a variety of crops and raised livestock. It was

Figure V.3. Example of a ca. 1900 Class A-1, Framed Farm House on Private Land on the Long Cane Ranger District (USDA Forest Service, James F. Bates photographer).

Figure V.4. Example of a 1920s Class B or C Renters or Tenant House on Private Land on the Long Cane Ranger District, McCormick County (USDA Forest Service, James F. Bates photographer).

not until the first quarter of the nineteenth century did cotton dominate, and this domination was relatively short-lived (Trinkley et al. 1992:65). Two plantations on the Enoree Ranger District, Orange Hall Plantation (38UN145) and the Chick Plantation (38UN182), also were involved in a variety of economic endeavors. They were located close to each other, on opposite sides of a main road that connected Charleston to Asheville. They participated in accommodation services by

Figure V.5. Example of a Class B or C, Framed 1920s Saddlebag Tenant House on Private Land on the Long Cane Ranger District, McCormick County (USDA Forest Service, James F. Bates photographer).

providing a hotel, general store and a tavern for travelers, so they were not exclusively cash crop production facilities. Their main structures were large and permanent. Unlike these two examples, many plantations in the South Carolina Piedmont, like the Georgia Piedmont, may reflect relative impermanence (Joseph et al. 2004:79). Supporting structures and slave quarters were abandoned along with exhausted cultivated fields, and new slave quarters and supporting structures were constructed adjacent to newly cleared fields. Materials from the abandoned structures were sometimes scavenged. Occasionally the land owner's main house complex also was relocated (Joseph et al. 2004:79).

Cabak and Groover (2004) recently examined a sample of 13 antebellum plantation houses and found that they had an average floor plan of 1,138 square feet. The dwellings of most planters were small in size. Apparently, the residences of most planters were not typically elaborate manor houses as depicted in popular culture (Cabak and Groover 2004:8-60). The plantation house at Bush Hill measured 20 x 43 feet, was elevated on brick piers and had two gable end chimneys (Groover 2004:10-11). There are numerous similar-sized house sites recorded on the Sumter National Forest, some of which have the remains of two chimney bases. They have been noted by archeologists to be larger than "tenant houses" but generally have been classified as house sites and not plantations or farmsteads. Site sketch maps and notes detail the relative complexities of individual sites.

The structure configuration of the Rosemont Plantation in Laurens County consisted of the main house centrally located among a flanker building, a school/library, a kitchen and a smokehouse, with a racetrack running along the Savannah River and a cemetery located near the river (Trinkley et al. 1992:32-33). A total of 17 structures were identified through archival sources, but the limited amount of archeological work conducted at the site concentrated around the main complex. Slave quarters were not identified. Orser (1987) provides an extensive report on the spatial distribution of structures and activities at the Millwood Plantation, along with late nineteenth century photographs

Figure V.6. South Carolina Tenant Farmer's House and Outbuilding near Beaufort, 1938 (note mud and stick chimney) (Office of War Information Photograph Collection [LC-USF34-050784-E).

and structural plans of several different types of structures (Orser 1987:180-226). Other sources that describe the material culture of Piedmont plantations include Carl Steen's work at John De la Howe Plantation (Steen et al. 1996), Resnick's (1988) description of the Williams Farmstead, a " Scotch-Irish farmstead in the South Carolina Piedmont," and Vlach's (1993) description of larger elite plantations.

Slave quarters typically were single-room log structures, some with mud/stick chimneys (Joseph et al. 2004:79), like the one depicted in Figure V.6 on an early twentieth century framed tenant house. Orser (1988:227-228) reports mud/stick chimneys on some post-bellum houses at the Millwood Plantation, but the bases of these chimneys where the fire was made were made of rock. Frederick Olmstead described a former Laurens County slave's account that different kinds of chimneys appeared on slave cabins, including brick, rock and some of the old mud and stick kind (Orser 1988:94). Earlier "models" of slave quarters had dirt floors, but later antebellum period structures were elevated on piers and had wooden plank floors (Aiken 1998:16). Two-room log structures with a central chimney and front doors for each room also were used (Aiken 1998:52). Planters' houses were of frame construction and most often elevated on piers (Joseph et al. 2004:79). The I-house, typically a one- or two-story building with stone/brick chimneys on either end, was most common (Joseph et al. 2004:79). Associated outbuildings included kitchens, wells, outhouses, animal shelters, smokehouses and corn cribs (Joseph et al. 2004:79).

Resnick (1988:14) defines criteria for distinguishing "yeoman" farmer from slave dwellings:

> A yeoman's dwelling (as compared to his slave's) should represent his higher status in terms of: 1) its location in close proximity to the center of farm operations, 2) its use of more expensive construction materials, e.g., brick as compared to stone, and 3) its greater size as measured by the presence of an additional story and/or larger floor plan area. In contrast to the settlement pattern that characterizes many antebellum plantations (Anthony 1976; Prunty 1955), the slave dwellings of the yeoman farm should be both few in number and located near the main house, reflecting a decrease in the social distance between these two groups.

Farms and Farmsteads

Farms and farmsteads are defined from plantations and tenants, where labor and management on a farm was not separated (Joseph et al. 2004:91, citing Messick et al. 2001:52). Farm families worked their fields instead of slaves and tenants, producing primarily subsistence crops supplemented by cash crops. Farms tend to be smaller in size than plantations but larger and more complex than tenant sites. Census data compiled by Orser (1988:67) shows that owner-operated farms were most often between 100 and 499 acres in size in Abbeville County in 1880 and 1890. The separation between farmsteads and plantations may be somewhat idealized, however, since Resnick (1988) describes the Williams Place as a farmstead in Spartanburg County, South Carolina. The Williams Place had a few slaves and, even though production was geared predominantly toward subsistence, it also was involved in production for the local economy.

Figure V.7. Working Farm on the Enoree Ranger District in 1938 (Forest Service Historic Photograph Collection, National Agricultural Library, Special Collections, Bluford W. Muir).

The internal structure of farms consisted of the family house and associated outbuildings, such as a well, privy, barns, activity and animal shelters, located to the rear or side of the family house (Figure V.7). Front yards were often swept, especially African-American farm yards, and back yards were used as activity/recreation areas (Joseph et al. 2004:91). Large trees were left standing to provide shade during the summer, which become tell-tale signs of house sites during archeological field survey. Clumps of larger trees also are clearly visible on old aerial photographs. Agricultural buildings generally were placed close to the main house, but farms situated on ridge crests, along which are roads, placed farm buildings along the ridge crest on opposite sides of the road (Joseph et al. 2004:92). Agricultural fields surrounded a clustered farm complex or spread outward from the structures placed along a ridge crest. Farms were often located adjacent to existing roads on ridge

crests, knolls and ridge tops because of transportation needs and because these places also provided high, dry and relatively level places for structures and agricultural fields in the Piedmont.

The USDA Forest Service (1937:14-16, Tables VIII and IX) provides dimensions of 122 farm houses and 57 barns standing on the Long Cane Division when the land was purchased in the early 1930s. These tables are reproduced in Price (1992b:368-371) and are provided as Appendix G in this report. Most of these structures are now archeological sites. Figure V.8 provides archeological site examples of farm houses (probable I-houses) and Figure V.9 is an archeological site example of a more complex farmstead. The smallest houses measured 18 x 20, 20 x 20, and 15 x 30 feet. The

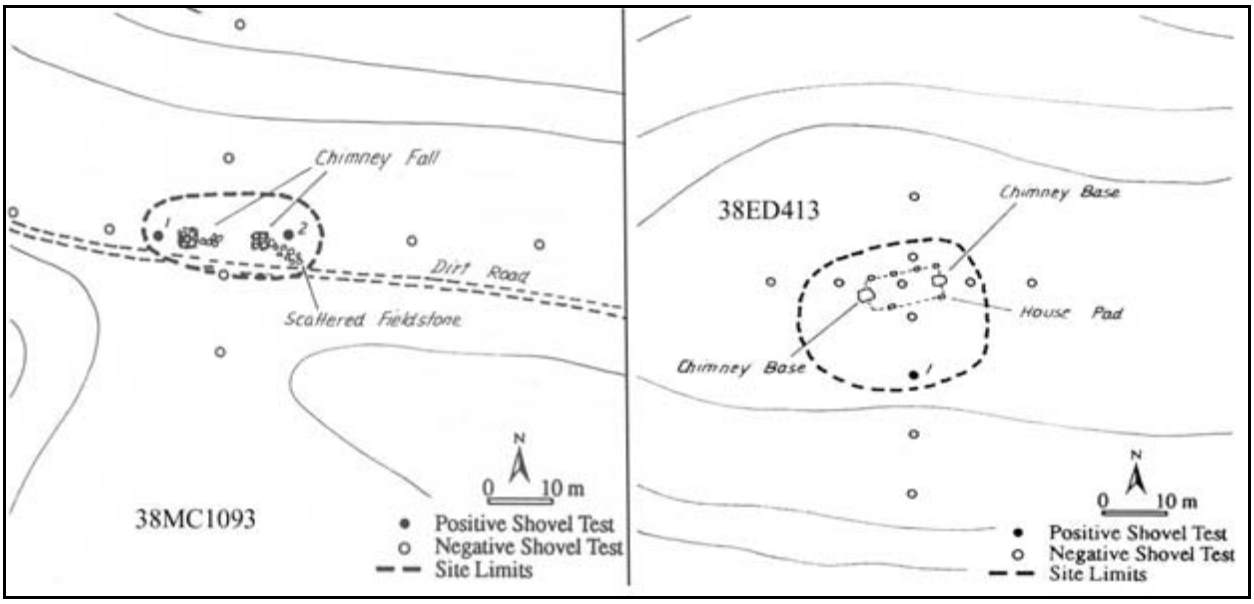

Figure V.8. Archeological Examples of Farm Houses (I-Houses) Recorded During Archeological Survey on the Long Cane Ranger District (Benson 1995a).

largest were 50 x 70, 42 x 72, and 50 x 60 feet. Many were in the range of 30 x 40 to 40 x 50 feet. Barns and outbuildings ranged from a small of 8 x 10 feet to 30 x 70 feet. Many are in the 15 x 20 feet to 30 x 30 feet range.

Among the larger and more complex historic period house sites that have been recorded on the Andrew Pickens Ranger District, most, if not all, are farmsteads rather than plantations. The mountainous slopes of the Andrew Pickens Ranger District generally preclude the spatially expansive nature of plantations. Potential plantations would have been located in the river or large stream bottomlands, where valleys are wide and relatively level. Farmsteads clearly took advantage of the more level land along rivers and large streams on the Andrew Pickens Ranger District. The Russell House (Figure V.10) is situated at the base of a steep slope, with its agricultural fields in the flat bottomland between the main house complex and the Chattooga River. Components (structures, activity areas, fields) of other farmsteads recorded on the Andrew Pickens Ranger District often are found on both sides of smaller creeks. The site limits of one such early twentieth century farmstead (38OC330) straddles a second order tributary adjacent to West Village Creek.

Disposal patterns at agrarian sites appear to be temporally associated and may reflect changing social attitudes in regard to household sanitation (Joseph et al. 2004:94). Joseph and Reed

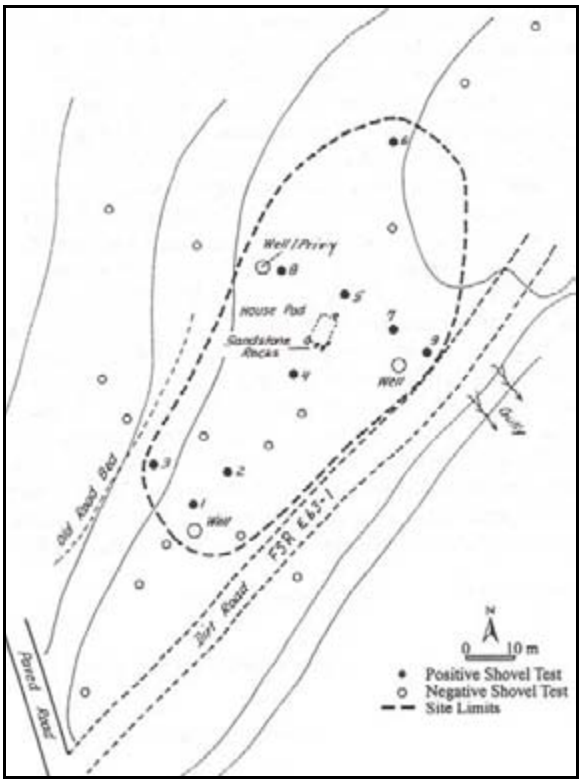

Figure V.9. Archeological Example of a More Complex Farmstead on the Enoree Ranger District (38UN871) (Benson 2002b).

(1997) documented changes in disposal patterns at the Finch Farm in the South Carolina Piedmont. They were able to identify four temporally associated disposal patterns: 1) backdoor disposal (Brunswick Pattern) of the late eighteenth and early nineteenth centuries, 2) rear yard sheet midden disposal pattern of the later eighteenth through middle nineteenth centuries (Moir 1982; Jurney et al. 1988), downslope and gully trash disposal of the later nineteenth and early twentieth centuries, known as the Piedmont Pattern of Refuse disposal (Drucker et al. 1983), and trash burning, which was a contemporary of the Piedmont Pattern of Refuse disposal (Joseph et al. 2004:94). The Piedmont Pattern of Refuse disposal (Drucker et al. 1983) prevailed about the same time glass containers became prevalent (1920s). Joseph et al. (2004) surmise that this disposal behavior served two objectives by keeping glass out of harms way and by ameliorating landscape erosional problems. Not included among these four disposal patterns but observed in the forest and elsewhere in the Georgia and South Carolina Piedmont, is roadside and old house-site disposal and creek dumping. These disposal behaviors probably became more prevalent as internal combustion vehicles grew in popularity, where trucks could be used to expediently move larger amounts of refuse and larger objects, e.g., household appliances and furniture, away from the home place.

Tenancy

Immediately following the Civil War, tenant houses reflected changing relationships between the landholder and laborers, but the basic plantation settlement system of the landowner complex and the slave/tenant village remained (Joseph et al. 2004:85). The slave/tenant village system did not change until about a decade after the war, when existing cultivated fields became exhausted and relocation was necessary. At that time the slave/gang or squad labor village dispersed into smaller, family units occupying single structures and working smaller fields. Joseph et al. (2004:85), citing Prunty (1955), identify two types of tenant settlements–one consisting only of a house ("cropper" type) and another consisting of a house and supporting structures ("tenant-renter" system). The "cropper" type system consisted of tenant houses built by the land owner at 40-80 acre intervals, 40 acres being what was considered a "one horse farm." One man would be expected to plow and tend to the 40 acres. Some tenants, particularly those with families that could help with the farm work, had more than 40 acres. The "tenant-renter" settlement system would not appear much different from a family-owned farm settlement pattern. The first generation of former slave dwellings were mostly built from logs, like the former slave quarters. The second generation built houses using frames on

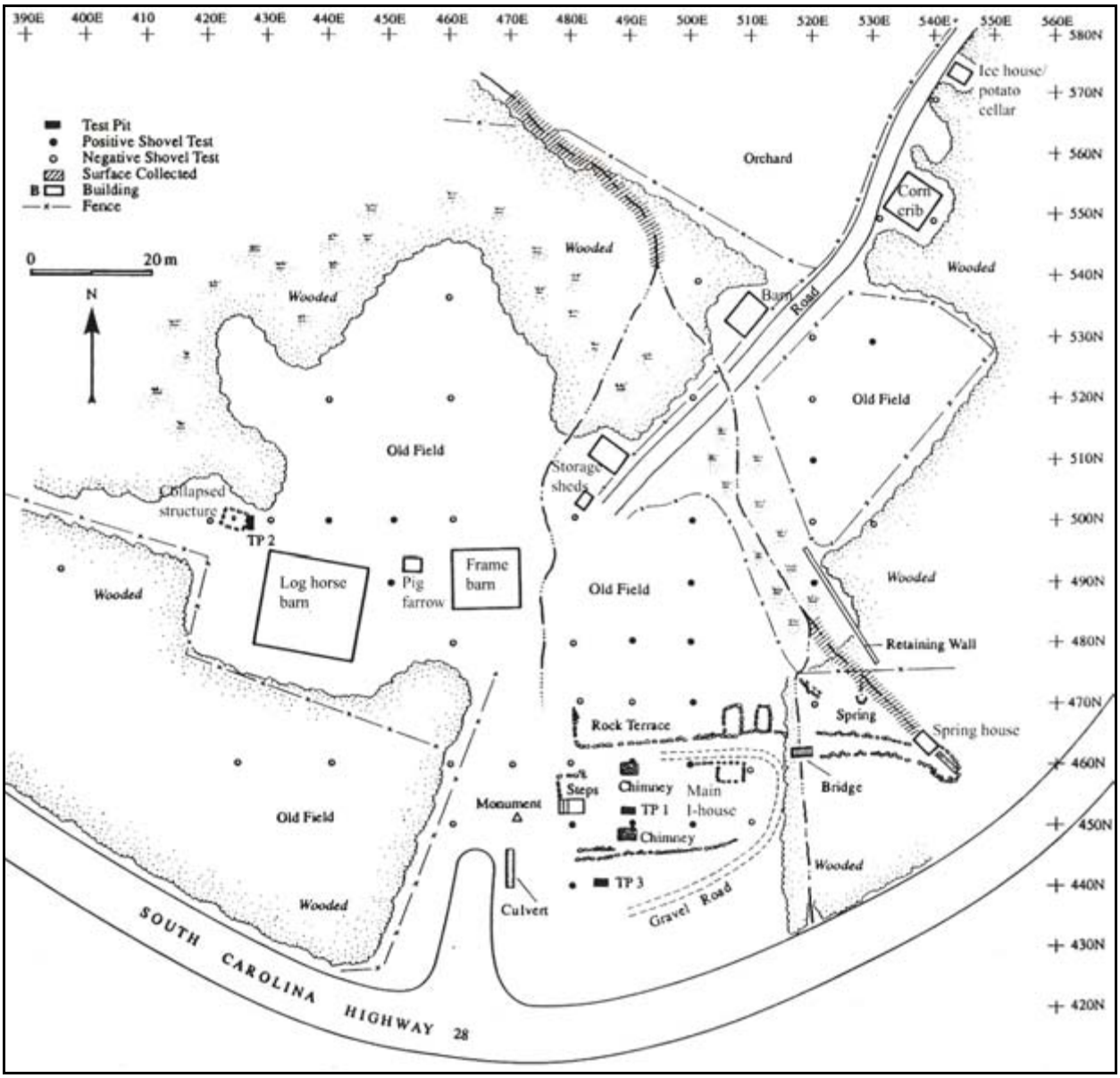

Figure V.10. Site Plan of the Russell House on the Andrew Pickens Ranger District (O'Steen and Chapman 1991).

piers and rough-sawn planks, but floor plans remained similar to floor plans used for two-unit slave houses, consisting of a central chimney used to heat two rooms (Aiken 1998:52).

Immediately after the Civil War freed slaves moved existing slave houses or may have built small houses on land where they were tenants, squatted or may have been owners. However, tenants building houses must have been a short-lived practice. Generally, tenants did not build the houses and moved from one farm to another as conditions changed. The house was usually built by the land owner and was part of the "deal" that brought labor to the farm. Many surviving tenant farm houses on or near the Piedmont ranger districts of the Sumter National Forest are saddlebag types, consisting of two rooms, each with a front facing door, or one center doorway that opened to one of the rooms,

Figure V.11. South Carolina Tenant Farmer's House with Shade Trees and Surrounded by Cultivated Fields, 1936 (Library of Congress, Prints & Photographs Division, FSA-OWI Collection [LC-USF34-006811-D]).

Figure V.12. Tenant Farmer's House Surrounded by Cultivated Field in Cherokee County, South Carolina, 1937 (Library of Congress, Prints & Photographs Division, FSA-OWI Collection [LC-USF34-018111-E], Dorothea Lange, photographer).

with a central fireplace facing into each room. A lean-to addition off the rear held two smaller rooms; a small kitchen with an iron wood-burning kitchen stove and a small pantry storeroom.

The most common historic site types on the Sumter National Forest are late nineteenth-early twentieth century, isolated house sites (Figures V.11 and V.12), many of which likely are tenant houses. Visible above ground features and remains can include one or more chimney rubble piles, consisting of field stones or a mixture of field stones and brick, stone piers, sheet tin roofing, well and/or privy depressions, overgrown privet in the yard or adjacent garden areas, remnants of ornamental plants, wysteria, and one or more large, old living oak trees or the standing remains of dead oak trees. Joseph et al. (2004:86), however, remark that tenant houses often have low visibility and that

many of the recorded historic artifact scatters in Georgia might represent tenant sites. Greatly contributing to the low visibility of Georgia and South Carolina tenant sites outside of the forest is that abandoned tenant sites were converted to agricultural fields. Plowing and subsequent erosion severely impacted these sites (Joseph et al. 2004:89). While this pattern also may be true for earlier tenant sites on the Sumter National Forest, a considerable number of later tenant houses probably are better preserved because of Forest Service acquisition of this land in the 1930s, in spite of the effort to raze standing structures once the land was acquired.

Lesh et al. (1929:7) describes the typical structures and their conditions on tenant sites:

> The customary set of farm buildings on tenant farms consists of a 1-story building, a small barn in which to keep a part of the feed for the livestock and to house work animals and, perhaps, a cow, and a shed in which to store machinery or an automobile. Very few farm buildings have received paint or repairs in recent years. On many farms the crop, as well as farm implements, have no better shelter than a tree in the barnyard. Some 2-story well[-]painted houses and fair[-]sized barns without houses are scattered over the county.

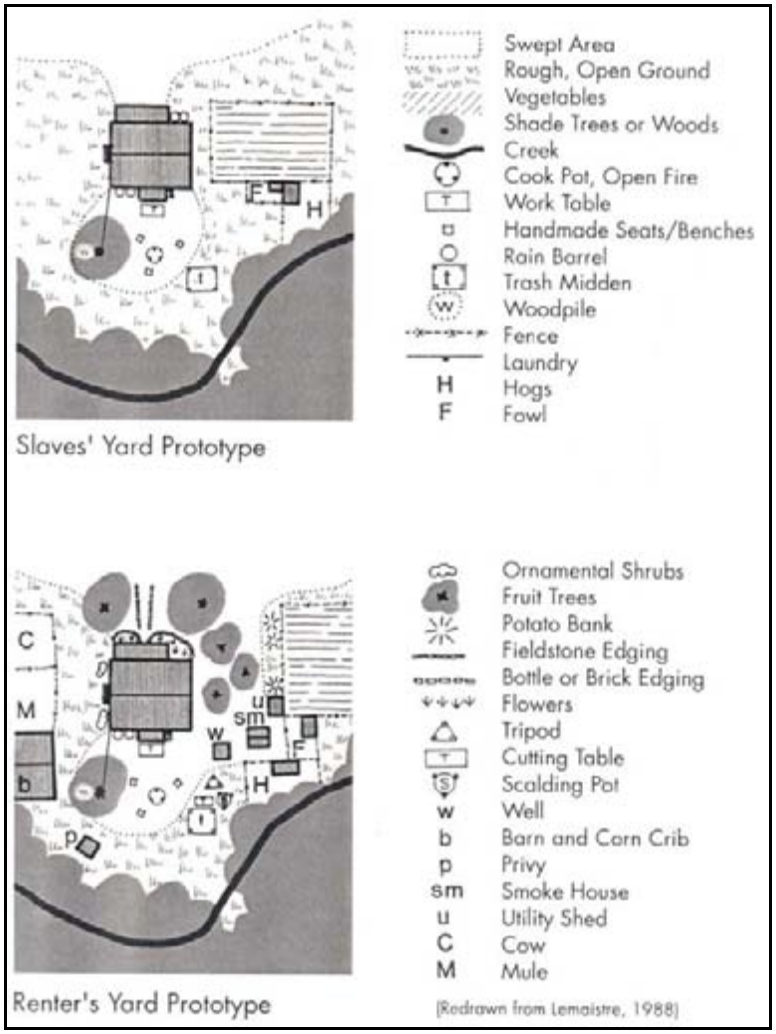

Figure V.13. A Comparison of Slave and Tenant Site Plans (reproduced from Joseph et al. [2004:87]).

This description suggests that few visible features might remain on tenant sites once they are abandoned. Joseph et al. (2004:87) present comparative plans of slaves' and renters' houses, suggesting that tenant house sites should appear to be more complex than slave house sites (Figure V. 13).

Certain household and farm-related activities likely occurred near the house structure and these may be identified through remains of adjacent outbuildings, e.g., barns or sheds, by particular artifacts, such as blacksmith implements, or by remains left from an activity, such as a wood chip or saw dust pile adjacent to an old wood shop. Often, activities that occurred at home places probably go undetected at the Phase I level of archeological investigation (e.g., Figure V.14). Other activities

Figure V.14. Lard Production Conducted Adjacent to House, ca. 1934 (Library of Congress, Prints & Photographs Division, FSA-OWI Collection [LC-USF34-015433-E]).

related to tenancy probably occurred away from the house site, as is suggested in Lesh's (1929:7) (above) recounting of barns on the landscape that were not directly associated with houses.

Non-Agrarian Sites

Table V.16 provides the range of historic site types outside of habitation sites (e.g., house sites) that have been recorded among the three ranger districts of the Sumter National Forest. These can be grouped based upon Joseph et al.'s (2004) historic site typology. They classify historic site types into seven main groups: Agrarian Sites, Industrial Sites, Community Sites, Military Sites, Transportation Sites, Cemeteries, European-Native American Interaction Sites and Miscellaneous Sites. The scope covers more than what the Sumter National Forest contains and it will not be repeated here, but it is used as a framework to classify historic period sites. Most importantly in respect to Sumter National Forest, it provides a typology for the plethora of "house/farmstead" sites, typed as Agrarian Sites, that have been recorded among the three ranger districts. Characteristics and patterns associated with agrarian sites have been presented above in greater detail than the remaining classes of non-agrarian site types listed below (Table V.16). Descriptions of each type follow and predominantly are limited to information recovered from Sumter National Forest sites.

Table V.16. List, Count and Proportion of Historic Non-habitation Site Types by Ranger District on the Sumter National Forest.

	Andrew Pickens Ranger		Enoree Ranger District		Long Cane Ranger District	
Site Type	**#**	**%**	**#**	**%**	**#**	**%**
Cemetery	6	16.7	67	44.4	66	62.7
Prospecting	6	16.7	18	11.9	53	26.2
Gold mine	4	11.1	0	0	7	3.5

	Andrew Pickens Ranger		Enoree Ranger District		Long Cane Ranger District	
Site Type	**#**	**%**	**#**	**%**	**#**	**%**
still	4	11.1	13	7.9	3	1.5
Quarry	3	8.3	6	4.0	2	1.0
CCC Camp	2	5.6	2	1.3	1	0.5
Railroad	2	5.6	1	0.7	0	0
Kiln	2	5.6	0	0	0	0
Outbuilding	1	2.8	17	11.3	2	1.0
Stone marker	1	2.8	0	0	0	0
Stone structure	1	2.8	1	0.7	1	0.5
Church	1	2.8	1	1.3	4	2.0
School	1	2.8	2	1.3	3	1.5
Well	1	2.8	2	1.3	4	2.0
Petroglyph	1	2.8	0	0	0	0
Rock pile	0	0	4	2.6	1	0.5
Saw mill	0	0	2	1.3	14	6.9
Dump	0	0	4	2.6	7	3.5
Fire tower	0	0	1	0.7	1	0.5
Bridge	0	0	3	0.7	5	2.5
Mill	0	0	1	2.0	4	2.0
Military	0	0	3	0.7	1	0.5
Earthwork	0	0	1	0.7	0	0
Granite blocks	0	0	1	0.7	0	0
Brick pile	0	0	1	0.7	0	0
Improved spring	0	0	1	0.7	4	2.0
Sorghum furnace	0	0	0	0	4	2.0
Tractor boiler	0	0	0	0	1	0.5
Store/Post office	0	0	0	0	1	0.5
Metal scatter	0	0	0	0	1	0.5
Isolate	0	0	0	0	12*	5.9
Total	**36**	**100**	**152**	**100**	**202**	**100**

*Single historic period artifacts recorded on prehistoric sites.

Other historic period activities have been recorded on the Sumter National Forest that are not directly associated with house locations (Table V.16). One such site type are liquor stills, found in the valleys of perennially flowing streams or springs. Often an old road bed leads to the still location, but not always. Liquor still sites often consist of old metal barrels, almost always bearing axe marks, found in a semi-circular dug-out bank adjacent to a creek. In the absence of metal barrel remains, wooden barrel hoops are usually present. Glass or ceramic (stoneware) jug fragments are often associated with the surface features and other remains. A thick charcoal pile is always present and there is often a dug-out canal or chute running from the grain mashing area (adjacent to the charcoal pile) toward the creek. The amount of effort applied to the construction of a liquor still varies considerably. Some will have rock or brick platforms or supports for the mash unit or small structures (Figure V.14).

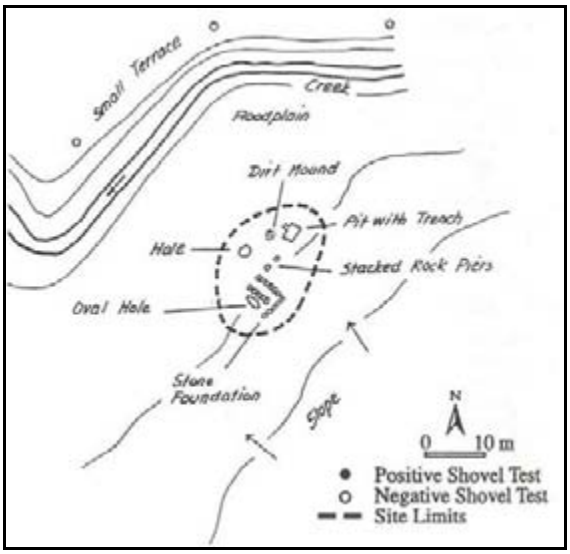

Figure V.15. Example of a More Complex Still Site (31MG1222) in a Mountain Setting (Benson 1999:102).

Mineral prospecting/mining sites often are found on the Sumter National Forest. Prospecting sites are more numerous on the Long Cane Ranger District, but many have yet to be recorded on the Andrew Pickens Ranger District. Prospecting pits, at times, can be difficult to identify. They often occur in small clusters, appear as shallow (or sometimes deep) oval or circular depressions (Figure V.15), often have a discernible spoil pile around the hole perimeter, and will typically occur within quartz outcrops. Mineral prospecting pits can be confused with old, large oak tree falls, unmarked graves and military training exercise foxholes. Though generally limited, both WWII and Vietnam era military training exercises have been conducted on the Sumter National Forest. Among the ten gold prospecting/mining sites recorded in the Andrew Pickens Ranger District, four (38OC275, 38OC276, 38OC277 and 38OC382) are considerably more elaborate, containing tunnels, adits and possible smelting kilns, than their counterparts on the Enoree and Long Cane Ranger Districts.

Another, less frequently recorded historic activity site recorded on the Sumter National Forest are sorghum processing sites. None have been identified that are associated with house locations, but this activity undoubtedly occurred at residences (Figures V.16 and V.17). Those that have been recorded on the Sumter National Forest were recorded as sorghum furnaces.

Cemeteries occur frequently on the Sumter National Forest. Most date to the nineteenth century (Appendix A). Appearance and size of cemeteries vary considerably. Some have only a few graves but are well tended, retaining inscribed head and/or foot stones contained by fences or walls. Conversely, some lack any above-ground indicators, such as head or foot stones. Upturned field stones at the head and/or foot of shallow, oval depressions often are the only visible markers. Cemeteries lacking markers easily can be missed during Phase I survey investigation if attention is not paid to surface features. Most cemeteries have some historic documentation so that locating them in the field is not problematic, but others may have no historic documentation.

Figure V.16. 38MC1588, an Example of a Mineral Prospecting Pit on the Long Cane Ranger District (USDA Forest Service, photographer James F. Bates).

Figure V.17. Well and Mud Sorghum Processing Vat Adjacent to a Residence, ca. 1935 (Office of War Information Photograph Collection [LC-USF34-050590-D]).

Figure V.18. Mule Driven Sorghum Mill, 1938 (Library of Congress, Prints & Photographs Division, FSA-OWI Collection [LC-USF34-050536-D]).

One of the more elaborate known cemeteries on the Sumter National Forest is 38AB365 on Compartment 217 of the Long Cane Ranger District (Figure V.18). 38AB365 actually lies on private property, a few meters south of Forest Service property. This cemetery is large, dates to the late eighteenth century and contains inscribed, soapstone head stones (Figure V.19). In spite of its large size and unique grave markers, it is not depicted on the 7.5' USGS quadrangle. Cemeteries are found in a variety of topographic settings, but they are most often found on ridge crests or on knolls of ridge noses. 38AB365 is situated on a ridge side slope, adjacent to a knoll. Viewing all of Abbeville County cemeteries on the Long Cane Ranger District, older

Figure V.19. 38AB365, an Example of a Cemetery with Inscribed Soapstone Head Stones on the Long Cane Ranger District (USDA Forest Service, photographer James F. Bates).

Figure V.20. Single Head Stone from 38AB365 (USDA Forest Service, photographer James F. Bates).

cemeteries (late eighteenth through early nineteenth century) tend to be found more often on lower landforms, e.g., toe slopes and lower slopes of ridge sides, than younger cemeteries. Family plots are often found adjacent to or near dwellings. In many cases an existing road or an abandoned road that is still visible leads to cemeteries.

Visible earthen structures include old road beds, agricultural terraces, drainage or irrigation canals and dams. Recorded dams are few in number. One of the larger earthen "dams," which is actually an earthen bridge constructed to cross a deeply incised drainage, is on the Enoree Ranger District (Figure V.20) (Benson 2001:110). The structure rises approximately 12 m above the drainage basin floor. Backwater from the earthen bridge formed a small pond. Dams of this size typically are constructed across larger drainages. A 4-m-wide, deeply entrenched road bed leads to the earthen bridge and extends to an existing county road 300 m northwest.

Portable saw mill sites occur throughout Sumter National Forest. These sites typically consist of decayed wood chip or saw dust piles and one or more visible trenches or pits. In mountainous areas, portable mills were often located on creek floodplains with trenches dug into an adjacent slope (Figure V.21). In the Piedmont, saw mill locations tend to be on the lower portions of ridges or on toe slopes (cf., Pluckhahn 2002). Rectangular or square trenches and oval pit depressions are sometimes visible. Trenches were for saw mill supports and pits held saw dust and wood chips. Portable saw mills were used mostly during the early twentieth century, especially during the first several years of Forest Service ownership. Local timber companies contracted with the Forest Service to remove timber from the recently purchased lots. Much of the timber processing was conducted on site. Trees were rough-milled and then stacked to dry. Once dry, the boards were transported to a local mill for finishing. At times, timber and mill workers set up temporary camps adjacent to the portable mills.

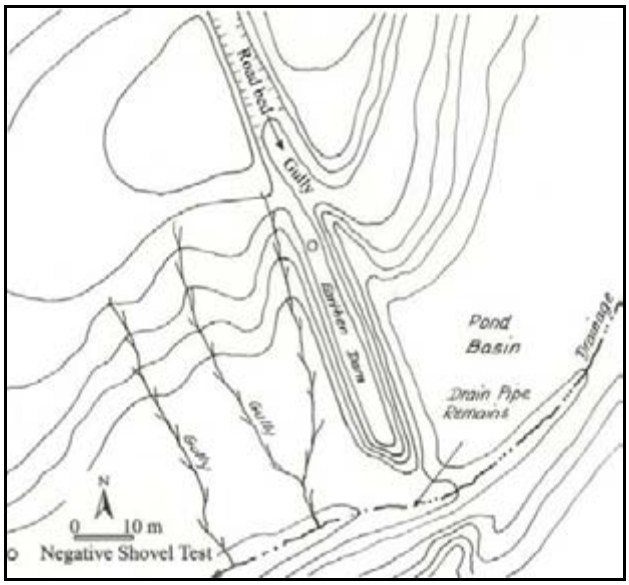

Figure V.21. Relatively Large Earthen Dam/Bridge and Connecting Road (38UN894) Recorded in Compartment 64 of Enoree Ranger District.

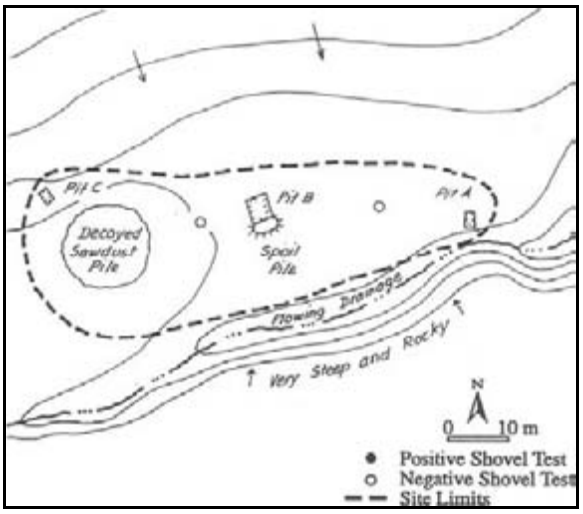

Figure V.22. Example of a Saw Mill Site (31MG1431) in a Mountain Setting (Benson 1999:491).

Pluckhahn (2002:408-409) presents information on the setup and use of portable saw mills after Compton and Bell (1956). Impermanent saw mills were of two types, a mobile mill and a portable mill (Figures V.22, V.23 and V.24). The mobile mill was moved from place to place on a trailer, while the portable mill was transported in pieces and then assembled on-site. The framework of both mill types was mounted on 10-by-10-inch sills placed in the ground. A pit was dug to catch saw dust and wood chips. A conveyor moved the wood dust and chips from the pit and deposited it several meters away. Portable mills were used before and after the federal government purchased the land that became the Sumter National Forest. Mechanized timber harvests and whole-tree transport out of the forest was not widely in use until the 1960s.

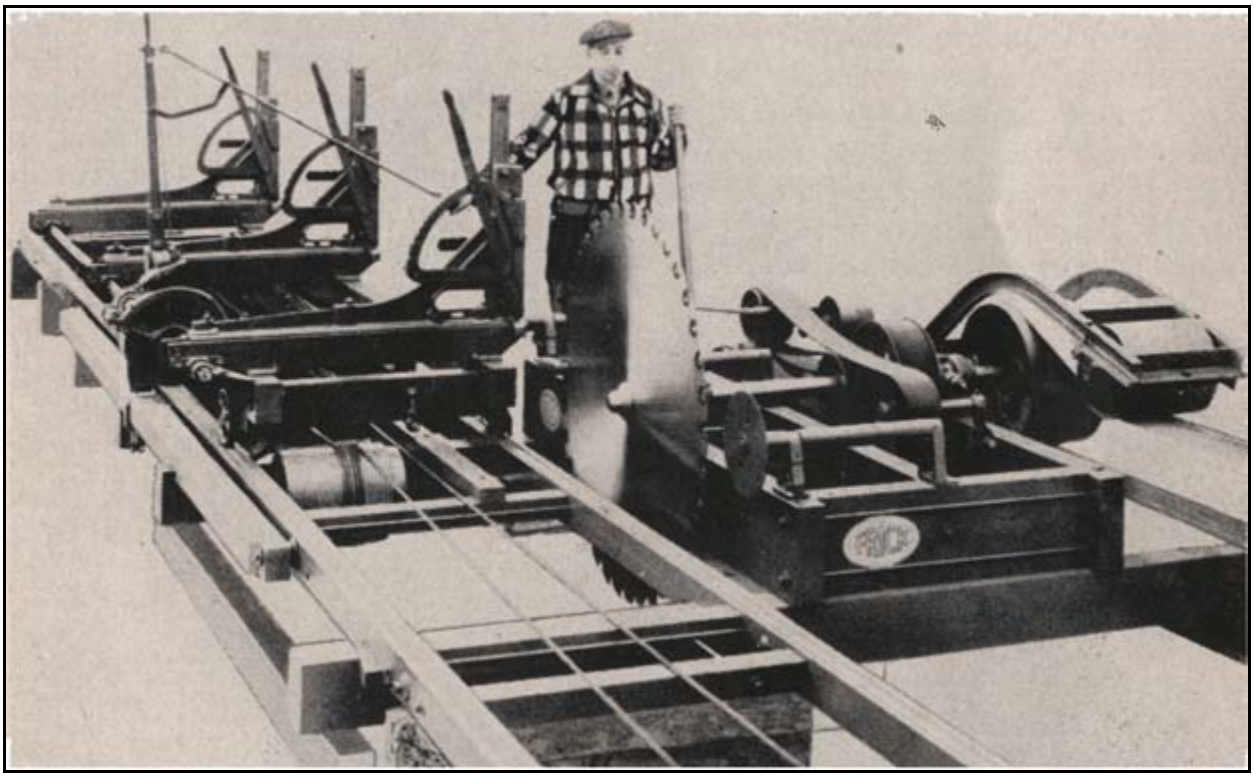

Figure V.23. Example of a Portable Mill (from Compton and Bell 1956).

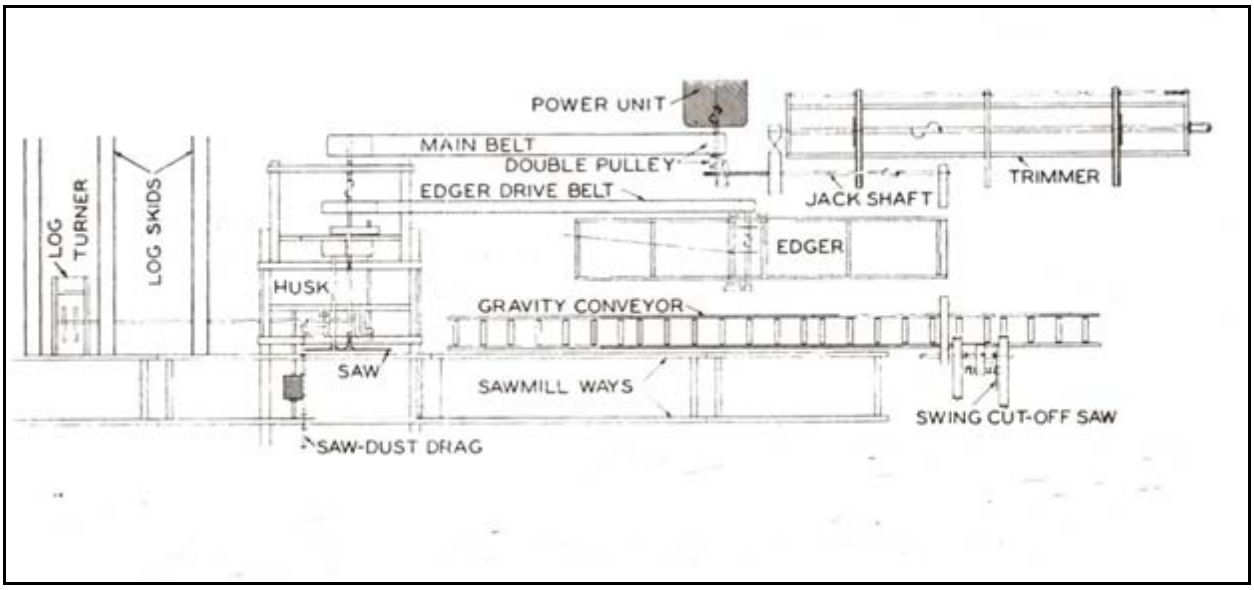

Figure V.24. Schematic of Mill Setup (from Compton and Bell 1956).

Figure V.25. Mobile Mill in Use on Forest Service Property (from Compton and Bell 1956).

Figure V.26. Drinking Fountain at a CCC Camp (38MC784) on the Long Cane Ranger District (USDA Forest Service, photographer James F. Bates).

Remaining historic site types are fewer in number but they represent a considerable range. These include granite quarries, CCC camps and constructed facilities (Figure V.25), schools and churches, fire towers (both standing and structural remains), bridges (Figure V.26), railroad beds, improved springs, among other somewhat obscure types. Rock piles were at one time recorded as archeological sites, but since ca. 1992 they have been recorded as historic features and placed on survey maps, much the same way agricultural terraces and old road beds are noted. Thus, the number of rock piles recorded in the site database is not actually representative of the number of rock piles that have been encountered on the Sumter National Forest.

Figure V.27. The Key Bridge (38MC254) on the Long Cane Ranger District (USDA Forest Service, photographer James F. Bates).

Standing Structures on the Sumter National Forest

There are relatively few standing structures older than fifty years on the Sumter National Forest. All standing structures have been recorded and evaluated by architectural historians under NRHP criteria (Table V.17 and Figures V.27, V.28 and V.29). No systematic survey to identify standing structures has been undertaken by the Forest Service. All standing structures were known to exist by Forest Service personnel and evaluations of these structures were contracted to private cultural resource management consultants. The Russell Farmstead at one time was on the National Register. However, it was reevaluated and then removed from the National Register after a fire destroyed the main house and several outbuildings (O'Steen and Chapman 1991).

Table V.17. List of Standing Structures that Have Been Architecturally Evaluated on the Sumter National Forest.

Subject	Ranger District	Reference	Eligibility Class
Headquarter's office	Andrew Pickens	Chapman (1991a); FM and SNF CRM Report #91-36	III
Rangers House	Andrew Pickens	Chapman (1991a); FM and SNF CRM Report #91-36	III
House and 2 barns	Andrew Pickens	Chapman (1991b); FM and SNF CRM Report #91-28	III
Long Creek Lookout	Andrew Pickens	Kline et al. (1999); FM and SNF CRM Report #99-08	I
Long Mountain Lookout	Andrew Pickens	Kline et al. (1999); FM and SNF CRM Report #99-08	I
Russell Farmstead	Andrew Pickens	O'Steen and Chapman (1991); FM and SNF CRM Report #91-18	III[1]
Warehouse/shop	Andrew Pickens	Chapman (1991a); FM and SNF CRM Report #91-36	III
Dispatcher's House	Enoree	Fick (1995); FM and SNF CRM Report #95-14	III
2 Houses, barn	Enoree	Chapman (1991b); FM and SNF CRM Report #91-28	III
House, shed	Enoree	Chapman (1991b); FM and SNF CRM Report #91-28	III
Leeds Lookout	Enoree	Kline et al. (1999); FM and SNF CRM Report #99-08	I
Tip Top Lookout	Enoree	Kline et al. (1999); FM and SNF CRM Report #99-08	I
Whitmire Lookout	Enoree	Kline et al. (1999); FM and SNF CRM Report #99-08	I
Barn/shed	Long Cane	Chapman (1991b); FM and SNF CRM Report #91-28	III
Bradley Work Center Building 301	Long Cane	Chapman (1993); FM and SNF CRM Report #93-29	III
House/barn	Long Cane	Chapman (1991b); FM and SNF CRM Report #91-28	III
Farmstead (House, 2 sheds, carport)	Long Cane	Chapman (1991b); FM and SNF CRM Report #91-28	III
House and 4 outbuildings	Long Cane	Chapman (1991b); FM and SNF CRM Report #91-28	III
House, 2 barns, shed	Long Cane	Chapman (1991b); FM and SNF CRM Report #91-28	III
House	Long Cane	Chapman (1991b); FM and SNF CRM Report #91-28	III
House, 2 sheds	Long Cane	Chapman (1991b); FM and SNF CRM Report #91-28	III

Subject	Ranger District	Reference	Eligibility Class
Liberty Hill Lookout	Long Cane	Kline et al. (1999); FM and SNF CRM Report #99-08	I
Parsons Mountain Lookout	Long Cane	Kline et al. (1999); FM and SNF CRM Report #99-08	I
Parson's Mountain Fire Tower (Lookout)	Long Cane	Hudson and Webb (2000); FM and SNF Report CRM Report #00-07	I[2]
Woodlawn Lookout	Long Cane	Kline et al. (1995); FM and SNF CRM Report #99-08	I

[1] Reevaluation of National Register Property after fire destroyed the main house of the complex.
[2] Reevaluation of the fire tower along with archeological evaluation of site 38AB363, the fire tower tender's cabin site.

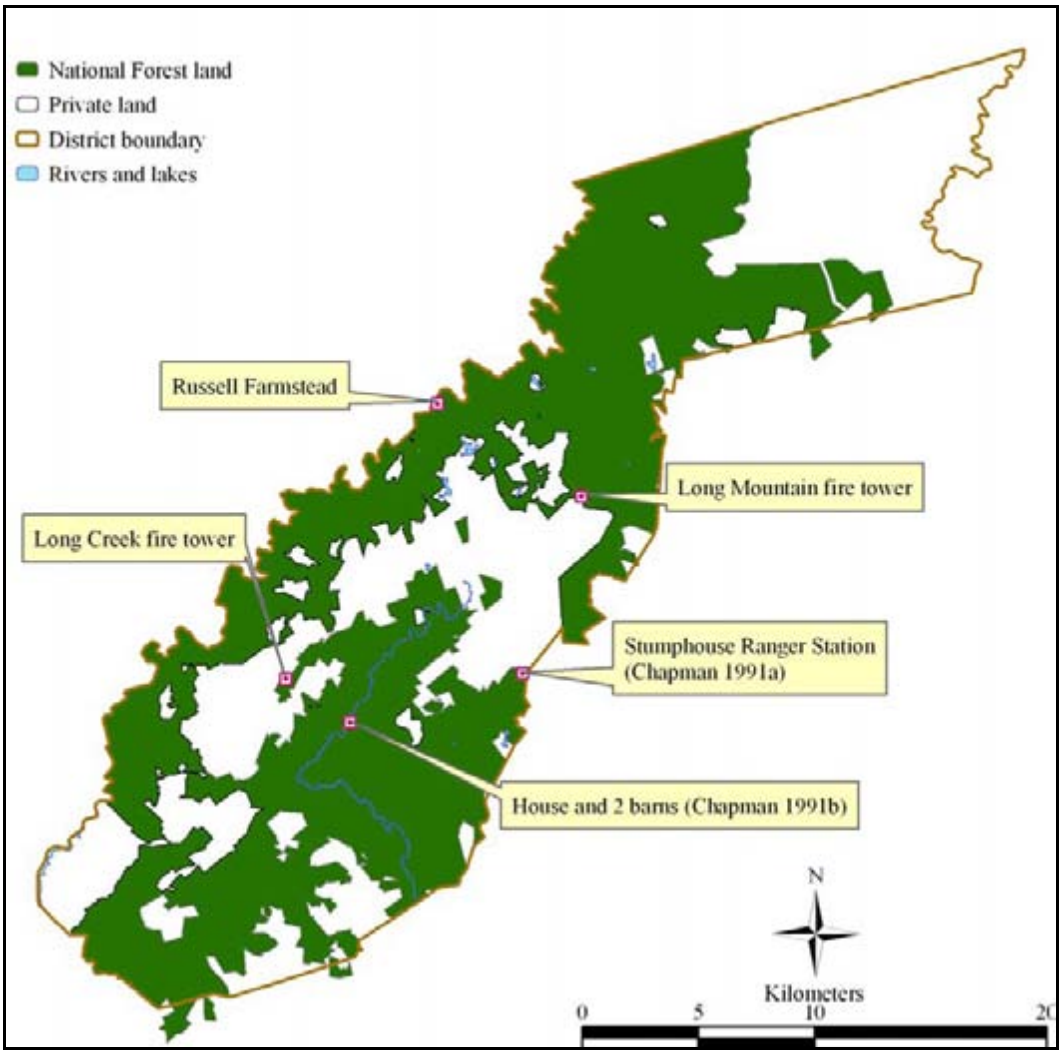

Figure V.28. Locations of Evaluated Standing Structures on the Andrew Pickens Ranger District.

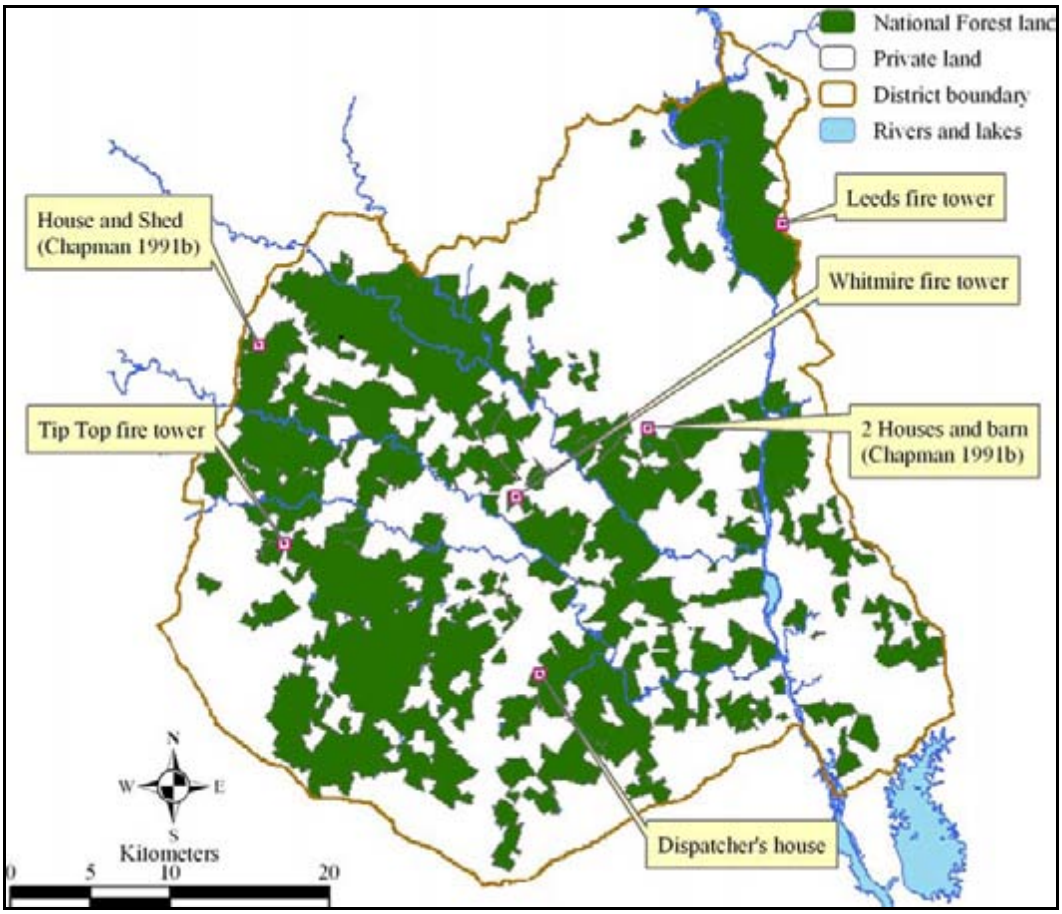

Figure V.29. Locations of Evaluated Standing Structures on the Enoree Ranger District.

All of the structures on the Sumter National Forest that were evaluated and recommended ineligible for listing on the NRHP failed to meet National Register criteria because of either substantial remodeling that compromised the architectural integrity of the structure, because the structure had been moved, thus compromising the integrity of setting, or both. Nearly all of the structures were built during the early years of the Sumter National Forest (1930s) by the Civilian Conservation Corps (CCC). The CCC built numerous structures, mostly utilitarian, for the Forest Service. Otis and colleagues (1986) defined three major types that were constructed by the CCC. These include CCC camps, CCC-built recreation buildings and sites and CCC-built administrative sites.

Another prominent group of standing structures that remains scattered across the three ranger districts of the Forest are fire towers or fire lookouts. Some of these also were constructed by the CCC in the 1930s (Hudson and Webb 2000:5) and, unlike the utilitarian structures constructed by the CCC, have undergone only marginal remodeling. Consequently, all recommended eligible structures on Forest Service land are fire towers. Among the eight standing fire towers seven were constructed by Aeromotor (Kline et al. 1999:7-8) and all of these are the LS-40 model, consisting of an internal galvanized stairway with wooden treads that leads to a trap door in the floor of the cabin (Hudson and Webb 2000). Constructed sections of the fire tower were delivered from Aeromotor, located in Illinois, to the construction site and then assembled on site (Hudson and Webb 2000:8).

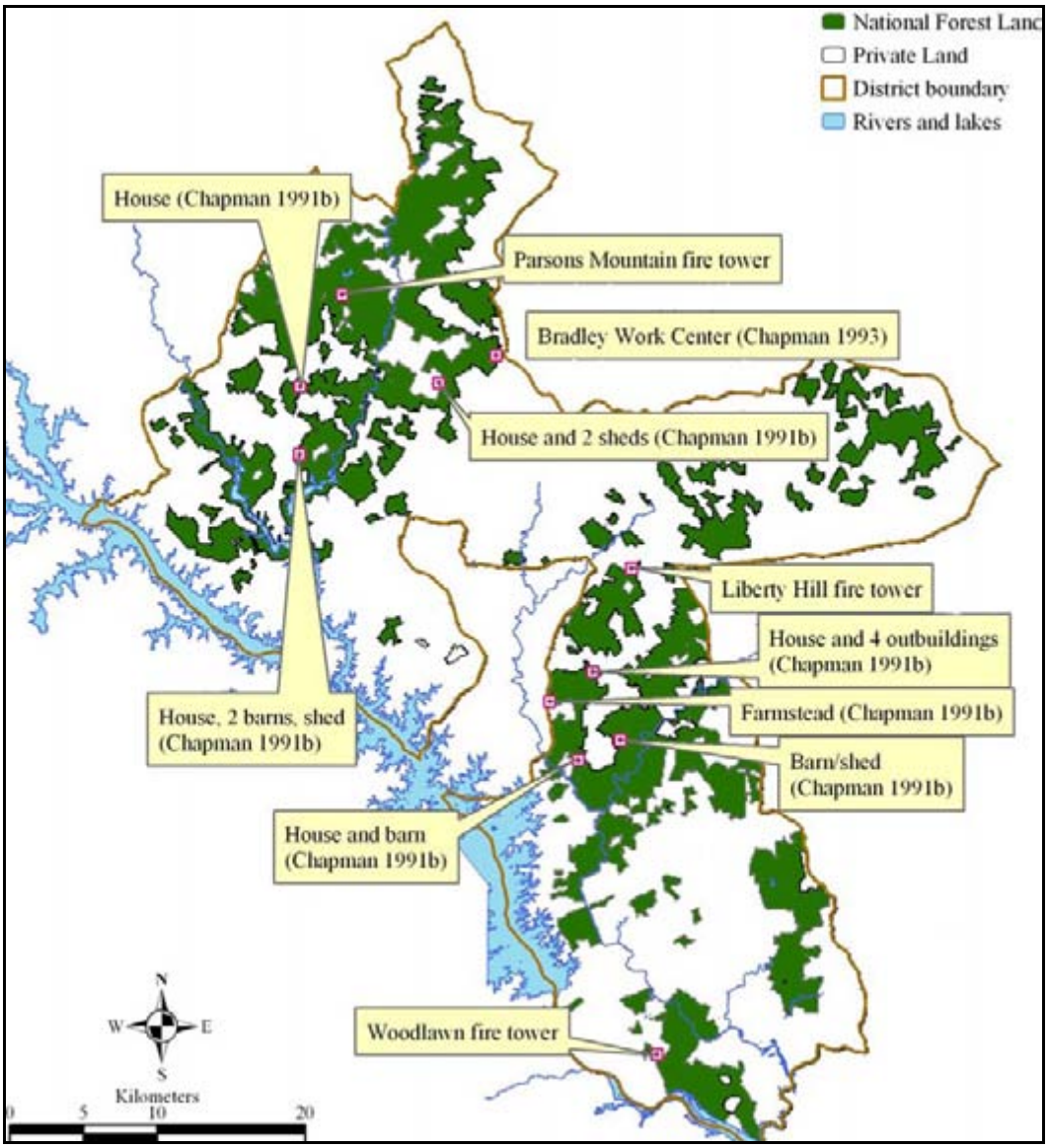

Figure V.30. Locations of Evaluated Standing Structures in the Long Cane Ranger District.

There are 22 locations on the Sumter National Forest that had standing structures evaluated by architectural historians. Several buildings were determined not eligible for the National Register of Historic Places and were later demolished. All structures that have been recommended eligible to the National Register are fire towers or fire lookouts. These structures represent a fixed point fire suppression strategy that was employed for most of the twentieth century but is not longer in use. Aerial inspection and satellite imagery have replaced the fixed point strategy on the Sumter National Forest.

Chapter VI
Interpretive Synthesis of the Sumter National Forest Site Database

Introduction

The interpretive synthesis is site-distribution focused because the site database primarily is comprised of survey-level data. The geographic focus is the South Carolina Piedmont and Blue Ridge. Site locations, size, components and types are the primary data, all of which were generated by a composite of archeological surveys and minimal testing phase investigations on the Sumter National Forest. The raw data comes from the Sumter National Forest site inventory (Appendix H). These data were analyzed in respect to specific environmental variables to yield information about patterned, geographic distribution of archeological sites through time.

Basic archeological components for each site were obtained from site forms, but an artifact database associated with site records is lacking. The lack of this information hampers temporal resolution, especially in the Woodland and Mississippian periods. It further hinders an assessment of the types of sites present for each archeological period. Site data sets that include an artifact database and excavation data beyond the Phase I survey level can significantly augment the site distribution patterns presented here. Presently, archeological periods with many representative sites, like the Middle Archaic period, are more informative than archeological periods with only a few representative sites, like the Early and Late Woodland periods.

Existing geographic and site data for Sumter National Forest and the methods used for data collection, presentation and analysis all have some inconsistencies, inaccuracies and biases. Some are covered here in this chapter and have been presented in previous chapters. Specific details for site inventory data processing, methods, data presentation, definitions, and analyses are provided in Appendix A. The raw site inventory data is in Appendix H. Tables VI.1 and VI.2 provide definitions for frequently used terms in this chapter.

Observing changes in land use across archeological periods on the Sumter National Forest is mostly an inter-riverine zone perspective. Only the Long Cane Ranger District records any substantial information on lowland landform use along larger drainages, e.g., fifth order streams and rivers, because of Clarks Hill Lake/Strom Thurmond Reservoir shoreline surveys. Even these surveys produced archeological data only along the margins of the impounded waters of Little River and Long Cane Creek as they flow through the forest en route to the Savannah River. All lakeshore archeological investigation along the Savannah River channel is outside of Forest Service property.

Upland landforms are overly represented in the database, but it does not preclude the ability to measure fluctuating land use intensity through time. Typical Sumter National Forest timber stand surveys do not include margins surrounding larger creeks and rivers because of watershed conservation concerns. The excluded margins often encompass floodplains, terraces and sometimes toe slopes descending onto floodplains. Use of bottomlands is clearly under represented. Even with

the limited archeological investigation of bottomlands along larger drainages on the Long Cane Ranger District, the influence of these investigations upon patterns of land use is noticeable when compared to the Enoree Ranger District. Thus, the interpretive synthesis compares changes in land use across archeological period transitions within respective ranger districts. Appendix A, *Archeological Site Distribution on the Sumter National Forest*, discusses potential survey biases in greater detail, among other biases and inconsistencies associated with data collection methods and analyses that were used in this overview.

Table VI.1. Definitions for Geographic Terms.

Geographic Zones	Definition
Inter-riverine	Land between rivers
Upland	Upland landforms
Lowlands/bottomlands	Lowland landforms
Riverine/riverine-oriented	Land along rivers
Uplands	Elevated landforms adjacent to river floodplains
Lowlands/bottomlands	Lowland landforms along rivers
Upland landforms	Ridge top, knoll, ridge nose, saddle, upland slope, upland flat
Lowland landforms	Toe slope, terrace, floodplain
Crest	Summit of landform, e.g., the longitudinal "spine" of a ridge nose

Table VI.2. Terms Used and Definitions for Water Features.

Water Type	Definition
Potential water	All drainage features that have or could have water
Rank 1 (first order) streams	Initial branches or headwaters of streams/drainages
Drainage heads	Active or potential spring heads
Permanent Water	All drainage features that have perennial water
Rank 2 (second order) streams or higher	All drainages beyond the confluence of two first order drainages
River	Rank 6 (sixth order) or higher drainages

Stream order was adapted from the Strahler (1957) method. First order drainages were defined by Leopold's (1964) definition – the smallest unbranched tributary depicted on a 7.5' USGS topographic map.

Prehistoric and Historic Land Use Summary

Occupation intensity trends through time are broadly similar among ranger districts. A comparative analysis of occupation intensity trends and patterns through time within each ranger district is the only viable comparison available. A comparison of trends within each ranger district can be made, but direct period-by-period comparisons among ranger districts are not made because each has received different amounts of archeological survey coverage.

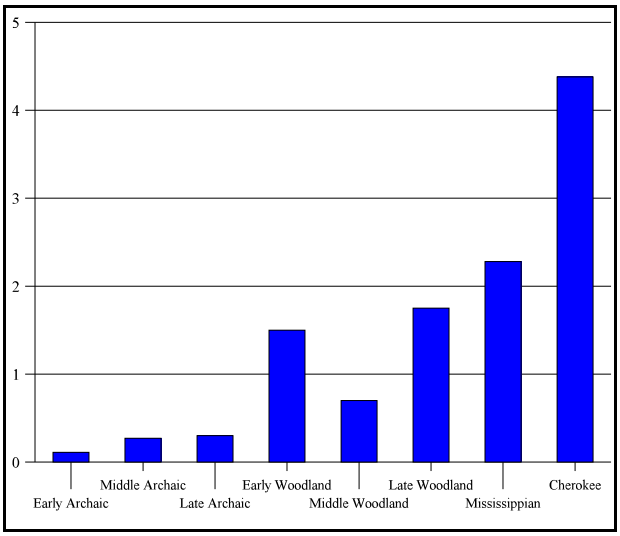

Figure VI.1. Relative Frequency of Occupations per 100 Years on the Andrew Pickens Ranger District.

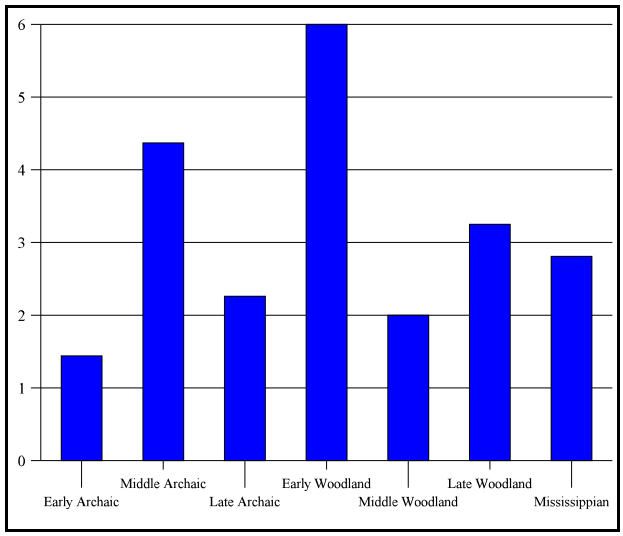

Figure VI.2. Relative Frequency of Occupations per 100 Years on the Enoree Ranger District.

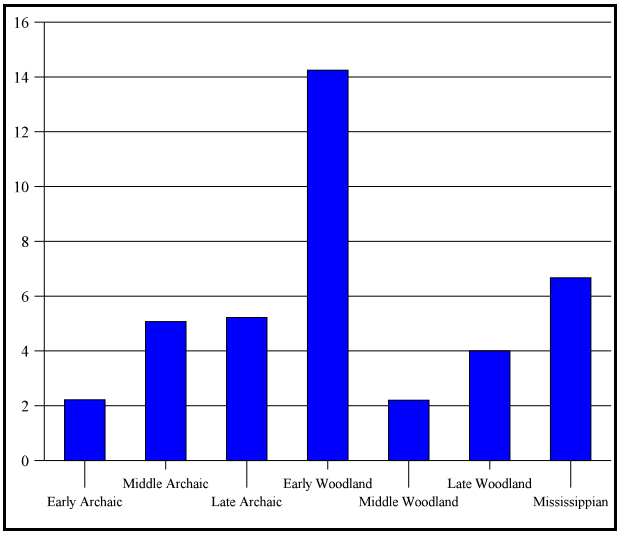

Figure VI.3. Relative Frequency of Occupations per 100 Years on the Long Cane Ranger District.

For the prehistoric period, occupation intensity (occupations/100 years) on the Andrew Pickens Ranger District increased steadily from the Archaic through the Cherokee periods, with a temporary decrease in occupation intensity during the Middle Woodland period (Figure VI.1). The trend is not as uniform on the Enoree and Long Cane Ranger Districts (Figures VI.2 and VI.3). On the Enoree Ranger District occupation intensity peaks during the Middle Archaic and Early Woodland periods (Figure VI.2), and on the Long Cane Ranger District occupation intensity peaks during the Early Woodland and Mississippian periods (Figure VI.3). Generally, occupation intensity trends on the Long Cane and Andrew Pickens Ranger District are similar and the Enoree Ranger District is comparatively distinctive. For the historic Euro/African American period, occupation intensity predictably increases from the oldest (eighteenth century) to the youngest (late nineteenth-early twentieth century) periods in all three ranger districts.

Less than one-third of identified prehistoric sites in the Blue Ridge date to the Late Paleoindian-Archaic period, while nearly two-thirds of identified prehistoric sites in the Piedmont date to the Late Paleoindian-Archaic period. Within the Piedmont, the Enoree Ranger District displays slightly greater frequency than the Long Cane Ranger District during the Late Paleoindian-Archaic period. Prehistoric sites that contain ceramics (essentially Woodland and Mississippian) comprise nearly 30 percent of all prehistoric sites on the Andrew Pickens District, while the same site types represent 8 percent and 12 percent on the Enoree and Long Cane Ranger Districts, respectively. Fiber-tempered wares of the Late Archaic period have thus far been identified only on

the Long Cane Ranger District, and no Historic Native American period sites have been identified on the Enoree and Long Cane Ranger Districts through 2002.

In spite of differences in occupation intensity trends among the three ranger districts, land-use patterns through time show similar tendencies. Intensive inter-riverine use of upland landforms during the Archaic period gave way to increased use of inter-riverine and riverine lowland landforms during the Woodland and Mississippian (and Cherokee) periods (Table VI.3 and VI.4). In the Blue Ridge Province, the trend toward a lowland landform focus peaks in the Historic Euro/American period (Table VI.5). For the Piedmont, lowland landform use peaks during the Late Woodland and Mississippian periods on the Long Cane and Enoree Ranger Districts, respectively (Table VI.3). Historic Euro/African American land use is decidedly an upland landform focus in the two Piedmont ranger districts. Upland and lowland land use is equally divided in the Blue Ridge for the same period. As will be illustrated later, lowland landform occupation decreased through time from the eighteenth to early twentieth centuries.

Table VI.3. Frequency Distribution of Sites among Landform Types through Time on the Sumter National Forest.

	Andrew Pickens Ranger District			Enoree Ranger District			Long Cane Ranger District		
Site Type/ Component	**n**	**% Upland**	**% Lowland**	**n**	**% Upland**	**% Lowland**	**n**	**% Upland**	**% Lowland**
*Lithic sites	74	81.8	18.9						
*Ceramic sites	32	68.8	31.3						
Late Paleo/ Early Archaic				41	87.8	12.2	58	60.3	39.7
Middle Archaic	12	75.0	25.0	126	94.4	5.6	134	68.7	31.3
Late Archaic				56	76.8	23.2	116	53.4	46.6
Early Woodland				15	71.4	28.6	55	45.5	54.5
Middle Woodland	24	70.8	29.2	16	56.3	43.8	19	42.1	57.9
Late Woodland				11	63.6	36.4	14	42.9	57.1
Mississippian	14	64.3	35.7	16	37.5	62.5	31	48.4	51.6
Cherokee	7	57.1	42.9	0	NA	NA	0	NA	NA
Historic	40	50.0	50.0	268	96.3	3.7	286	93.3	6.7
Total	**94**	**62.7**	**37.3**	**549**	**89.1**	**10.9**	**713**	**71.5**	**28.5**

*Environmental variable data were compiled for all lithic and ceramic sites only for the Andrew Pickens Ranger District.

Among Archaic periods (Early, Middle and Late), Early Archaic land use falls between the Middle and Late Archaic periods in respect to upland landform use frequency in both the Enoree and

Long Cane Ranger Districts. With only twelve sites dating to the Late Paleoindian/Archaic period on the Andrew Pickens Ranger District, they were not divided among Early, Middle and Late Archaic periods in Table VI.3.

Table VI.4. Comparative Summary between Late Paleoindian-Archaic ("Archaic") and Woodland Sites on the Sumter National Forest.

Environmental Variable/Feature		Andrew Pickens Ranger District			Enoree Ranger District			Long Cane Ranger District		
		Archaic (n=12)	Wood. (n=24)	Miss./ Chero. (n=21)	Archaic (n=217)	Wood. (n=48)	Miss. (n=16)	Archaic (n=308)	Wood. (n=88)	Miss. (n=31)
Aspect*	Northern	8.3%	16.7%	23.8%	25.6%	14.0%	37.5%	23.4%	20.9%	19.4%
	Eastern	25.0%	20.8%	42.8%	22.0%	22.6%	25.0%	27.6%	23.6%	25.8%
	Southern	58.3%	62.5%	42.8%	39.0%	55.9%	37.5%	42.2%	49.3%	48.4%
	Western	25.0%	33.3%	23.8%	23.3%	36.6%	12.5%	38.6%	42.6%	25.8%
	No aspect	33.3%	20.8%	23.8%	30.0%	14.6%	25.0%	13.6%	18.2%	19.4%
Mean distance from water (m)	Closest potential water source	69.2	61.1	67.2	96.9	71.9	89.7	88.3	73.5	81.5
	Closest permanent water source	192.1	115.3	107.2	222.1	161.9	121.3	145.2	110.0	98.9
Closest water source type	Drainage heads	33.3%	16.7%	14.3%	40.6%	16.7%	18.8%	26.6%	13.6%	9.7%
	Streams	66.7%	83.3%	76.2%	58.5%	77.1%	56.3%	69.5%	75.0%	80.6%
	Rivers	0.0%	0.0%	9.5%	0.9%	2.1%	25.0%	3.9%	11.4%	9.7%

*Aspects are consolidated from nine orientations (not including "None"). For example, "Southern" is the combined total for southeastern, southern and southwestern aspects and "Western" is the combined total for southwestern, western and northwestern aspects. Thus, southwestern aspect is included in both "Southern" and "Western" consolidated aspects. Figures for each of the nine orientations and no aspect ("None") are reported in Appendix A.

Trends also are apparent in regard to aspect, distance to water sources from sites, and in the types of water sources to which sites are located closest. While southern exposures were preferred by prehistoric and historic people in all ranger districts through time (except for the Middle Archaic period), the relative frequency of occupying southern exposures increased through time for hunter-gatherers and predominantly non-intensive agricultural groups (Table VI.4). For most archeological periods, southern exposure occupation is higher in the Blue Ridge than in the Piedmont (Table VI.4). Only on the Enoree Ranger District during the Mississippian period is the frequency of southern exposure occupation higher than it is in the Blue Ridge during the Mississsippian (and Cherokee) period (Table VI.4 and VI.5). For all ranger districts, the frequency of sites located on southern exposures decreased from the Woodland period to the Mississippian period, suggesting that other factors such as floodplain size and productivity and group/settlement size overrode settlement decisions based upon aspect.

Changes in settlement choice is also expressed by distance to water sources and by what kind of water source is closest to settlements. The distance between sites and potential and permanent water sources decreased from the Archaic to the Woodland period (Table VI.4). Locating closer to larger waterways also occurred across the same time span (Table VI.4). These shifts were much greater in the Piedmont than in the Blue Ridge and also more apparent in the middle Piedmont (Enoree Ranger District) than the lower Piedmont (Long Cane Ranger District). Coupled with greater lowland landform use during the Woodland period, living closer to larger waterways implies a greater reliance upon bottomland resources and/or bottomland physiographic features.

Table VI.5. Comparative Summary between Prehistoric and Historic Sites on the Sumter National Forest.

		Andrew Pickens Ranger District		Enoree Ranger District		Long Cane Ranger District	
Environmental Variable/Feature		**Prehistoric (n=105)**	**Historic (n=40)**	**Prehistoric (n=332)**	**Historic (n=268)**	**Prehistoric (n=487)**	**Historic (n=286)**
Landform types	Lowland	21.9%	50.0%	20.6%	3.7%	43.5%	6.6%
	Upland	78.1%	50.0%	79.4%	96.3%	56.5%	93.4%
Aspect*	Northern	17.1%	17.5%	22.9%	23.9%	22.8%	18.9%
	Eastern	29.5%	27.5%	22.2%	19.0%	26.3%	17.8%
	Southern	45.7%	60.0%	44.0%	30.2%	45.0%	27.3%
	Western	29.5%	40.0%	25.0%	24.2%	39.0%	30.4%
	No aspect	30.5%	10.0%	26.5%	40.3%	14.2%	37.1%
Mean distance from water (m)	Closest potential water source	67.1	54.9	90.9	106.0	85.3	114.8
	Closest permanent water source	159.3	123.5	196.9	256.9	132.5	237.0
Closest water source type	Drainage heads	28.6%	15.0%	33.8%	56.9%	21.0%	50.3%
	Streams	69.5%	85.0%	63.4%	42.7%	70.4%	49.0%
	Rivers	1.9%	0.0%	2.8%	0.4%	8.6%	0.7%

*Aspects are consolidated from nine orientations (not including "None"). For example, "Southern" is the combined total for southeastern, southern and southwestern aspects and "Western" is the combined total for southwestern, western and northwestern aspects. Thus, southwestern aspect is included in both "Southern" and "Western" consolidated aspects. Figures for each of the nine orientations and no aspect ("None") are reported in Appendix A.

Drainage heads were closest potential water sources more often during the Archaic and Historic Euro/African American periods. This pattern does not necessarily indicate that all these drainage heads were active spring heads during the time of these occupations. What it does reflect is increased settlement focus on upland landforms. For the Archaic period these drainage head areas might have been places of greater ecological diversity; for the Historic Euro/African American period it was placement of structures on the edges of broader, cultivated upland landforms in an agrarian economy.

Notably, across the Woodland-Mississippian period the distance between sites and potential water sources increased and the distance between sites and permanent water sources decreased (Table VI.4). This settlement pattern shift may reflect greater use of wider floodplains along rivers and probably larger streams for larger scale, agricultural production. Farming households and communities during the Mississippian period occupied lowland landforms, such as terraces and toe slopes, adjacent to fertile floodplains serving as household and community agricultural fields.

The land-use summary presented above expressed trends on the Sumter National Forest from a broad temporal and geographic scale. Land-use patterns for individual archeological periods and changes between these periods are more complex at smaller temporal and spatial scales. The following synthesis is presented in temporal sequence. It concentrates upon site distribution for each archeological period. To highlight site distribution for each period, comparisons are made between preceding and anteceding periods. Theoretical settlement-mobility/subsistence models also are presented and these models are evaluated in light of the Sumter National Forest data.

Some of the arguments for evaluating settlement-mobility/subsistence models require lithic raw material data from the Sumter National Forest. Thus, a short discussion of lithic raw material used for diagnostic stone tools on the Sumter National Forest precedes the synthesis.

Lithic Raw Material Use

Lithic raw material proportions are presented in Table VI.6 and represent a sample of all hafted bifaces recovered from the Enoree and Long Cane Ranger Districts. The sample comes from eight intensive survey projects (Benson 1992a, 1994b, 1995a, 1995b, 1995d, 2002a, 2002b, 2003) encompassing nearly 15,000 acres of land, and one testing project on the Long Cane Ranger District (Benson 1992b). Among Late Paleoindian/Early Archaic formal tools, two of 17 were made from Coastal Plain chert. One of these was discarded early in its use-life because of a break across its mid-section. The other, found on the Enoree Ranger District, was small and was discarded as an exhausted tool. The remaining Kirk, Palmer, Taylor/Big Sandy, Hardaway Daltons and unifacial tools from both ranger districts were made from quartz or rhyolite. The single rhyolite Palmer point is clearly Morrow Mountain aphanitic rhyolite from the southern Uwharries and was recovered on the Enoree Ranger District. The single Kirk point made from rhyolite is probably from the southern Uwharries. All Early Archaic hafted bifaces (except for the Coastal Plain chert Kirk point mentioned above), regardless of lithic raw material, are small and highly curated.

In comparison, the Russell Reservoir hafted biface data (Anderson and Joseph 1988:25) showed that Late Paleoindian/Early Archaic hafted bifaces also were clearly dominated by quartz. Notable differences were that Coastal Plain chert (and an unknown proportion of Piedmont chert) comprised a much larger proportion of the sample (about 20%, which is almost two times the proportion for the Sumter National Forest data). Also, lithic raw material from more distant sources, i.e., Ridge and Valley chert from northwestern Georgia and eastern Tennessee, was also present (about 6%). Metavolcanics (presumably rhyolite and dacite) comprised a small proportion, but sources of these metavolcanics were not identified.

Determining whether or not the Russell Reservoir data are significantly different from the Sumter National Forest data is premature. The Russell Reservoir hafted biface sample is much larger, and the hafted biface data set from Sumter National Forest is only a sample of all that have been recovered. Notably, the presence of Ridge and Valley chert Early Archaic hafted bifaces from Russell Reservoir is significant. Its presence demonstrates cross-drainage travel and/or communication between the western South Carolina Piedmont and the Ridge and Valley Province far to the west. Given its presence in the Russell Reservoir, it is likely that it is also present on the Long Cane and Andrew Pickens Ranger Districts. Similarly, the presence of southern Uwharrie rhyolite in the central South Carolina Piedmont (Enoree Ranger District) probably indicates a similar connection to the east during the Early Archaic period.

Table VI.6. List and Frequency of Diagnostic Hafted Bifaces and Unifaces by Lithic Raw Material on the Enoree and Long Cane Ranger Districts from Nine Survey and Testing Projects.

Hafted Biface Type	Quartz	Coastal Plain Chert	Rhyolite	Orthoquartzite	Unidentified Silicate
Hardaway Dalton	2				
Taylor/Big Sandy	2				
Palmer	4		1[1]		
Kirk	3	2	1[2]		
Beveled uniface	2				
Morrow Mountain	23		1[2]		
Guilford	19	1	1[1]	1	
Allendale (MALA)	2				
Savannah River	9	1	6[3]		
Otarre	2				
Swannanoa	1		3[4]		1
Middle Woodland Triangular	4		1[1]		
Late Woodland Triangular/small stemmed	2				
Mississippian Triangular	3				
Total	65	2	14	1	1

[1] Clearly southern Uwharrie Mountains rhyolite; recovered on the Enoree Ranger District.
[2] Probably southern Uwharrie Mountains rhyolite; recovered on the Enoree Ranger District.
[3] All Georgia/South Carolina Piedmont rhyolite/andesite.
[4] Mixture of different types of rhyolite, one of which appears to be from the southern Uwharries.

Among all sites on the Sumter National Forest, reliance upon the local raw materials is recorded in lithic debris assemblages. Roughly 90 percent of lithic debris recovered on archeological

surveys consist of quartz in both the Enoree and Long Cane Ranger Districts (cf., Benson 1992a, 2002a, 2002b). Coastal Plain chert is infrequently encountered, and the Long Cane Ranger District does not show a higher frequency of Coastal Plain chert compared to the Enoree Ranger District, as one would expect given its closer geographic proximity to the Allendale chert sources in the Savannah River watershed. Among all hafted bifaces recovered on the Long Cane Ranger District, hafted bifaces display greater proportions of rhyolite. This rhyolite (actually dacite) is invariably from the local Georgia/South Carolina Piedmont sources. Southern Uwharrie rhyolite, which is distinctive and macroscopically identifiable to type (cf., Benson 1999; Daniel and Butler 1996), is present on the Enoree Ranger District, but in very small quantities.

Interpretive Synthesis by Archeological Period

Explanations of perceived settlement-mobility patterns for Sumter National Forest incorporates a significant amount paleoenvironmental interpretations. The breadth of these reconstructions is not presented here. A large body of paleoenvironmental research, both old and new, was compiled for this overview. Results of this compilation are presented in Appendix C.

Paleoindian/Early Archaic Period Synthesis

The Late Paleoindian period is combined with the Early Archaic period in the following analyses and discussion because so few sites dating to this period have been recorded on the Sumter National Forest. All recorded Paleoindian sites in the Piedmont and Blue Ridge have been identified with Dalton variants, which date to the Late Paleoindian period. Nevertheless, Clovis period use is likely, since a Clovis point was found on the Ninety-six Historic Site in 2005 by Stanley South (South et al. 2006:9). During the Late Paleoindian period (10,000-9,500 years ago) potential effects on southeastern climates of the Younger Dryas were waning (Appendix C). The Piedmont was in transition from a boreal environment to an oak-hickory-pine mesic environment. The Blue Ridge Province remained boreal during this period. Seasonal temperature and precipitation extremes were great (peaking about 9500 B.P.) and overall annual precipitation was on the rise.

Late Paleoindian Site Distribution

Regionally, Paleoindians occupied major river valleys and, presumably, the coastal fringe. Of the eight Late Paleoindian components recorded among the three ranger districts, two are located close to (<200 m from) rivers or major creeks. Among the other five sites, sites 38LU317 and 38UN949 are located on saddles between ridge knolls and surrounded by drainage heads. 38LU317 also is about 300 m from the Enoree River floodplain. The remaining four sites, including the single Late Paleoindian component on the Andrew Pickens Ranger District (38OC109), are located on toe slopes or terraces closest to first or second order streams. Though the data are limited, clearly there is not an exclusive focus upon large creek or riverine environments. Riverine and inter-riverine settings appear to be used equally. The distribution is very similar to the subsequent Early Archaic period. Of the eight sites with Late Paleoindian components, two were re-occupied during the Early Archaic period.

Early Archaic Site Distribution on the Sumter National Forest

By the Early Archaic period evidence of human habitation is common across the Southeast (Anderson 1996:160-163, 2001:157). On the Enoree and Long Cane Ranger Districts, sites with Early Archaic components comprise approximately ten percent of all identified components. Between these two ranger districts there are 94 sites with Early Archaic components recorded through 2002. Only three sites with Early Archaic components (about five percent of identified components) have been identified on the Andrew Pickens Ranger District through 2002.

Early Archaic settlement is not focused on larger streams on the Sumter National Forest (Table VI.7). Closest potential water sources are first or second order streams more than 90% of the time on the Enoree Ranger District. Early Archaic sites are widely distributed among inter-riverine upland landforms. Among upland landforms, saddles are more often occupied during the Early Archaic period than in any other period. The frequency lowland landform occupation is much lower than upland landform occupation, but lowland use during the Early Archaic period is notably greater than Middle Archaic period (Table VI.8). Landforms with southern aspects also were occupied much more often during the Early Archaic period than the following Middle Archaic period (Table VI.9). Southern aspects tend to be drier and xeric compared to other aspects and they offer warmer locations during colder seasons.

Table VI.7. Frequency Distribution of Archaic Period Components among Closest Potential Water Source Ranks.

	Andrew Pickens RD		Enoree Ranger District						Long Cane Ranger District					
	Archaic		Early Archaic		Middle Archaic		Late Archaic		Early Archaic		Middle Archaic		Late Archaic	
Stream Rank	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1	7	63.6	34	82.9	97	77.6	40	71.4	32	55.2	76	56.7	63	54.3
2	2	18.2	4	9.8	20	16.0	12	21.4	9	15.5	27	20.1	17	14.7
3	2	18.2	1	2.4	2	1.6	2	3.6	2	3.4	10	7.5	9	7.8
4	0	0.0	1	2.4	3	2.4	0	0.0	5	8.6	5	3.7	4	3.4
5	0	0.0	1	2.4	2	1.6	1	1.8	8	13.8	11	8.2	18	15.5
6	0	0.0	0	0.0	1	0.8	1	1.8	2	3.4	5	3.7	5	4.3
Total	**11**	**100**	**41**	**100**	**126**	**100**	**56**	**100**	**58**	**100**	**134**	**100**	**116**	**100**

Missing from Early Archaic period site distribution data on the Enoree Ranger District is an equitable amount of site location data along larger streams and rivers. The Long Cane Ranger District offers at least a glimpse of Early Archaic land use in the bottomlands from Strom Thurmond Reservoir surveys. The general lack of archeological survey coverage in the bottomlands of larger creeks and rivers on the Sumter National Forest lacks an integral component of land use during the Early Archaic period.

Table VI.8. Frequency Distribution of Archaic Period Components among Landform Types on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District						Long Cane Ranger District					
	Early Archaic		Middle Archaic		Late Archaic		Early Archaic		Middle Archaic		Late Archaic	
Landform	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Upland												
Ridge top	3	7.3	1	0.8	1	1.8	0	0.0	1	0.7	0	0.0
Knoll	7	17.1	28	22.2	10	17.9	3	5.2	17	12.7	7	6.0
Ridge nose	15	36.6	69	54.8	24	42.9	26	44.8	56	41.8	43	37.1
Saddle	5	12.2	5	4.0	3	5.4	3	5.2	9	6.7	2	1.7
Upland slope	6	14.6	14	11.1	5	8.9	2	3.4	9	6.7	8	6.9
Upland flat	0	0.0	2	1.6	0	0.0	1	1.7	0	0.0	2	1.7
Total Upland	**36**	**87.8**	**119**	**94.4**	**43**	**76.8**	**35**	**60.3**	**92**	**68.7**	**62**	**53.4**
Lowland												
Toe slope	4	9.8	6	4.8	12	21.4	21	36.2	39	29.1	48	41.4
Terrace	1	2.4	1	0.8	1	1.8	2	3.4	3	2.2	5	4.3
Floodplain	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.9
Total Lowland	**5**	**12.2**	**7**	**5.6**	**13**	**23.2**	**23**	**39.7**	**42**	**31.3**	**54**	**46.6**
Total All	**41**	**100**	**126**	**100**	**56**	**100**	**58**	**100**	**134**	**100**	**116**	**100**

Table VI.9. Frequency Distribution of Archaic Period Components on the Enoree and Long Cane Ranger Districts among Consolidated Aspects.

	Andrew Pickens Ranger District		Enoree Ranger District						Long Cane Ranger District					
	Archaic		Early Archaic		Middle Archaic		Late Archaic		Early Archaic		Middle Archaic		Late Archaic	
Aspect	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Northern	1	9.1	4	10.2	39	31.2	14	25.4	15	25.9	33	24.6	24	20.7
Southern	6	54.5	20	48.8	43	34.1	24	42.3	27	46.6	50	37.3	53	45.7
Eastern	3	27.3	9	23.1	28	22.4	12	21.8	19	32.8	29	21.6	37	31.9
Western	3	27.3	6	15.4	29	23.2	13	23.6	17	29.3	59	44.0	43	37.1
None	4	36.4	16	39.0	37	29.4	14	25.0	8	13.8	19	21.6	15	12.9

*Aspects are consolidated from nine orientations (not including "None"). For example, "Southern" is the combined total for southeastern, southern and southwestern aspects and "Western" is the combined total for southwestern, western and northwestern aspects. Thus, southwestern aspect is included in both "Southern" and "Western" consolidated aspects. Figures for each of the nine orientations and no aspect ("None") are reported in Appendix A.

Among the few sites with Early Archaic components in the bottomlands, we do not have enough information to determine site types. These sites might represent larger aggregation sites, incorporating several extended families for seasonal gatherings, as suggested by Goodyear et al. (1979) and House and Wogaman (1978) for the Piedmont or as proposed by Anderson and Hanson (1988) for the upper Coastal Plain of South Carolina. Or, they may reflect more frequent, repeated use at favored locations through time within the Early Archaic period. These alternative site formation interpretations can be applied to two relatively well known sites with Early Archaic components on the Long Cane Ranger District, the Garretts Ford Road Site (38ED497) and the Mims Point Site (38ED9). Both of these sites are considerably larger than other sites with Early Archaic components on the Sumter National Forest, but the information that they have surrendered so far has not provided enough data for site function.

Early Archaic Settlement-Mobility Models

The Anderson and Hanson (1988) "band-macroband" model of Early Archaic settlement-mobility and subsistence in the Savannah River watershed incorporates the inter-riverine Piedmont uplands as a part of a mixed forager-collector strategy. In Anderson and Hanson's (1988) model, large, seasonal Early Archaic aggregation sites occurred along the first terrace of the Savannah River at the Fall Line during winter and spring, taking advantage of dense and predictable resources in the riverine environment. The entire group "mapped on" to a single location and foraged the surrounding area, but special-task or logistic groups endeavored to exploit specific resources, such as white-tailed deer and lithic raw materials, located outside of the aggregate group's forage zone. Aggregation sites were important to the Savannah River-based group as a whole, for this facilitated access to mates and logistical information concerning resources of the watershed, thus promoting social ties that mitigated against potential resource shortfalls in specific localities. During the summer and fall the aggregate splintered into smaller groups, presumably groups of extended families, and dispersed into the Piedmont uplands, utilizing a residential mode of resource exploitation. Groups mapped on to specific locations, foraging the local resources, and then moved on to other locations.

An alternative model that sets out to explain Early Archaic site distribution and function in the Piedmont uplands was provided by Goodyear et al. (1979) and House and Wogaman (1978). Their vision of Piedmont inter-riverine uplands is that it hosted special extraction camps (logistical sites) during the fall and winter. These camps mostly were focused on deer hunting. Groups of people, presumably male-dominated groups of hunters, used the inter-riverine Piedmont uplands to exploit seasonal concentrations of white-tailed deer. Goodyear et al. (1979:152) point out that white-tailed deer would move into the Piedmont uplands during the fall and early winter to subsist on hardwood mast production. Thus, deer would likely concentrate in the inter-riverine Piedmont uplands, and, following Smith (1974:289), male deer would be more susceptible to stalking and decoy hunting because of the rut season. The archeological remains would consist of lithic debris scatters indicative of tool maintenance with few discarded tools. These sites functioned as staging areas for male-dominated hunting groups and thus would be considered logistical or special procurement activity camps.

The main difference between these two models of land use in the Piedmont inter-riverine uplands is the manner in which the Piedmont inter-riverine uplands were used during the Early Archaic period. Goodyear and colleagues (1979) and House and Wogaman (1978) suggest logistical,

special procurement activities, specifically deer hunting. Anderson and Hanson (1988) suggest residential, general subsistence use of catchment areas around small family-based settlements. Seasons of Piedmont inter-riverine upland use also differ marginally between the two models. The Anderson and Hanson model (1988) suggests summer and fall occupation and the Goodyear et al. (1979) and House and Wogaman (1978) models suggests fall and winter occupation

A hallmark of the Anderson and Hanson (1988) Early Archaic settlement-mobility model is that macrobands, represented by aggregation sites along the Fall Line adjacent to major rivers, considered respective watersheds as their home ranges. A yearly round of a single band encompassed a very large area within a single watershed. Within the Savannah River watershed, the range extended from Coastal Plain locations, across Fall Line aggregation zones, and into the Piedmont uplands. Lithic raw material use is a measure of group mobility. Accordingly, Early Archaic formal tools should reflect geographic transhumance. Coastal Plain chert from Allendale sources was likely secured through direct access during Fall Line occupation and quartz was secured during Piedmont upland occupation. Ideally, Coastal Plain formal tools should occur as exhausted forms in the Piedmont and quartz formal tools should occur as exhausted forms in the upper Coastal Plain.

This inference leads to two other proposed models of Early Archaic settlement-mobility in the Southeast. The first of these two models was developed by Lisa O'Steen (1983) for the Wallace Reservoir (Lake Oconee) in the Oconee River watershed of Georgia. The other is a pan-regional model recently developed by Randy Daniel (1998).

O'Steen's (1983) model is especially attractive because she focuses on a region of the southeastern Piedmont that is very similar to Sumter National Forest. O'Steen proposed a model of settlement-mobility within a single physiographic province. The model accounts for lithic tool kits that are dominated by local lithic raw materials and for a minimal presence of extralocal lithic raw materials through trade. Though O'Steens model focuses more upon the settlement-mobility system within a single physiographic zone, e.g., the Georgia Piedmont, the lithic raw material trade aspect provides a larger-scale, regional perspective.

O'Steen's (1983) model is comprised of a three-tiered settlement/site type system, each with their own specific archeological signature. The three site types are aggregation base camps, upland residential base (forage) camps and logistic camps. Each is defined by numbers of Early Archaic hafted bifaces present on sites. Those sites with multiple hafted bifaces represent base camps. Two different kinds of base camps, determined by scale, are posited by O'Steen. Aggregation base camps are multicomponent sites that are occupied during the spring, summer and/or fall by a number of residential groups at large creek or river floodplain locations. Upland residential base camps represent smaller residential camps occupied during the fall and winter at drainage confluences. Finally, logistic (hunting) camps are represented by single occurrences of Early Archaic bifaces associated with few or no lithic debris. Logistic camps are expected to be widely scattered across all microenvironments across the Piedmont Province.

Daniel's (1998) model also accounts for local lithic raw material-dominated tool kits complemented with occurrences of extralocal lithic raw material. The small amount of extralocal lithic raw material is a consequence of mobility range rather than trade. His model proposes two "lithic-centric" macrobands, encompassing area from central North Carolina to eastern Georgia.

Each macroband is focused upon concentrated sources of high quality lithic raw material (Figure VI.4). One is centered in the southern Uwharrie Mountains of North Carolina and the other is centered on the Allendale chert sources of the South Carolina upper Coastal Plain. The model

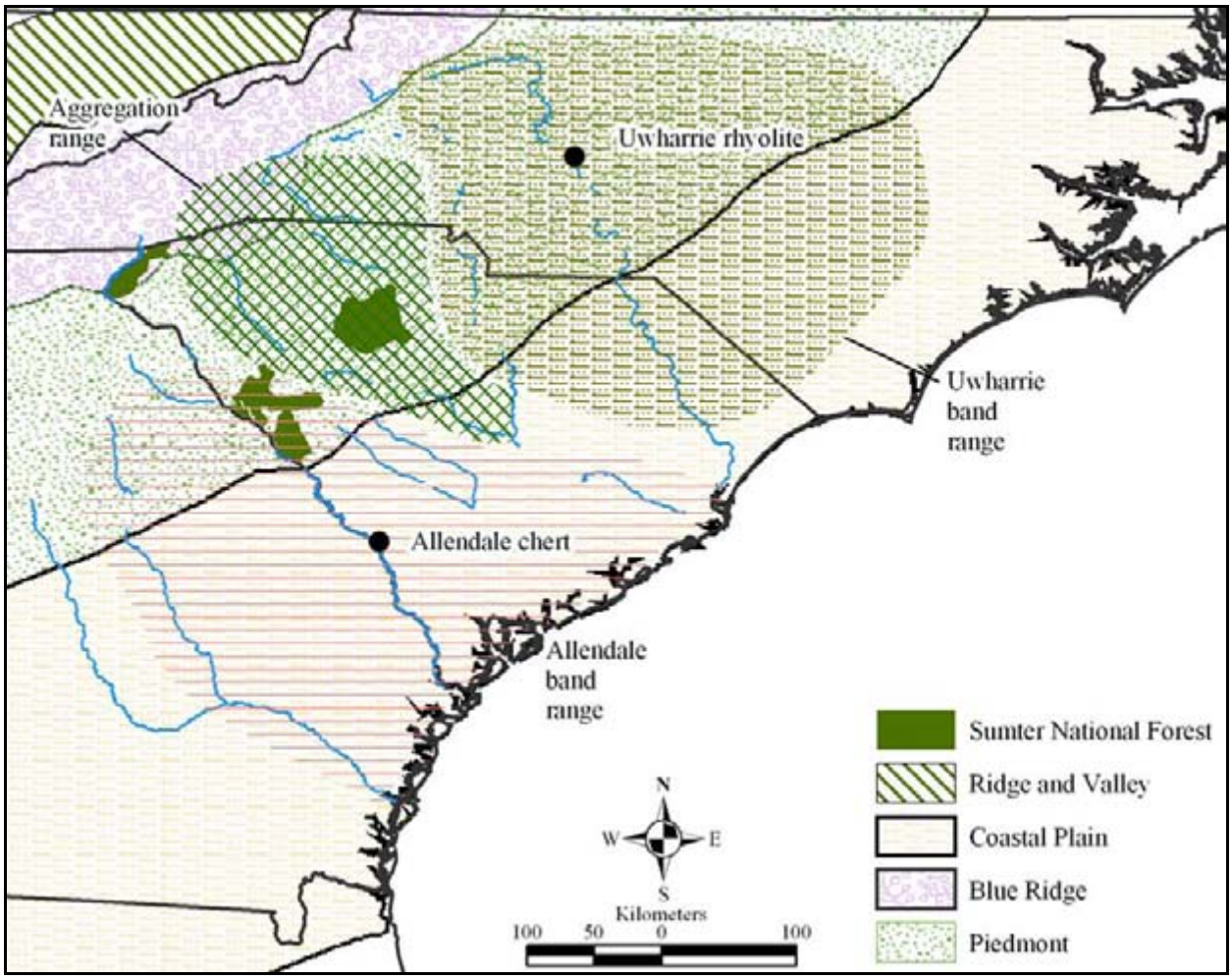

Figure VI. 4. The Uwharrie-Allendale Settlement-Mobility Model after Daniel (1996:194).

stresses cross-watershed mobility range, in contradistinction to the Anderson and Hanson (1988) band-macroband model which stresses within-watershed mobility range.

Daniel supports broad, cross-drainage regional mobility by comparing fall-off curves of lithic raw material from their respective sources across drainages (east-west) and along drainages (north-south) and finds similar, gradual declines of lithic raw material of Early Archaic hafted bifaces along respective transects. The gradual declines suggest direct access as opposed to trade, which would produce stepped declines across regional boundaries. Focusing upon the early portion of Early Archaic period, Daniel (1998) further substantiates his Allendale-Uwharrie macroband model through hafted biface style, where rhyolite Hardaway Dalton points and Allendale chert Taylor points define the relative extents of social boundaries.

An aggregation range of Daniel's model corresponds to the intersection of the two lithic-centric macroband ranges. The aggregation range spans the Piedmont from just east of the Broad River to the ridge divide between the Saluda and Savannah Rivers. It extends north as far as the southern edge of the Blue Ridge and extends south as far as the Catawba/Congaree River confluence (Daniel 1998:194). Focusing upon the relative proportions of Uwharrie rhyolite and Allendale chert at the Taylor site near Columbia, Daniel (1998:199-201) suggested that the Taylor site, and perhaps others not yet identified in the proposed aggregation range, represents an aggregation location between the Allendale chert and Uwharrie rhyolite macroband ranges. Palmer points are equally represented by Allendale chert and Uwharrie rhyolite at the Taylor site (Daniel 1998:200), approximately 20 percent each. Quartz Palmer points dominate the assemblage and, presumably, reflect replacement of high-grade rhyolite and chert formal tool kits with lesser-grade quartz procured en route to and acquired locally around the Taylor site.

Even though O'Steen's (1983) and House and Wogaman's (1978)/Goodyear and colleagues' (1979) settlement-mobility models account for both the high density of local lithic materials and minor presences of extralocal lithic materials located at great distances from the central Georgia Piedmont, it does not encompass settlement-mobility strategies as far ranging geographically as do the Anderson and Hanson (1988) and Daniel (1998) settlement-mobility models. The band-macroband model cross cuts geographic provinces and Daniel's (1998) model cross cuts river watersheds and, to a lesser extent, geographic provinces. Thus, while Early Archaic site function can be predicted in a number of different geographic zones with the Anderson and Hanson (1988) and the Daniel (1998) models, O'Steen's (1983) and House and Wogaman's (1978)/Goodyear and colleagues' (1979) models are particularly tailored for predicting a variety of site functions within a single physiographic province.

Testing Early Archaic Models with Sumter National Forest Data

Not all expectations generated by these four models of Early Archaic settlement-mobility strategies can be tested with the present status of Sumter National Forest data. For instance, O'Steen's (1983) three-tiered settlement type model cannot be tested directly because current data do not include artifact assemblages. Furthermore, O'Steen's analysis and interpretation only was accomplished with excellent surface exposure provided by bulldozing and grubbing of the landscape prior to the archeological survey and subsequent inundation of Lake Oconee (O'Steen 1983:39). In most cases, this kind of resolution is not available on the Sumter National Forest at the survey level of investigation. However, certain aspects of these models can be tested from inferences drawn from site distributional data and general site characteristics. Available measurable features include aspect, degree of slope and site size.

Aspect can be used to infer season of use. For instance, if occupation of the Piedmont uplands occurred during the fall and winter seasons, then perhaps this might be reflected in settlement choice. During the fall and winter seasons temperatures are lower, and, since it was the Early Holocene, winter temperatures were likely significantly colder than present (Appendix C). Occupation of southern exposures might have been utilized to ameliorate the colder winter temperatures, since they receive more direct sunlight compared to northern exposures. Furthermore, southern exposed landforms are more likely to be xeric, offering drier, well-drained soil for occupation. Northern slopes tend to be mesic and not as well drained. Another factor that could enter

into the decision concerning settlement location in regard to aspect would be settlement duration. Aspect may not be much of a consideration for short-term (logistical) occupations, but it may be a consideration for longer-term (residential) occupations.

For both the Long Cane and the Enoree Ranger Districts, southern exposures (southeast, south and southwest) were more frequently occupied than northern, eastern or western exposures compared to the Middle and Late Archaic periods. Northern aspects were the least frequently occupied. Among the three southern aspects, southeastern and southern aspects were more frequently occupied than southwestern aspects. The difference between Early Archaic settlement choices and Middle and Late Archaic settlement choices in regard to aspect is not great – the difference is considerably larger between Early and Middle Archaic than between Early and Late Archaic – but it is enough to suggest that conscious decisions concerning aspect might have influenced settlement choice. If so, occupation of the Piedmont inter-riverine uplands might have been part of a seasonal cycle that utilized this region during the colder months of the year.

Settlement duration also might have played a role in choice of location. An assessment of settlement duration informs upon the types of settlement within a settlement-mobility system. The House and Wogaman (1978)/Goodyear and colleagues (1979) model predicts logistical camps in the inter-riverine Piedmont uplands. Indeed, most survey phase site descriptions or summaries of upland lithic scatters on the Sumter National Forest and South Carolina Piedmont describe these sites as limited activity locations (cf., Benson 1992a, 1994b; Canouts and Goodyear 1985:185; Ensor 1992:117; Price 1991a, 1991b). These interpretations generally are based upon low artifact counts and small site sizes. However, since Early Archaic sites on the Enoree and Long Cane Ranger Districts tend to be oriented toward southern exposures, some of these Early Archaic sites in the inter-riverine uplands might have been occupied for longer periods of time and/or during the colder months of the year. Thus, sites often described as potential logistic sites in the Piedmont uplands might actually be remains of small residential camps that were occupied during the fall and winter seasons.

Another aspect of settlement choice that could indicate settlement duration is degree of slope of occupied landforms. The reasoning is that larger residential groups are likely to be more selective in regard to settlement locations compared to smaller logistical groups. Flatter landforms would offer larger living space for residential groups than would more steeply sloped landforms. For the Enoree Ranger District, Early Archaic people used landforms with slope grades of 0 to 2 percent more often than any other archeological period (approximately 58 percent of the time), which is about 15 percent greater than Middle Archaic sites. On the Long Cane Ranger District, Early Archaic sites occur on landforms with slope grades of 0 to 2 percent slightly less often than Middle Archaic sites (31% and 33.6%, respectively). For both ranger districts, Early Archaic and Middle Archaic are roughly equivalent in regard to occupation of landforms with 8 percent or less slope. Overall, landform slope data does not significantly inform on settlement-mobility strategy used during the Early Archaic period, other than to suggest that differences concerning settlement location were minimal between the Early and Middle Archaic periods.

Another characteristic of Early Archaic occupation in the South Carolina Piedmont is the lack of differentiation among sites in regard to site size. If there was differential use of the Piedmont, where a settlement-mobility system anchored in the Piedmont Province entailed differential use of

large creek/river environments and upland, inter-riverine environments, the differences might be visible through site size. Occupations adjacent to large creek/river margins would be expected to be larger, since these locations would be locations of greater soil productivity, and therefore greater resource density and diversity. Such locations, given the existence of relatively large areas of well-drained soil, are likely to be either more frequently occupied or serve as aggregation points among local groups of people.

To test this potential, all Early Archaic sites that are located within 500 m of a major creek or river (rank 5 or higher stream in the GIS stream layer coverage available from the Forest Service) were selected and evaluated against the remaining Early Archaic sites that are located beyond 500 m of a major creek or river for both the Enoree and Long Cane Ranger Districts. Parenthetically, a threshold of 300 m was originally selected, but that generated too small a sample for sites located within 300 m of a major drainage. Site size was averaged. The results showed that virtually no difference in average site size existed between the two groups on the Long Cane Ranger District. Thirty-nine sites were located beyond 500 m and 18 sites were located within 500 m of a major creek or river. Average size of sites beyond 500 m was 9,786 m^2 and average size of sites within 500 m was 9,619 m^2. A marginal difference in site size for the two samples resulted for the Enoree Ranger District, but it was the sites located beyond 500 m that were larger than those located within 500 m of a major creek or river. Twenty-seven sites were located beyond 500 m and nine sites were located within 500 m of a major creek or river. Average size of sites beyond 500 m was 12,144 m^2 and average size of sites within 500 m was 11,152 m^2.

A comparative analysis of site size obviously has its inherent pitfalls. Even though the data regarding site size offer little evidence toward differentiating site function/settlement type of Early Archaic sites located in potentially different environmental orientations (riverine versus inter-riverine), the analysis of site size probably has limited utility. It is very difficult to determine spatial extents of particular occupations within multicomponent sites, even with additional excavation. Even among single component Early Archaic sites (n=11 on the Enoree Ranger District and n=19 on the Long Cane Ranger District), we cannot be certain that they are indeed single component sites at the survey phase of investigation. Increased archeological investigation consistently produces more diagnostic artifacts (see Chapter VIII for discussion). Many (if not all) inter-riverine, upland sites (especially ridge tops and upland flats) consist of a composite of several occupations throughout a single archeological period and among additional archeological periods. Repetitive occupations at single locations throughout the prehistoric period is the norm.

A lack of differentiation in site size among Early Archaic sites suggests that these sites are not different functionally and may represent the remains of residential sites on the Sumter National Forest. Anderson and Schuldenrein (1985:713) arrived at the same conclusion with their analysis of Early Archaic artifact assemblages from the inter-riverine Piedmont of South Carolina. Thus, the widespread distribution of Early Archaic residential sites on the Sumter National Forest supports the residential forager settlement-mobility aspect of the Anderson and Hanson (1988) band-macroband model.

The season which Early Archaic people occupied the inter-riverine Piedmont upland is still a question. Frequent occupation of southern aspects suggests cooler season use. Instead of summer and fall inter-riverine upland use, fall and winter inter-riverine upland use might have been more

likely. Fall and winter seasonal occupation of the Piedmont uplands may be economically strategic. While hunting is an important aspect of Early Archaic economy, gathering of wild plants and mast products was likely more important, especially since it would involve less risk in terms of predictability and density compared to hunting. Mast trees begin to produce in the fall but continue to drop their mast throughout the winter, thus offering a source of food throughout the colder months of the year. Finding and collecting nuts involves far less energy expenditure than does hunting of white-tailed deer. Residential camps would be especially well suited for supplying the labor necessary to exploit such a resource.

Aggregation sites are likely an important, perhaps necessary, facet of Early Archaic life. Such assemblies facilitate information and material exchange, group cohesion and securing mates for biological success (Jochim 1981). Sites such as those recorded and excavated by Sassaman et al. (1990) along the Fall Line may represent aggregation points for the Savannah River watershed. Presently we have no direct evidence of these kinds of Early Archaic sites on the Sumter National Forest. Primary river candidates would be the Savannah River on the Long Cane Ranger District and its major tributaries, the Chattooga and Tugaloo Rivers on the Andrew Pickens Ranger District, and the Broad River on the Enoree Ranger District. Both of the Piedmont ranger district rivers originate in the Blue Ridge Province. While sites with Early Archaic components have been recorded adjacent to these rivers on the Long Cane and Enoree Ranger Districts, none appear to display characteristics such as those described by Sassaman et al. (1990) at the Savannah River Site. Similarly, Savannah River floodplain or first terrace Early Archaic aggregation sites similar to those recorded at the Savannah River Site do not appear to exist in the South Carolina Piedmont outside of the Sumter National Forest. The Russell Reservoir surveys (Anderson and Joseph 1988) recorded a significant number of both riverine and inter-riverine Early Archaic sites, but none suggested locations that served as points of seasonal aggregation.

Expectations generated by Randy Daniel's (1998) model of Early Archaic settlement-mobility system are testable within Sumter National Forest, specifically on the Enoree Ranger District. The Enoree Ranger District is centrally located in the macroband aggregation zone (Figure VI.4). The Long Cane Ranger District infringes upon the aggregation zone's western edge but is mostly contained within Daniel's Allendale macroband range. While we have no evidence suggesting that any of the Enoree Ranger District Early Archaic sites represent large aggregation locations similar to the Taylor Site, the sample of Early Archaic hafted bifaces presented above tends to support Daniel's (1998) predictions. The presence of two Allendale chert and one (probably two) Uwharrie rhyolite Early Archaic points (Table VI.6) shows contact or shared use of the middle Piedmont region between Daniel's two proposed macroband regions. Seventy-five percent of the Early Archaic formal tools are quartz (Table VI.6). The existence of these tools could be seen as "incidental encounters" of quartz in the South Carolina Piedmont, since quartz sources are plentiful across the South Carolina Piedmont.

Importantly however, none of the Early Archaic quartz formal tools suggest expedient use of Piedmont quartz. First, because they are formal tools – tools produced for multiple uses and for anticipation of tasks conducted away from lithic raw material sources, and second, because all examples are small and highly curated, having been discarded after long-term, intensive use. Thus, quartz was quarried, used and then discarded within a single geographic region. The quartz formal tools suggest that mobility range was mostly confined to within the Piedmont Province and the

presence of extralocal Allendale chert and Uwharrie rhyolite testifies to ranges (or reciprocal relationships) outside of the South Carolina Piedmont. It should also be noted here, however, that among the small sample of points in the Sumter National Forest data (Table VI.6), two are Hardaway Daltons and two are Taylor points, which would also be predicted by Daniel's (1998) model. However, all four points were made from quartz. Only in the later part of the Early Archaic, represented by Palmer and Kirk points, are Coastal Plain chert and Uwharrie rhyolite represented.

The central South Carolina Piedmont, specifically the Broad River Valley, might have been a favored destination beyond Daniel's (1998) Uwharrie macroband range. In Union County, on the west side of the Broad River, use of quartz decreases and metavolcanic stone (presumably Uwharrie rhyolite) increases for Palmer/Kirk Corner-Notched bifaces (Sassaman 1996:67). Use of quartz is higher and metavolcanic use is lower in Fairfield County to the south and in Spartanburg County to the north (Sassaman 1996:67). The increased presence of Uwharrie rhyolite on the west side of the Broad River suggests that the north-central South Carolina Piedmont may be more than an aggregation zone between the ranges of two macrobands. It could be the center of another macroband focused on high quality quartz sources, much in the same way high quality Allendale chert and Uwharrie rhyolite are valued in Daniel's Late Paleoindian/Early Archaic settlement-mobility model.

Though quartz is ubiquitously distributed on the Sumter National Forest, quartz quarries are not. Particular types of quartz are selected, presumably based upon quality, size and accessibility. Uwharrie rhyolite is selected in a similar fashion in the southern Uwharries as quartz is selected in the South Carolina Piedmont. Rhyolite is equally ubiquitous in the North Carolina Piedmont, but not all rhyolite was used. Some types of stone were intensively targeted, like the Morrow Mountain and Wolf Den Mountain ridge rhyolite quarries, but numerous smaller and less intensively exploited quarries abound (Benson 1999). Rhyolite outcrops, large and small, were routinely tested for suitability. Sites with "tested stone" were so common that a site type was identified to accommodate them ("quarry exploration" sites [Benson 1999:39, 660-661]). A similar site type designation might be equally appropriate for the Sumter National Forest.

Discussion of the Early Archaic Sumter National Forest data in light of these Early Archaic settlement-mobility models elicited notable features about use of the South Carolina Piedmont. First, Early Archaic site distribution in respect to environmental variables suggests that use of the South Carolina inter-riverine Piedmont may be more complex than ephemeral logistical use. With closer archeological inspection of Early Archaic sites, we may be able to identify a multi-tiered settlement-mobility/subsistence strategy similar to what was illustrated for Lake Oconee (O'Steen 1983, 1996). Given a potential lack of differentiation among Early Archaic sites across different micro-environmental contexts, coupled with a greater emphasis upon occupation of southern exposed landforms, many Early Archaic sites may represent residentially mobile groups. The presence of residential sites does not preclude the co-existence of logistical sites, however. The inter-riverine Piedmont might have hosted both settlement-mobility strategies.

A second notable feature is that use of quartz likely is more than a supplement to Early Archaic tool kits. If we were to accept Hantman and Plog's (1982) and Gendel's (1984) definition of a social territory, that information flow, exchange of mates, mobility range and social identity is coterminous with the geographic range of artifact stylistic attributes and raw material, then we should view Early Archaic use of the central South Carolina Piedmont much in the same way Daniel (1998)

views the North Carolina Piedmont and the Savannah River Fall Zone. In other words, a third macroband region can be envisioned, centered in the South Carolina Piedmont and focused on use of quartz, and perhaps particular types of quartz. While the Taylor site is proposed by Daniel (1998) as an aggregation site located at the intersection between the Allendale and Uwharrie macroband zones, the significantly higher proportion of Palmer points made from quartz (about 40 percent, compared to 20 percent each for Uwharrie rhyolite and Allendale chert) at the Taylor site strongly suggests frequent north-south movement along the Broad-Saluda-Congaree River valley. If sheer numbers of points are taken to represent occupation intensity/frequency, then the high proportion of quartz points coming from the Piedmont implies frequent river valley movement (north-south), as proposed by the band-macroband model (Anderson and Hanson 1988), in addition to cross-drainage movement (east-west).

Middle Archaic Period Synthesis

Middle Archaic sites, those that were identified with Morrow Mountain or Guilford hafted bifaces, suggest a substantial increase in land-use intensity over the Early Archaic period. Their distribution does not reveal a substantial change in settlement-mobility strategy in the South Carolina Piedmont, suggesting continuous occupation of the Piedmont from the Early to Middle Archaic. Evidence of this continuity through diagnostic artifacts is not apparent on the Sumter National Forest. Notably meager in the South Carolina Piedmont are terminal Early Archaic/initial Middle Archaic hafted bifaces, namely LeCroy/St. Albans/MacCorkle bifurcated points and Stanly stemmed points. Together, these types represent about 1,500 years of occupation (or lack thereof) of the South Carolina Piedmont and Blue Ridge. From personal experience of surveying ca. 15,000 acres of land on the Sumter National Forest, Morrow Mountain and Guilford hafted bifaces are prevalent and bifurcated and Stanly points are effectively absent. The sample of hafted bifaces gleaned from the reports listed in Table VI.6 bare this out.

Sassaman (1996:61,64), based upon Tommy Charles' hafted biface data, shows a moderately high incidence of bifurcated points in the central Piedmont of South Carolina, but almost no occurrences of bifurcated points along the east side of the Savannah River. Similarly, Anderson (1996:47) shows relatively high concentrations (11 to 31 points) of bifurcated points in Newberry and Chester Counties, moderate concentrations (6 to 10 points) in Fairfield County, and low concentrations in Union County. Bifurcates are almost nonexistent on the Long Cane Ranger District as of 1991 (Anderson 1996:47). The distribution of Stanly points does not vary significantly from the distribution of bifurcated points. The sample of Sumter National Forest points presented in Table VI.6 report no Stanly or bifurcated points in any of these counties. Given this conflicting data, it is difficult to assess occupation intensity and settlement patterns of the South Carolina Piedmont during this 1,500-year period.

During this time there is evidence of a brief but sudden cool phase in the Southeast, perhaps due to northern glacial lakes finally emptying (Appendix C). The timing of this phase is not well documented, nor is there good data about how it might have affected precipitation rates and vegetational regimes in respective geographic provinces. Anderson (2001:47) shows the cold episode occurring at the same time as the bifurcated point tradition. Kneller and Peteet (1999) record a brief cold episode in the central Applachians nearly 1,000 years later, around 7500 B.P. at the start of the Morrow Mountain phase. Closer to Kneller and Peteet's (1999) timing of this brief cold interval,

Barber et al. (1999) record a world-wide cold event around 7800 B.P., which would be during the transition from the Stanly stemmed phase to the Morrow Mountain phase. Other documented environmental disruptions during the bifurcated and Stanly stemmed point traditions include broad sea level fluctuations during the Stanly phase (Gunn 1997), a dry period during the Kirk/Palmer through bifurcate point phases in the southern Coastal Plain (Seielstad 1994), and evidence for a decline in grasses in the southern Coastal Plain beginning around 8000 B.P. (Watts et al. 1996). Most paleoenvironmental reconstructions, however, record no significant long-term environmental changes during this 1,500 year period.

Middle Archaic Site Distribution on the Sumter National Forest

Survey data from the Sumter National Forest indicates a generally broader distribution of Middle Archaic sites compared to the Early and Late Archaic periods. Middle Archaic sites tend to be more widely distributed among soil types (Table VI.10) and landforms (Table VI.8) on the Enoree Ranger District. They also are more evenly distributed among aspects (Table VI.9) and are found more frequently on upland landforms (Table VI.8). Lowland landforms apparently were avoided. While a broader distribution of Middle Archaic sites among soil types and landforms on the Enoree Ranger District is likely a consequence of the increased number of sites dating to this period, the lack of a strong preference for a particular aspect, like southern aspects during the Early Archaic period, suggests a greater potential for year-round use of the Piedmont.

Table VI.10. Frequency Distribution of Archaic Period Components among Soil Types on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District						Long Cane Ranger District					
	Early Archaic		Middle Archaic		Late Archaic		Early Archaic		Middle Archaic		Late Archaic	
Soil Type	n	%	n	%	n	%	n	%	n	%	n	%
Sandy loam	14	35.0	45	37.8	19	35.2	15	27.8	14	11.2	19	17.6
Sandy clay loam	25	62.5	67	56.3	31	57.4	28	51.9	66	52.8	59	54.6
Silt loam	0	0.0	0	0.0	7	13.0	8	14.8	28	22.4	22	20.4
Silty clay loam	1	2.5	0	0.0	0	0.0	3	5.6	17	13.6	8	7.4
Clay	0	0.0	2	1.7	0	0.0	0	0.0	0	0.0	0	0.0
Non-specific	0	0.0	5	4.2	0	0.0	0	0.0	0	0.0	0	0.0

Among other environmental variable measures, Middle Archaic site distribution is not strikingly different from Early Archaic site distribution. On the Long Cane Ranger District, Middle Archaic sites are significantly closer to potential water sources than Early Archaic sites, but the mean difference is less than five meters (Table VI.11). Middle Archaic sites also are located slightly further from permanent water sources compared to Early Archaic sites (Table VI.11). The converse is true on the Enoree Ranger District. Middle Archaic sites are slightly closer to potential water

sources but slightly further from permanent water sources compared to Early Archaic sites. The differences between the two data sets are not statistically significant (Table VI.11).

Table VI.11. Comparison of Mean Distances from Water Sources among Archaic Periods on the Enoree and Long Cane Ranger Districts.

		Distance from Potential Water Sources (m)						
		Enoree Ranger District			Long Cane Ranger District			
Comparing	n	Mean	STD	P-value*	n	Mean	STD	P-value*
Early Archaic w/	41	98.2	44.5	0.99	58	92.7	38.1	0.05
Middle Archaic w/	126	99.7	45.4		134	87.1	40.3	
Late Archaic	58	92.7	44.9	0.22	116	87.6	46.1	0.90
		Distance from Permanent Water Sources (m)						
Early Archaic w/	41	241.8	128.3	0.39	58	144.1	74.7	0.53
Middle Archaic w/	126	224.2	126.8		134	148.4	89.3	
Late Archaic	58	197.5	120.5	0.12	116	143.1	90.8	0.71

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

Middle Archaic sites are located slightly higher than Early Archaic sites on the Enoree Ranger District, but slightly lower than Early Archaic sites on the Long Cane Ranger District (Table VI.12). For elevation above permanent water sources, difference between Early and Middle Archaic site in both the Enoree and Long Cane Ranger Districts are minimal and not statistically significant (Table VI.12). Overall, no evidence exists for a broad, sweeping change in settlement pattern within the Piedmont from the Early to Middle Archaic periods in regard to distance from and elevation above water sources, in spite of relatively low site reoccupation rates from the Early to the Middle Archaic periods (34 percent on the Enoree Ranger District and 26 percent on the Long Cane Ranger District).

Testing for potential differences in site function based upon site size in relation to distance from major creeks and rivers (the same test employed for the Early Archaic period above), larger Middle Archaic sites do not occur within 300 m of a major drainage in either of the two Piedmont ranger districts (Table VI.13). Instead, larger Middle Archaic sites tend to be found beyond 300 m from a major drainage. The differences in the respective data sets' averages are barely significant (P-value=0.19) on the Enoree Ranger District and not significant on the Long Cane Ranger District. The larger average sizes for sites located beyond 300 m are likely the consequence of sites located on broader upland landforms, such as ridge tops, upland flats, and the wider upper portions of ridge noses. Such landforms can host composites of settlements that aggrade site size. Quartz quarry sites also tend to occur on upland landforms. Sites that occur within 300 m of a major drainage mostly lie on dissected, second terraces of major streams or rivers. These landforms (toe slopes and lower portions of ridge noses) typically are smaller than landforms found further upslope. Of interest is the extraordinary site size range for Middle Archaic sites located beyond 300 m from a major drainage.

This subset contains the smallest and largest Middle Archaic sites. Middle Archaic sites located within 300 m of a major stream or river encompass the middle range of site sizes.

Table VI.12. Comparison of Mean Elevations from Water Sources among Archaic Periods on the Enoree and Long Cane Ranger Districts.

	Elevation above Potential Water Sources (m)							
	Enoree Ranger District				Long Cane Ranger District			
Comparing	**n**	**Mean**	**STD**	**P-value***	**n**	**Mean**	**STD**	**P-value***
Early Archaic w/	41	7.6	4.9	0.28	58	6.2	4.2	0.08
Middle Archaic w/	126	8.8	5.8		134	5.5	3.2	
Late Archaic	58	7.4	5.3	0.08	116	5.6	4.1	0.86
	Elevation above Permanent Water Sources (m)							
Early Archaic w/	41	15.8	8.5	0.82	58	9.9	6.3	0.59
Middle Archaic w/	126	16.3	7.8		134	10.2	6.9	
Late Archaic	58	12.6	6.7	0.00	116	9.4	7.3	0.42

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

Middle Archaic Settlement-Mobility Models

The heart of the Middle Archaic period, the Morrow Mountain phase, has not received as much attention as the Early and Late Archaic periods in regard to formal models depicting settlement-mobility/subsistence systems in the Southeast. The general perception of southeastern Piedmont Middle Archaic settlement-mobility systems is decreased mobility range and geographic circumscription – a geographic province "tethering" that may have had its origins in the later portion of the Early Archaic period. From the perspective of social boundaries that define settlement-mobility range, lithic raw material use is generally coterminous with physiographic provinces, delimiting social boundaries. However, hafted biface styles (the Morrow Mountain hafted biface) cross-cut physiographic provinces and presumed social boundaries. Thus, even though the Morrow Mountain point is distributed across a very broad region across the Southeast, regional use, settlement-mobility ranges and social boundaries mostly are defined by the lithic raw materials Middle Archaic people used.

Middle Archaic people used different settlement locations across the Piedmont in similar ways. Artifacts left behind at Middle Archaic sites show a high degree of redundancy and a low degree of diversity and density across the landscape, suggesting that activities performed at one site were not significantly different from activities performed at another site. The lack of differentiation among Middle Archaic sites suggests a residential mobility strategy. Small groups, probably extended families, moved frequently from one place to another and subsisted on a generalized diet and a non-intensive technological means of food procuring and processing (Sassaman et al. 1990:310).

Table VI.13. Comparison of Middle Archaic Site Size Based Upon Distance from Major Drainages on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
Areal values (m^2)	Within 300 m of major drainage (n=13)	Beyond 300 m of a major drainage (n=103)	Within 300 m of a major drainage (n=30)	Beyond 300 m of a major drainage (n=103)
Average Size	5,348	8,663	6,393	9,008
Minimum	1,064	303	1,096	292
Maximum	12,486	196,099	32,026	272,709
Standard deviation	3,948	22,027	7,570	28,629
P-value*	0.19		0.41	

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

From a pan-regional perspective that uses complementary data from large excavated sites, the environmental scenario often depicted for most of the Middle Archaic period is a drying trend for the Southeast (Atlantic Coastal Plain) and Midsouth (west of the Appalachians) due to seasonal extremes and an overall hotter and drier climate. This trend followed on the heels of the 1,500-year cold snap indicated above. Apparent changes in the environmental structure of the Midsouth and Gulf Coast led to occupation of more permanent water sources due to lower lake and stream levels, a reduction in upland vegetation, increased surface erosion and aggrading floodplains (Anderson 2001:158). During this period in the Midsouth are densely occupied, Middle Archaic period riverine sites, shell middens and earthen mounds, evidence of ceremonialism and long distance trade networks (Anderson 2001:158-160). Occupation of the inter-riverine zone decreases significantly. In contrast, much of the Atlantic Coastal Plain experienced a significant decrease in use, where the ubiquitous Morrow Mountain point essentially was absent from areas that were frequently occupied during the Early Archaic period.

The dramatic change to a riverine-oriented settlement-mobility/subsistence system during the Middle Archaic period west of the Appalachians essentially does not occur in the southeastern Piedmont. Overall numbers of Middle Archaic sites increased, suggesting an increase in population over the Early Archaic period. Densely occupied riverine sites are absent in both the Piedmont and the adjacent Atlantic Coastal Plain. The most commonly cited reason for a lack of Middle Archaic sites in the interior Atlantic Coastal Plain is an overall decrease in biomass. Pine forests expanded and deciduous, mast producing forests retracted, which was caused by a significantly drier climate and widespread aridity in the Atlantic Coastal Plain and Midsouth regions (cf., Anderson 2001:160).

However, the perceived widespread aridity in the Atlantic Coastal Plain may be erroneous in light of mounting paleoenvironmental evidence to the contrary (Appendix C). Furthermore, pine forest expansion in the Atlantic Coastal Plain might have had a patchy progression, rather than a gradual, wholesale replacement of the oak-hickory regime. At the very least, oak-hickory regimes remained in the broad Coastal Plain river and creek floodplains, in and around Carolina Bays and sinks, and in emerging swamplands (Appendix C). Whatever the reasons for the apparent near

abandonment of the Atlantic Coastal Plain during the Morrow Mountain phase, it is clear that the adjacent southeastern Piedmont experienced significantly greater use.

Testing Middle Archaic Models with Sumter National Forest Data

Site distribution in respect to specific environmental variables and the analysis of site size suggest that Middle Archaic site locations in the Piedmont ranger districts of the Sumter National Forest support what has generally been observed for Middle Archaic land use in the South Carolina Piedmont. Land use was generalized, where tasks performed at sites appear to be redundant from one site to the next (except for sites associated with lithic quarries), regardless of microenvironmental contexts. Redundancy of tasks from one location to the next implicates a lack of differences in group composition and size, consistent with residentially mobile groups mapping on to resource locations. A lack of differentiation among Middle Archaic sites in regard to site size, artifact density and diversity coupled with dominant use of local resources has been observed at the Savannah River Site (Sassaman et al. 1990). These patterns have been used as evidence for high residential mobility within a limited region that was far more circumscribed than regions used during the Early Archaic period (Blanton and Sassaman 1989; Sassaman 1983; Sassaman et al. 1990).

Middle Archaic use of the Piedmont Province was intensive and may have expanded upon a prior Early Archaic settlement-mobility/subsistence strategy. In spite of a probable increase in population density, a residentially mobile settlement-mobility system may be a continuation of an Early Archaic pattern. Significant site size differences between Middle Archaic sites in large stream/riverine settings and inter-riverine settings are not apparent, as it was not apparent during the Early Archaic period (Table VI.13). Lithic raw material use was ceaselessly focused upon quartz, with virtually no influx of other local or extralocal materials. The difference in mobility range between Middle and Early Archaic populations is that the adjacent interior Coastal Plain was no longer an option for regular use. Based upon the distribution of both hafted biface styles and lithic raw material use, the social boundary of Middle Archaic groups seems to encompass the Blue Ridge and Piedmont Provinces and Fall Line Hills. Whether the Fall Line Hills offered a temporary or seasonal focus for Piedmont residentially mobile groups, or simply provided space for incremental population expansion during the Morrow Mountain phase is not clear.

Specific data reflecting land use during the final phase of the Middle Archaic period, sites represented by Allendale, Guilford and Brier Creek hafted bifaces, on the Sumter National Forest is not readily available at this point. Sites are identified to archeological period, but specific information about diagnostic artifacts is not a part of the present site database.

Late Archaic Synthesis

Regionally, significant changes occurred in settlement-mobility systems prior to the Late Archaic period west of the Appalachians and along the Gulf Coastal region. Large and dense occupations, ceremonialism, mound building, intensive shellfish exploitation, and evidence of long distance trade networks were already established during the Middle Archaic period. These types of interconnected, elaborate sociopolitical systems did not appear until the Late Archaic period east of the Appalachians. The modern river floodplain, which stabilized after 5000 B.P. south of the Fall Line Hills, and then later in time further up river and the connecting tributaries (Sassaman 1993a:51),

became especially attractive locations for longer-term occupation. Stable floodplain development is perceived as a consequence of lower stream energy due to a lesser gradient from the rise and leveling of sea level (Brooks et al. 1986). Additionally, Schuldenrein (1996:8) records stable river floodplain and terrace environments in the Piedmont of the Savannah River watershed. By the Late Archaic period, if not at the beginning then by the end of the period, the paleoenvironmental regime appears to have settled into modern vegetation mosaics (Appendix C). This apparently stable environmental situation led to the emergence of well-known Late Archaic sites within the Savannah River watershed such as Sara's Ridge, Gregg Shoals and Ruckers Bottom in the upper Piedmont, Mims Point and sites 38MC428 and 38MC494 on the Long Cane Ranger District, and Kiokee Creek, Stallings Island, Pig Pen, Rae's Creek, Lover's Lane in the lower Piedmont and adjacent Fall Zone. Unlike Middle Archaic period sites in the southeastern Atlantic seaboard, sites of the Late Archaic period attract archeological attention by their dense, diverse and large archeological deposits.

Late Archaic Site Distribution on the Sumter National Forest

On the Sumter National Forest there were some subtle shifts in land use compared to previous archeological periods. Differences in land use are also apparent between the Enoree (middle Piedmont) and Long Cane (mid-to-lower Piedmont) Ranger Districts. Not enough Late Archaic sites exist on the Andrew Pickens Ranger District (n=4 with location data) to make an equitable comparison with the two Piedmont ranger districts of the Sumter National Forest. On the Long Cane Ranger District, there is some potential differentiation in site types.

In the middle Piedmont (Enoree Ranger District), lowland landform occupation increased significantly from a low of 5.6 percent of available landform types in the Middle Archaic period to 23.2 percent of available landform types in the Late Archaic period (Table VI.8). Lowland landforms predominantly used at this time are the termini of ridge noses, or toe slopes, as they grade toward creek (mostly) and river floodplains. Similarly, on the Long Cane Ranger District, lowland landform use climbs from 31.3 percent in the Middle Archaic period to 46.6 percent in the Late Archaic period (Table VI.8). Southern aspects return as the preferred slope orientation on both the Enoree and Long Cane Ranger Districts (Table VI.9). Late Archaic sites are generally equally distributed among remaining aspects (northern, eastern and western). On the Long Cane Ranger District, third order or higher drainages are closest potential water sources for Late Archaic sites more often than they are for Middle Archaic sites (Table VI.7). An increased preference for larger drainages serving as closest potential water sources from the Middle to Late Archaic periods does not occur on the Enoree Ranger District, however. In regard to closest permanent water sources (second order or higher drainages) from Late Archaic sites, third order or higher drainages are closest nearly 60 percent of the time on the Long Cane Ranger District. This is an increase of nearly 15 percent over the Middle Archaic period (Table VI.7). An increased preference over the Middle Archaic period for larger drainages (third order or higher) serving as closest permanent water sources is also apparent on the Enoree Ranger District, but the increase is not as great as it is on the Long Cane Ranger District.

The apparent trend is that during the Late Archaic period people are occupying lower landforms situated above or adjacent to larger creek and river floodplains. This shift toward a bottomland focus is more apparent in the southern Piedmont within the Savannah River watershed (Long Cane Ranger District) than in the middle Piedmont (Enoree Ranger District). The trend from

the Middle to Late Archaic periods, however, is not reflected in distances from or elevations above potential and permanent water sources on the Long Cane Ranger District. There are no statistically significant differences between Middle and Late Archaic site locations in this respect (Tables VI.11 and VI.12). In contrast, Late Archaic sites are significantly closer to both potential and permanent water sources by distance and elevation compared to the Middle Archaic period on the Enoree Ranger District (Tables VI.11 and VI.12).

Similar to the Middle Archaic period, larger Late Archaic sites tend to be found beyond 300 m from a major creek or river on the Long Cane and Enoree Ranger Districts (Table VI.14). This is mostly due to two extraordinarily large quarry sites found in the uplands, beyond 300 m of a major creek or river. Without the two quarries on the Long Cane Ranger District average site size between the two data sets is nearly equal. In spite of relatively equal site sizes between the data sets, a larger proportion of Late Archaic sites are located within 300 m of a major drainage in both ranger districts compared to the Middle Archaic period. The difference is only three percent on the Enoree Ranger District but it is 14 percent on the Long Cane Ranger District.

Table VI.14. Comparison of Late Archaic Site Size Based Upon Distance from Major Drainages on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
Areal values (m^2)	Within 300 m of major drainage (n=7)	Beyond 300 m of a major drainage (n=44)	Within 300 m of a major drainage (n=43)	Beyond 300 m of a major drainage (n=75)
Average Size	4,290	6,011	6,980	10,568
Minimum	468	518	507	408
Maximum	12,485	39,387	36,422	272,709
Standard deviation	4,352	8,697	9,145	12,977
P-value*	0.38		0.45	

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

Testing Late Archaic Models with Sumter National Forest Data

Expectations generated by recent models of Late Archaic land use suggest that at least two different site types would be prevalent in the Piedmont uplands, upland habitation sites and upland limited-activity sites (Sassaman 1993a:73-74). The remaining three site types outlined by Sassaman (1993a:73-74) are riverine-based settlements that include two types of habitation sites, one with and the other without shellfish refuse, and limited-activity sites. Though examples of these three site types can occur within the Sumter National Forest, few existing Late Archaic sites are candidates. There is a considerable amount of Forest Service land along the Broad River on the Enoree Ranger District but only two sites with Late Archaic components have been recorded near (within 300 m) the Broad River. 38FA177 may represent one of the three potential riverine site types. Though not immediately adjacent to the Broad River floodplain and actually located further than 300 m from the river, it is situated on an elevated ridge nose overlooking Terrible Creek as it meanders through the

Broad River floodplain. 38CS112 also is situated near the Broad River on a toe slope overlooking a narrow floodplain at Neal Shoals. This site was recorded as having a Late Archaic/Early Woodland component. Along the Enoree and Tyger Rivers, both of which do not originate in the Blue Ridge as does the Broad River, there are only three Late Archaic sites recorded. Two of these, 38UN599 and 38LU215, are in upland situations, elevated high above the river on ridge nose crests. The third, 38UN379, is located on a level toe slope or terrace as it grades onto the Tyger River floodplain. This site is the largest of the three and it also contains a Middle Archaic component, as does 38LU215.

Little Forest Service land includes the eastern bank of the Savannah River on the Long Cane Ranger District. The only site with a Late Archaic component within the Sumter National Forest and on the Savannah River is Mims Point (38ED9). It is a habitation site with ceramics and shellfish refuse (Sassaman 1993b:120) among other notable features. Mims Point is not considered to be a repeatedly occupied aggregation site, as has been proposed for Stallings Island and Lake Spring, but rather a staging area that was occupied prior to larger scale aggregations (Sassaman 1993b:121-122). Two other sites with Late Archaic components on the eastern bank of the Savannah River and relatively close to Mims Point are 38ED115 and 38ED116. The larger of the two (38ED115) is situated on a toe slope adjacent to a second order stream and the smaller site is located upslope on the same ridge. Neither are within 500 m of the Savannah River but they are situated above and adjacent to a former river channel. Judging by its size alone, 38ED115 would be a potential candidate for an aggregation site. However, Kratzer et al.'s (1996:151-155) testing phase investigations determined the site to have low artifact density, primarily from a Woodland period occupation.

Lacking additional Savannah River Late Archaic sites within the Sumter National Forest, direct comparisons with Mims Point cannot be made. Other large waterways run through the Long Cane Ranger District, like Little River and Long Cane Creek, which have numerous Late Archaic sites along their margins. Cursory inspection of these site data indicate a range of sizes, but the larger sites tend to be located at larger confluences (third order streams or higher) and they also have a number of archeological periods represented. Not all large confluences have large Late Archaic sites and not all large Late Archaic sites are located at large stream confluences. Only three sites located adjacent to Long Cane Creek and Little River had fiber-tempered ceramics.

Late Archaic sites with ceramics are few. Of the four sites with ceramics (other than Mims Point), two are on Long Cane Creek (38MC124 and 38MC494) and another is on a toe slope above an unnamed second order stream (38ED175). Site 38MC428, the fourth Late Archaic site with ceramics on the Long Cane Ranger District, is a relatively small site located within the Little River floodplain. Another Late Archaic site located less than 100 m west of 38MC428 is on the adjacent terrace (38MC427). This site had no fiber-tempered ceramics.

It is not entirely clear what these Piedmont Late Archaic sites represent within a settlement-mobility and subsistence system. The lack of a clear distinction based upon site size between "large-drainage focused" and inter-riverine upland sites suggests, as it had for the Early and Middle Archaic periods, that residentially mobile groups of people were mapping on to resource locations. There are a substantial number of unidentified lithic scatters in the South Carolina Piedmont that could be special procurement sites (in addition to quartz, metavolcanic or soapstone quarry sites). Many of these may date to the Late Archaic period. Isolated artifacts comprise a data set that is absent from any comprehensive database. Though most isolated artifacts are not identified to a particular

archeological period, a significant amount of component data exists among numerous archeological surveys that have been conducted on the Sumter National Forest. Isolated artifacts might represent a specific site type in the Piedmont uplands. Thus, though site types seem to be rather homogeneous based upon site size across the landscape, there actually could be substantial variability in existing data that is not readily available for analysis. It may be that the majority of the sites recorded with diagnostic artifacts dating to the Late Archaic period are biased toward one site type. The absence of sufficient quantities of artifact data that can address artifact diversity and density, along with site location and site size, greatly hinders a clearer picture of the Late Archaic settlement-mobility and subsistence system on the Sumter National Forest.

In conclusion, geographic locations of Late Archaic sites on the Long Cane Ranger District tend to express an increased focus upon lowland landforms, i.e., toe slopes, terraces and floodplains. More intensive use of these bottomlands implies increased productivity of the inter-riverine stream bottomlands. Brooks and colleagues (1986) suggested that prior to the Late Archaic period the relatively higher energy flow of upland streams hindered bottomland floral and faunal productivity. With a decrease in stream gradient from the Piedmont to the coast due to stable sea levels and less annual precipitation, beginning around 5000 B.P., rivers and then later, upland river tributaries, became more productive because of maturing and stabilizing floodplain regimes. Conceivably, a new facet of subsistence emerged in inter-riverine land use during the Late Archaic period, which was not available for most, if not all, of the Middle Archaic period. The increased prevalence of Late Archaic sites in bottomland situations on the Sumter National Forest may be expressing increased floodplain productivity and greater diversity in Late Archaic site function.

Woodland Period Synthesis

Increased, and presumably more diversified, use of the Piedmont inter-riverine zones during the Late Archaic period initiated a trend that is amplified in succeeding archeological periods on the Sumter National Forest. Greater use of lowland landforms adjacent to streams, increased occupation of southern exposures and diminished distances and elevations between settlements and water sources suggest greater ecological diversity and density in the Piedmont inter-riverine zone. While gathering of mast products and exploiting deer aggregation in the Piedmont inter-riverine zone remained important, tenure of individual occupations may have increased. Longer-term household camps in the inter-riverine zone could be bases from which smaller, special procurement groups exploited localized or seasonally available resources. Furthermore, as suggested by Brooks et al. (1986), spring occupation of the inter-riverine zone would be more feasible given increased productivity of smaller tributary bottomlands, suggesting multi-seasonal use.

The transition from Archaic to Woodland correlates with a change in climate, where annual precipitation and temperature decreased (Appendix C). Furthermore, a lack of seasonal temperature extremes that occurred during the Late Archaic period shifted back toward greater seasonal extremes, where winter temperatures drifted toward present-day values. Little (2003) describes a generally cooler and drier climate for the entire Early Woodland period compared to the Late Archaic period. During the same time span, Colquhoun et al. (1980) record regressing sea levels and Gunn (2000) reports low solar emissions. The Middle Woodland period enjoyed warmer and wetter conditions compared to the previous Early Woodland period. Sea levels rose and then generally remained above present sea level for the entire archeological period (Brooks et al. 1979; Colquhoun et al. 1980; Gunn

1997). Though warmer and wetter conditions prevailed through the Middle Woodland period, at least two global climatic events abruptly affected the general trend (Gunn 2000; Stahle et al. 1988). Toward the end of the Connestee/Cartersville phase a notable cold event that occurred around A.D. 800 prompted generally low solar emissions during the first half of the Late Woodland period. Little (2003) characterizes the climate during the late Connestee/Cartersville phase as cool and dry. Stahle et al. (1988) recorded several episodes of prolonged drought on the North Carolina coast throughout the Late Woodland period.

The modern flora and fauna of the Atlantic Coastal Plain was established at the latest by 4300 B.P. (Lamoreaux 1999), by the first half of the Late Archaic period. Modern floral and faunal regimes of the Piedmont probably were established earlier. However, during the latter half of the Late Archaic period and extending into the Early Woodland period the Piedmont was becoming more ecologically diverse from the progressive establishment of stable floodplain environments of river tributaries (Brooks et al. 1986). A greater emphasis upon lowland landform settlement during the Late Archaic period on the Long Cane Ranger District suggests greater utilization of floodplain environments along the larger creeks. This emphasis continued into the Early Woodland period.

Woodland Period Site Distribution on the Sumter National Forest

The Early Woodland period reveals a substantial increase in the number of occupations per 100 years for all ranger districts (Figures VI.1, VI.2 and VI.3). Whether or not this reflects higher population density is yet to be determined without a better understanding of potential variation in site types/function, frequency of settlement and mobility, intersite settlement structure, and typical group size. Occupation intensity during the Middle Woodland period decreased significantly in all three ranger districts. The Long Cane Ranger District experienced the greatest decrease. However, it is difficult to establish whether the apparent decrease in land use intensity from the Early to Middle Woodland periods is real largely because identification of Early, Middle and Late Woodland periods is not well established (see discussion in Chapter III and below). Land use patterns established during the Early Woodland and perpetuated in Middle Woodland are amplified during the Late Woodland period on the Andrew Pickens and Long Cane Ranger Districts. Late Woodland sites display a tendency toward more frequent upland landform use on the Enoree Ranger District, rather than keeping with the trend of more frequent lowland landform use.

The difference between Archaic and Woodland period site distribution is distinctive in both the Blue Ridge and Piedmont Provinces (Table VI.4). Contrasting the two broad periods shows that use of lowland landforms and southern and western exposures increased, settlements were more frequently located closer to larger streams and rivers, and distances and elevations between settlements and water sources decreased in the Woodland period. Settlements remained dispersed in the inter-riverine zone, but they generally were lower in respect to relative elevation (elevation above closest potential water sources), suggesting greater use of stream (mostly) and river valleys. Though respective Woodland period occupations (Early, Middle and Late) are more similar to each other than to Archaic period occupations, there are subtle settlement choice trends from the Early to the Late Woodland periods in the Piedmont Province. Also, recognizable differences occur between the Piedmont ranger districts in regard to the timing in which settlement patterns change.

A pronounced shift toward bottomland (lowland landform use) over upland (upland landform use) orientation occurred earlier on the Long Cane Ranger District than on the Enoree Ranger District. This shift is consistent with relative use of ceramics between the two ranger districts, where ceramics were used much more widely on the Long Cane Ranger District than on the Enoree Ranger District during the Early Woodland period (Table VI.15). From the Late Archaic to the Early Woodland, lowland use (toe slopes, terraces and floodplains) increased about eight percent on the Long Cane Ranger District, but less than five percent on the Enoree Ranger District. Similarly, though both ranger districts show increases in occupation of southern and western aspects, the increase over the Late Archaic period is greater on the Long Cane Ranger District than on the Enoree Ranger District. From the perspective of occupation of better drained soils (sandy loams and loamy sands), the Enoree Ranger District shows a much larger increase than does the Long Cane Ranger District across the Late Archaic-Early Woodland transition (Table VI.16). Among the few Late Archaic and Early Woodland sites on the Andrew Pickens Ranger District (n=10), there was a slight increase in upland landform occupation from the Late Archaic to the Early Woodland periods.

Table VI.15. Comparison of Land and Ceramic Use between Late Archaic and Early Woodland Sites.

	Andrew Pickens Ranger District		Enoree Ranger District		Long Cane Ranger District	
Proportion of sites located on	**Late Archaic (n=4)**	**Early Woodland (n=6)**	**Late Archaic (n=56)**	**Early Woodland (n=21)**	**Late Archaic (n=116)**	**Early Woodland (n=55)**
Lowland landforms	25.0%	16.7%	24.1%	28.6%	46.6%	54.5%
Upland landforms	75.0%	83.3%	75.9%	71.4%	53.4%	45.5%
Northern aspects	0.0%	16.7%	25.4%	14.3%	20.7%	18.2%
Eastern aspects	50.0%	33.3%	21.8%	23.8%	31.9%	20.0%
Southern aspects	75.0%	66.7%	42.6%	57.6%	45.7%	49.1%
Western aspects	25.0%	16.7%	24.1%	19.0%	37.1%	45.4%
No aspects	25.0%	16.7%	25.0%	23.8%	12.9%	18.2%
Proportion of sites with ceramics	0.0%	33.3%	0.0%	45.8%	3.1%	75.4%

*Aspects are consolidated from nine orientations (not including "None"). For example, "Southern" is the combined total for southeastern, southern and southwestern aspects and "Western" is the combined total for southwestern, western and northwestern aspects. Thus, southwestern aspect is included in both "Southern" and "Western" consolidated aspects. Figures for each of the nine orientations and no aspect ("None") are reported in Appendix A.

A decisive break exists between Late Archaic and Early Woodland in regard to distances to and elevations above water sources on the Long Cane Ranger District (Figures VI.5 and VI.6, Tables VI.17 and V.18). Early Woodland sites clearly are located closer to both potential and permanent water sources. The same comparison on the Enoree Ranger District reveals only a tempered differentiation between Late Archaic and Early Woodland sites. Early Woodland sites are located significantly closer to water sources by distance but not by elevation (Figure VI.6 and Table VI.18).

Table VI.16. Distribution of Late Archaic and Early Woodland Sites among Consolidated Soil Types on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
Consolidated soil types	**Late Archaic (n=54)**	**Early Woodland (n=18)**	**Late Archaic (n=108)**	**Early Woodland (n=52)**
Sandy loam/loamy sand	35.2%	61.1%	17.6%	25.0%
Silt loam/silty clay loam	0.0%	0.0%	27.8%	26.9%
Sandy clay loam	57.4%	33.3%	54.6%	48.1%
Clay/clay loam	0.0%	5.6%	0.0%	0.0%
Unidentified	7.4%	0.0%	0.0%	0.0%

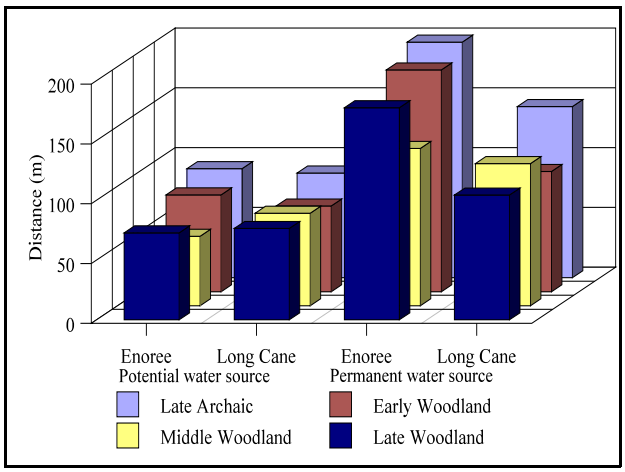

Figure VI.5. Comparison of Mean Distances from Water Sources between the Late Archaic and Woodland Periods.

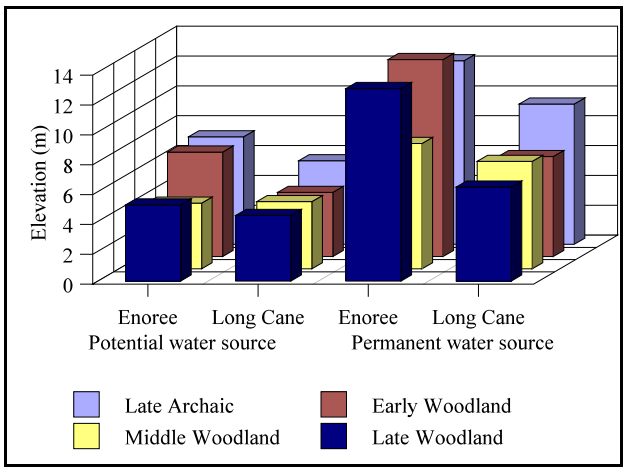

Figure VI.6. Comparison of Mean Elevations above Water Sources between the Late Archaic and Woodland Periods.

Table VI.17. Mean Values Used for Figure VI.5 and Range of Distances of Sites from Water Sources.

	Distance from Potential Water (m)				Distance from Permanent Water (m)			
	Enoree Ranger District		Long Cane Ranger District		Enoree Ranger District		Long Cane Ranger District	
Archeological Period	Mean	Range	Mean	Range	Mean	Range	M ean	Range
Late Archaic	91.2	20-220	87.6	20-300	197.0	25-580	143.1	30-420
Early Woodland	81.0	20-210	71.7	10-185	185.5	20-510	100.6	25-260
Middle Woodland	58.1	20-125	77.4	35-125	131.6	20-290	118.9	35-425
Late Woodland	72.7	40-130	76.4	40-140	177.3	40-340	104.3	40-235

The difference between the two ranger districts also is expressed in respect to types of water sources, i.e., drainage heads versus streams, across the Late Archaic-Early Woodland transition. Virtually no change occurred in the proportion of occupations located closest to drainage heads across the Late Archaic-Early Woodland transition on the Enoree Ranger District. On the Long Cane

Ranger District, occupation adjacent to drainage heads decreased from 24.1 percent to 10.9 percent, showing greater favoritism toward bottomland environments in the Early Woodland period.

Table VI.18. Mean Values Used for Figure VI.6 and Range of Elevations of Sites above Water Sources.

	Elevation above Potential Water (m)				Elevation above Permanent Water (m)			
	Enoree Ranger District		Long Cane Ranger District		Enoree Ranger District		Long Cane Ranger District	
Archeological Period	Mean	Range	Mean	Range	Mean	Range	Mean	Range
Late Archaic	7.2	1-21	5.6	1-30	12.1	1-29	9.4	1-36
Early Woodland	7.0	2-15	4.3	1-18	13.2	2-30	6.7	1-24
Middle Woodland	4.4	1-18	4.5	2-12	8.4	2-20	7.2	3-18
Late Woodland	5.1	2-9	4.4	2-12	12.9	2-27	6.3	2-15

In respect to closest permanent water sources (second order or higher streams), smaller streams (second order) were closest permanent water sources for Early Woodland occupations 81 percent of the time on the Enoree Ranger District, an increase of about nine percent over the Late Archaic period. Second order streams served as closest permanent water sources for Early Woodland sites only 40 percent of the time on the Long Cane Ranger District, which is roughly equivalent with the Late Archaic period. Rivers serving as closest permanent water sources during the Early Woodland period increased nearly two-fold over the Late Archaic period on the Long Cane Ranger District, from 7.8 percent to 14.5 percent. A slight decrease occurred from the Late Archaic (5.5 percent) to the Early Woodland (4.8 percent) period on the Enoree Ranger District.

Increased ceramic use consistently correlates positively with increased occupation of lowland landforms and western aspects (Tables VI.15 and VI.19). Ceramic use increased substantially on the Enoree Ranger District from the Early to Middle Woodland periods, with a concomitant substantial increase in lowland landform and western aspect occupation (Tables V.19). The same correlated shift occurred across the Late Archaic-Early Woodland transition on the Long Cane Ranger District (Tables VI.15). Unlike the Enoree Ranger District, the frequency of ceramic use remained about the same across the Early-Middle Woodland transition on the Long Cane Ranger District. Across this transition there was no substantial change in lowland landform or western aspect occupation.

The trend toward increased bottomland (lowland landform) use also is expressed in distances to and elevations above water sources. This is most apparent on the Enoree Ranger District where a sharp (statistically significant) decrease occurred in average distance from and elevation above potential water sources across the Early-Middle Woodland transition (Tables VI.17 and VI.18). The range at which sites with Middle Woodland components are found from water sources also decreased significantly (Table VI.17 and VI.18). On the Long Cane Ranger District the range at which sites with Middle Woodland components are found from water sources also decreased, but average distance from water sources increased (Table VI.17). The increase was not statistically significant.

Another appreciable change that occurred across the Early-Middle Woodland transition is observable on the Enoree Ranger District. Drainage heads (potential spring heads) that frequently served as closest water sources during the Early Woodland period are virtually no longer used during

the Middle Woodland period (Table VI.20). Comparatively, drainage heads served as closest potential water sources more frequently in the Middle Woodland period than in the Early Woodland period on the Long Cane Ranger District.

Table VI.19. Comparison of Land and Ceramic Use between Early Woodland and Middle Woodland Sites on the Enoree and Long Cane Ranger Districts.

	Andrew Pickens Ranger District		Enoree Ranger District		Long Cane Ranger District	
Proportion of sites located on	**Early Woodland (n=6)**	**Middle Woodland (n=7)**	**Early Woodland (n=21)**	**Middle Woodland (n=16)**	**Early Woodland (n=55)**	**Middle Woodland (n=19)**
Lowland landforms	16.7%	28.6%	28.6%	43.8%	54.5%	57.9%
Upland landforms	83.3%	71.4%	71.4%	56.2%	45.5%	42.1%
Northern aspects	16.7%	14.3%	14.3%	6.2%	18.2%	5.3%
Eastern aspects	33.3%	28.6%	23.8%	18.8%	20.0%	21.1%
Southern aspects	66.7%	57.1%	57.6%	56.2%	49.1%	57.9%
Western aspects	16.7%	28.6%	19.0%	18.8%	45.4%	42.1%
No aspects	16.7%	28.6%	23.8%	6.2%	18.2%	21.1%
Proportion of sites with ceramics	33.3%	71.4%	45.8%	65.0%	75.4%	70.6%

*Aspects are consolidated from nine orientations (not including "None"). For example, "Southern" is the combined total for southeastern, southern and southwestern aspects and "Western" is the combined total for southwestern, western and northwestern aspects. Thus, southwestern aspect is included in both "Southern" and "Western" consolidated aspects. Figures for each of the nine orientations and no aspect ("None") are reported in Appendix A.

Table VI.20. Distribution of Early and Middle Woodland Sites among Water Source Types on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
Proportion of sites located closest to	**Early Woodland (n=21)**	**Middle Woodland (n=16)**	**Early Woodland (n=54)**	**Middle Woodland (n=19)**
Drainage heads	38.1%	6.6%	10.9%	21.1%
Streams	57.1%	93.8%	76.4%	68.4%
Rivers	4.8%	0.0%	12.7%	10.5%

Ceramic use increased from the Middle to Late Woodland periods for the Andrew Pickens and Long Cane Ranger Districts, but lowland landform use decreased slightly (Table VI.21). Ceramic and lowland landform use decreased over the same transition for the Enoree Ranger District, and occupation of southern aspects increased on the Enoree and Long Cane Ranger Districts. Late Woodland sites on the Andrew Pickens Ranger District are more evenly distributed among aspects.

Table VI.21. Comparison of Landform and Ceramic Use between Middle and Late Woodland Sites on the Enoree and Long Cane Ranger Districts.

	Andrew Pickens Ranger District		Enoree Ranger District		Long Cane Ranger District	
Proportion of sites located on	**Middle Woodland (n=7)**	**Late Woodland (n=6)**	**Middle Woodland (n=16)**	**Late Woodland (n=11)**	**Middle Woodland (n=19)**	**Late Woodland (n=14)**
Lowland landforms	28.6%	16.7%	43.8%	36.4%	57.9%	57.1%
Upland landforms	71.4%	83.3%	56.2%	63.6%	42.1%	42.9%
Northern aspects	14.3%	16.7%	6.2%	9.1%	5.3%	14.3%
Eastern aspects	28.6%	16.7%	18.8%	18.2%	21.1%	42.9%
Southern aspects	57.1%	50.0%	56.2%	81.8%	57.9%	64.3%
Western aspects	28.6%	33.3%	18.8%	45.4%	42.1%	21.4%
No aspects	28.6%	33.3%	6.2%	9.1%	21.1%	14.3%
Proportion of sites with ceramics	71.4%	100%	65.0%	46.2%	70.6%	87.5%

*Aspects are consolidated from nine orientations (not including "None"). For example, "Southern" is the combined total for southeastern, southern and southwestern aspects and "Western" is the combined total for southwestern, western and northwestern aspects. Thus, southwestern aspect is included in both "Southern" and "Western" consolidated aspects. Figures for each of the nine orientations and no aspect ("None") are reported in Appendix A.

Though reduction in lowland landform use decreased during the Late Woodland period on the Enoree Ranger District, which is accompanied by fewer sites with ceramics compared to the Middle Woodland period, site location did not change significantly with respect to types of water sources. Occupation where drainage heads were the closest potential water sources remained low, and occupation where rivers were the closest potential water source remained nonexistent (Table VI.22). Ten of eleven sites (90.9%) with Late Woodland components had first order streams as closest potential water sources on the Enoree Ranger District, a 22 percent increase over the Middle Woodland period. Similarly, closest permanent water sources for Late Woodland sites were streams, rather than large creeks and rivers. Nine of eleven (81.8%) had second and third order streams as closest permanent water sources.

Table VI.22. Distribution of Middle and Late Woodland Sites among Water Source Types on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
Proportion of sites located closest to	**Middle Woodland (n=16)**	**Late Woodland (n=11)**	**Middle Woodland (n=19)**	**Late Woodland (n=14)**
Drainage heads	6.6%	9.1%	21.1%	14.3%
Streams	93.8	90.9%	68.4%	78.6%
Rivers	0.0%	0.0%	10.5%	7.1%

The Late Woodland period on the Long Cane Ranger District tends toward patterns observed on the Enoree Ranger District, where the number of sites that are located closest to drainage heads or rivers also is very low. The trend was first recognizable during the Early to Middle Woodland transition and it continued into the Late Woodland period. The difference between the two ranger districts is that Late Woodland sites on the Long Cane Ranger District were more evenly distributed among different sized streams.

Average distances from respective water sources (potential and permanent) increased significantly during the Late Woodland period on the Enoree Ranger District but decreased marginally (statistically insignificant) on the Long Cane Ranger District (Figure VI.5 and Table VI.17). Similarly, there were significant increases in relative elevations on the Enoree Ranger District and no significant differences on the Long Cane Ranger District (Figure VI.6 and Table VI.18).

Summarizing broad settlement-mobility changes in the Piedmont Woodland period based upon site distribution on the Sumter National Forest requires tempered statements that reflect timing and geography within the South Carolina Piedmont. Shifts toward more intensive lowland use were most pronounced in the southern Piedmont (Long Cane Ranger District) during the Early Woodland period, which appears to be a continuation of a trend initiated during the Late Archaic period. The move toward greater lowland landform use coincided with greater ceramic use and occupation of southern slopes more frequently. Together, these settlement features suggest a potential for greater sedentism and fewer relocations through the course of a year. The same sort of settlement shift toward lowland use did not occur until the Middle Woodland period on the Enoree Ranger District. Occupation adjacent to low ranked streams increased as occupation adjacent to drainage heads (potential spring heads) and rivers decreased. This shift, too, was accompanied by a substantial increase in ceramic use and occupation of southern and western aspects, suggesting longer-term or multiseasonal settlement. Comparatively, land use patterns did not appear to have changed significantly from the Early to Late Woodland periods on the Long Cane Ranger District.

Importantly, site distribution trends illustrated above for the Sumter National Forest should be considered tenuous. There is considerable inconsistency on how Early, Middle and Late Woodland components were assigned to sites on the Sumter National Forest. For instance, as demonstrated in the Cultural History chapter, Connestee phase ceramics have been alternatively used for identifying Middle and Late Woodland components. Identification of Late Woodland components is often vague. Part of the problem is due to small and poorly preserved ceramic samples found on Phase I survey sites, but it is also due to a poorly established Woodland chronology in the South Carolina Piedmont and Blue Ridge regions.

Woodland Period Settlement-Mobility Models

Site distribution data generated from the Laurens-Anderson corridor survey suggested widespread use of the inter-riverine uplands during the Early Woodland period, where some larger, longer-term occupations focused upon upland spring areas. Two relatively large and artifactually dense Early Woodland sites discussed by Goodyear et al. (1979:229-230) occurred on south-facing slopes, suggesting to them that these locations were occupied during the fall and winter months. During the Middle Woodland , there was a clear decline in site frequency in the inter-riverine zone

(Goodyear et al. 1979:230). Citing evidence of large and artifactually rich Middle Woodland period sites along the Reedy River in South Carolina and noting the absence of Middle Woodland sites in the uplands, Goodyear et al. (1979:230-231) suggested a strong riverine orientation during the Middle Woodland period, implying a potential for agricultural production. This pattern also is applied to the Late Woodland period.

Inter-riverine upland areas in other regions of the southeastern Atlantic Seaboard show both similarities and differences compared to trends expressed in the Laurens-Anderson corridor survey. Increased use of the inter-riverine zone in the eastern Georgia Fall Line Hills was evident during the Early Woodland period, but it was most apparent during the Middle Woodland period. Middle Woodland sites were the most widespread among major creek watersheds compared to all other prehistoric periods, but occupations were focused on lowland landforms along small tributaries of major creeks, rather than on the main creek channels. Late Woodland sites showed a clear dichotomy between sites with ceramics and sites without ceramics. Sites with ceramics were larger and were located on lowland landforms adjacent to large creek channels. Those without ceramics were small and tended to be on upland landforms closer to ephemeral water sources (Benson 1995c:115-119).

A distinctive change in land use occurred across the Late Archaic-Early Woodland transition on the Savannah River Site. The change indicated dispersal with intensive and widespread use of area along larger Savannah river tributaries. The characteristic dispersal of Early and then Middle and Late Woodland sites into the inter-riverine zone on the Savannah River Site is a hallmark of the *Woodland Population Infilling Model*, developed by Brooks and Hanson (1987). This model was supported by site distribution data accumulated on the Savannah River Site (Sassaman et al.1990:315, 318). Allowing for this dispersal was increased ecological productivity and diversity of river tributaries, becoming new loci of exploitation. Smaller co-resident groups acted as loosely connected centers for social access, information and materials. This settlement pattern contrasted sharply from the prior Late Archaic period, where social access and information and material exchange occurred at large, Fall Zone and river tributary confluence aggregation sites.

During the Middle Woodland period on the Savannah River Site, river terraces were once again occupied, having been abandoned during the Early Woodland period. Some of these sites were larger and more intensively occupied, suggesting longer-term or repeated occupations at river terrace locations. More intensive use of river habitats during the Middle Woodland period is consistent with what Goodyear et al. (1979) predicted for the South Carolina Piedmont. Exploitation of bottomland swamps also is evident, in addition to continued infilling of the inter-riverine zone on the Savannah River Site. Overall, Middle Woodland sites have a wider distribution among microenvironments than Early Woodland sites at the Savannah River Site (Sassaman et al. 1990:300).

During the Late Woodland period on the Savannah River Site, a wide range of microenvironments continued to be exploited. The larger, more intensively occupied river terrace sites of the Middle Woodland period were no longer in use. Late Woodland people appeared to use stream and river terraces at the same level of intensity. Occupation of lowland landforms increased, suggesting to Sassaman et al. (1990:317) that there was an increased focus upon floodplain habitats during the Late Woodland period.

A recent 4,000 acre survey on the Uwharrie National Forest in the North Carolina Piedmont found higher occupation intensity during the Early Woodland than the Middle Woodland (Benson 1999:656). Late Woodland sites were numerous, equal to the total number of Early and Middle Woodland sites. The pattern of land use among the three phases in the Woodland period showed that Early Woodland sites were located closer to water sources in both distance and elevation than Middle Woodland sites, but Late Woodland sites were located closest to water sources and were found on lowland landforms more frequently. Importantly, though the Uwharrie Mountains are in the Piedmont Province, the terrain is more similar to the Blue Ridge than the Piedmont.

Testing Woodland Models with the Sumter National Forest Data

Some aspects of Early Woodland site distribution on the Piedmont ranger districts is similar to Early and Middle Woodland settlement patterns proposed by Goodyear et al. (1979). Several large (>10,000 m^2) inter-riverine zone (>300 m from a major drainage) Early Woodland sites exist. Three of 14 inter-riverine zone sites on the Enoree Ranger District are large, lie on southern-facing slopes, and one is located adjacent to a drainage head. Only one of 30 inter-riverine, Early Woodland sites on the Long Cane Ranger District is large (>10,000 m^2) and a candidate for longer-term, multiseasonal occupation. Most Early Woodland sites in the inter-riverine zone of the Piedmont ranger districts are small. Riverine-oriented Early Woodland sites are consistently larger and are more likely candidates for representing longer-term occupations (Table VI.23). The pattern of larger, more intensively occupied sites in riverine zones with smaller, less intensively occupied sites in inter-riverine zones during the Early Woodland period is similar to the settlement pattern proposed by Goodyear et al. (1979) for the Middle Woodland period. It is also the same pattern observed for the Middle Woodland period on the Savannah River Site. Notably, the Early Woodland settlement pattern on the Long Cane Ranger District appears to be a continuation of the settlement pattern established during the Late Archaic period.

Table VI.23. Comparison of Site Sizes between Early Woodland Riverine-oriented and Inter-riverine Zone Sites on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
Areal values (m^2)	Within 300 m of major drainage (n=3)	Beyond 300 m of a major drainage (n=14)	Within 300 m of a major drainage (n=24)	Beyond 300 m of a major drainage (n=30)
Average Size	17,915	4,703	10,300	3,288
Minimum	2,826	308	458	741
Maximum	39,387	24,184	48,507	11,355
Standard deviation	15,593	6,162	13,372	2,201
P-value*	0.35		0.02	

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

Comparing site sizes between riverine-oriented and inter-riverine zone sites (Table VI.24) suggests a lack of differentiation between the two Middle Woodland data sets in both Piedmont

ranger districts. The relative proportions of Middle Woodland riverine-oriented versus inter-riverine zone sites remained about the same compared to the Early Woodland period, but average site size for riverine-oriented sites during the Middle Woodland decreased substantially. Average site size between the two data sets is about equal (Table VI.24). On the Long Cane Ranger District, Middle Woodland sites became more evenly divided between riverine and inter-riverine zone orientations and differences in site size between the two data sets achieved greater parity. Thus, in respect to differentiation between sites based upon their locations in environmental zones, the Enoree and Long Cane Ranger Districts are very similar during the Middle Woodland period. The lack of differentiation suggests greater generalization of the settlement-mobility/subsistence system in the South Carolina Piedmont during the Middle Woodland period.

Table VI.24. Comparison of Site Sizes between Middle Woodland Riverine-oriented and Inter-riverine Zone Sites on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
	Within 300 m of major drainage (n=3)	Beyond 300 m of a major drainage (n=12)	Within 300 m of a major drainage (n=9)	Beyond 300 m of a major drainage (n=10)
Average Size (m^2)	5,385	5,059	13,429	8,972
Minimum (m^2)	515	209	2,063	1,162
Maximum (m^2)	11,669	24,184	36,422	42,388
Standard deviation (m^2)	4,662	6,216	12,160	11,916
P-value*	0.94		0.46	

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

The increased frequency and widespread inter-riverine zone use aspect of the Middle Woodland period at the Savannah River Site is consistent with both the Enoree and Long Cane Ranger Districts, but evidence for an increased focus upon riverine habitats is not supported. The lack of evidence for this settlement component may be due to the lack of archeological survey conducted in such environmental zones on the Sumter National Forest. If the Sumter National Forest Middle Woodland settlement pattern presented above is valid, in spite of the lack of survey in riverine/large creek habitats, then the settlement pattern is similar to what was observed for the Late Woodland period on the Savannah River Site.

Late Woodland sites on the Enoree Ranger District show an inter-riverine zone orientation (Table VI.25). Only two of ten Late Woodland sites were within 300 m of a major drainage, and, as illustrated in the data presented above, Late Woodland sites occur more frequently on upland landforms compared to the Middle Woodland period. Like the Middle Woodland period, there is little differentiation between riverine-oriented and inter-riverine zone Late Woodland sites on the Enoree Ranger District based upon site size. On the Long Cane Ranger District, Late Woodland site locations show an even stronger orientation toward inter-riverine zone occupation (Tables VI.24 and VI.25). Furthermore, no significant difference in site size between riverine-oriented and inter-

riverine zone Late Woodland sites exist. Late Woodland sites show a similar distributional pattern among upland and lowland situations as Middle Woodland sites on the Long Cane Ranger District.

Table VI.25. Site Size Comparison between Late Woodland Riverine-oriented and Inter-riverine Zone Sites on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
Areal values (m^2)	Within 300 m of major drainage (n=2)	Beyond 300 m of a major drainage (n=8)	Within 300 m of a major drainage (n=5)	Beyond 300 m of a major drainage (n=9)
Average Size	4,806	5,201	9,952	3,832
Minimum	3,747	297	671	651
Maximum	5,866	24,184	32,026	8,743
Standard deviation	1,059	7,706	11,871	2,939
P-value*	0.90		0.46	

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

The generally smaller size and lack of size differentiation between riverine-oriented and inter-riverine zone Late Woodland sites in the Piedmont ranger districts on the Sumter National Forest is similar to the pattern on the Savannah River Site. However, the Late Woodland settlement pattern of increased use of upland landforms does not suggest an increased focus upon floodplain habitats of smaller streams. Middle Woodland site distribution on the Sumter National Forest suggests greater use of floodplain habitats than does the Late Woodland period.

Change in land use patterns through the Woodland period appears to be far more regionally based than change in land use through the Archaic period. Significant changes in site distribution patterns occurred through time during the Woodland period between the two Sumter National Forest Piedmont ranger districts and between the South Carolina Piedmont and other regions across the southeastern Atlantic Seaboard. Nevertheless, there are at least two notable consistencies among all the regions discussed above.

First, all regions display substantial changes in land use across the Late Archaic-Early Woodland transition, where lowland landforms were more frequently occupied and settling closer to river tributaries (as opposed to river margins) was more common. On the Sumter National Forest, Early Woodland settlement close to rivers or large creeks on the Long Cane Ranger District is a distinction not shared on the Enoree Ranger District. Second, inter-riverine zone use flourished during the Middle Woodland period, especially on the Enoree Ranger District. Within the inter-riverine zone, occupation of lowland landforms adjacent to small streams predominated.

Late Woodland land use varies significantly from region to region. On the Piedmont ranger districts there is a tendency toward increased use of upland landforms in the inter-riverine zone, which is manifested more on the Enoree Ranger District than on the Long Cane Ranger District. This pattern is unlike the South Carolina upper Coastal Plain and the North Carolina Piedmont, as

presented above. As noted elsewhere in this document, occupation adjacent to larger streams and rivers are very likely under represented on the Sumter National Forest site database due to the lack of archeological survey in these zones. The lack of this information may substantially alter the analyses above. For instance, the shift toward increased use of upland landforms during the Late Woodland period on the Enoree Ranger District correlated with fewer ceramic-bearing sites and greater distances between sites and water sources. This pattern implies smaller groups of people occupying places for shorter periods of time, suggesting special extraction (e.g., hunting) sites. If this is the case, as Goodyear et al. (1979) reasoned for the Middle Woodland period in the Piedmont, then it is likely that larger and artifactually dense and diverse sites might be located on lowland landforms adjacent to large streams or rivers. This pattern would then be very similar to the pattern observed in the eastern Georgia Fall Line Hills (Benson 1995c).

Mississippian Period Synthesis

Mississippian Period Site Distribution on the Sumter National Forest

Continuing a trend reflecting no distinctive land use changes since the Middle Woodland period on the Long Cane Ranger District, the Mississippian period looks very similar to the Late Woodland period, in spite of increases in the number Mississippian period components and ceramic prevalence. Ninety-five percent (n=36) of the thirty-eight sites with Mississippian components have ceramics. No significant change exists in average distances from and elevations above potential and permanent water sources compared to the prior Late Woodland period (Table VI.4). Lowland landform use and occupation of southern and western-facing slopes decreased slightly.

In spite of the lack of change expressed by specific environmental variable measurements between Late Woodland and Mississippian period sites on the Long Cane Ranger District, a significant change in orientation occurred across the Late Woodland-Mississippian period transition (Table VI.26). Seventy-four percent of Mississippian period sites are riverine oriented, as opposed to only 36 percent in the Late Woodland period. Furthermore, there is a significant site size difference between riverine-oriented sites and inter-riverine zone sites, where riverine-oriented sites are significantly larger (Table VI.26).

A significant change in land use from the Late Woodland to the Mississippian period is expressed by specific environmental variable measurements and in orientation on the Enoree Ranger District. Though the number of Mississippian period sites decreased slightly from the Late Woodland period, lowland landform use increased substantially. Nearly 20 percent of all sites with Mississippian components occur on stream or river terraces, with the remaining lowland landform occupation reserved for toe slopes. Ceramic prevalence on archeological sites rebounded from a low of 46 percent of Late Woodland sites to 88 percent of Mississippian sites. Rivers were closest potential water sources 25 percent of the time, which is far greater than any other archeological period, but drainage heads serving as closest potential water sources also increased over the Late Woodland period. Occupation along stream margins decreased. In spite of increased lowland landform use and increased ceramic use, suggesting generally longer-term settlement in the Mississippian period, Mississippian period sites are more evenly distributed among different aspects compared to all other prehistoric archeological periods, except for the Middle Archaic period.

Table VI.26. Comparison of Site Sizes between Mississippian Riverine-oriented and Inter-riverine Zone Sites on the Enoree and Long Cane Ranger Districts.

	Andrew Pickens Ranger District		Enoree Ranger District		Long Cane Ranger District	
Areal values (square meters)	Within 300 m of major drainage (n=6)	Beyond 300 m of a major drainage (n=6)	Within 300 m of major drainage (n=8)	Beyond 300 m of a major drainage (n=9)	Within 300 m of a major drainage (n=23)	Beyond 300 m of a major drainage (n=8)
Average Size	9,064	2,452	13,653	5,074	12,093	3,011
Minimum	1,115	918	2,825	798	545	684
Maximum	24,736	4325	44,737	14,481	48,507	9,688
Standard deviation	9,439	1,180	12,888	4,334	12,522	3,118
P-value*	0.18		0.13		0.00	

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

On the Enoree Ranger District, greater than half (56%) of Mississippian sites are riverine oriented, which is much greater than the 20 percent recorded for the previous Late Woodland period. Consistent with the Long Cane Ranger District, Mississippian riverine-oriented sites on the Enoree Ranger District are significantly larger than inter-riverine zone sites.

Mississippian period occupation intensity increased on the Andrew Pickens Ranger District of the Blue Ridge Province compared to the preceding Late Woodland period. Similar to the Enoree Ranger District, drainage heads and rivers serving as closest potential water sources and occupation of lowland landforms increased (marginally). Also similar to the Enoree Ranger District, Mississippian period sites are slightly more evenly distributed among different aspects (Table VI.4). Southern slopes are still favored, however. All sites with Mississippian components (n=13) on the Andrew Pickens Ranger District have ceramics. Compared to the Woodland period, where nearly three-quarters of all sites with Woodland components had first order streams (or drainage heads) as their closest potential water source, approximately one-half had first order streams as their closest potential water source. The other half is distributed evenly among second, third and fourth order streams and rivers. Consistent with the Enoree and Long Cane Ranger Districts, Mississippian period riverine-oriented sites on the Andrew Pickens Ranger District are significantly larger than Mississippian period inter-riverine zone sites (Table VI.26).

Riverine-oriented Mississippian period sites are significantly larger than inter-riverine zone Mississippian period sites on all Sumter National Forest ranger districts. The geographically-based difference in site size suggests that riverine-oriented sites were functionally different from inter-riverine sites. All sites that are riverine oriented have ceramics, but they also are multicomponent. Most sites that are in the inter-riverine zone also have ceramics (all 6 Andrew Pickens Ranger District sites, 6 of 8 on the Enoree Ranger District, 7 of 9 on the Long Cane Ranger District). Of the four that do not have ceramics between the two Piedmont ranger districts, all are single component and are located away from smaller stream floodplains. Thus, among the inter-riverine zone Mississippian sites we may have both household farms and small special-extraction sites.

Mississippian Settlement-Mobility/Political Models and the Sumter National Forest Database

Recently Green and Bates (2003) proposed a potential chiefdom centered on the Broad River, apart and independent from the broader Santee River watershed chiefdom. Blair and McCollum Mounds on the Enoree Ranger District (but not on Forest Service land) represent political centers of this chiefdom (Figure VI.7). Both are located on the east side of the Broad River. Blair Mound was occupied during the earliest phases of the Mississippian period, contemporaneous with the Jarrett/Lawton and Belmont Neck phases, while McCollum Mound was occupied slightly later, during the Adamson and Town Creek phases. Though not a mound site, Tyger Village, a large Mississippian period site (Elliott 1984f), was occupied after McCollum Mound was abandoned, ca.

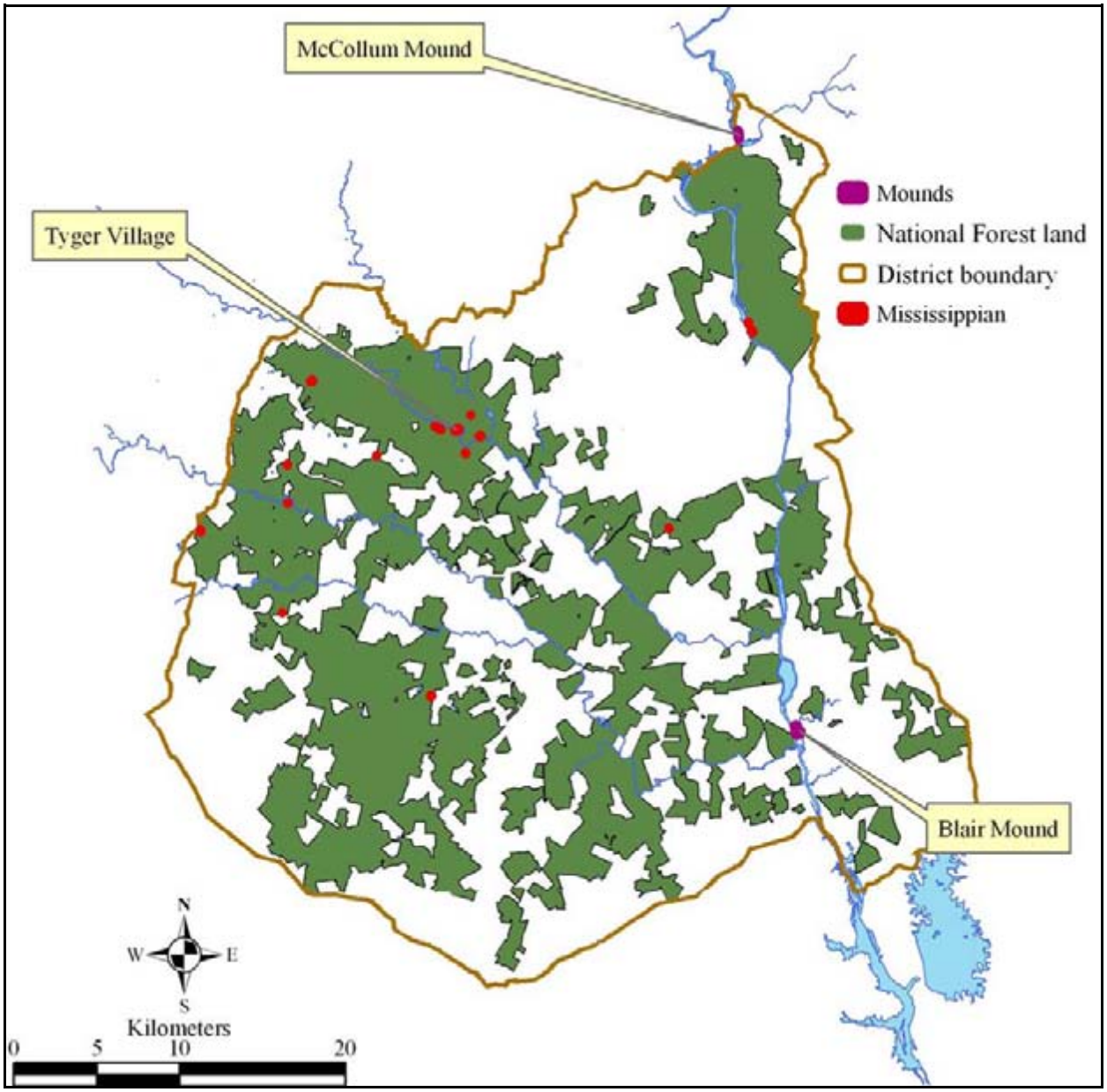

Figure VI.7. Locations with Mississippian Components and Mississippian Period Centers (labeled) on the Enoree Ranger District.

A.D. 1375-1450. Green and Bates (2003) suggest that Tyger Village served as a socio-political center of a more dispersed population after McCollum Mound was abandoned. They further suggest that the dispersed population was perhaps a "refugee" population caught between the Cherokee to the northwest and people occupying the Wateree Valley to the east.

Green and Bates (2003) analyzed Mississippian period site distribution based upon site size. Four site size classes (Class I-IV) were ascertained, and based upon presumed spheres of political control, were associated with respective political centers. Site size range reported for Mississippian period sites located within and beyond 300 m from a major stream (Table VI.26) in the present analysis did not include Class I sites (>4.5 ha), since all those reported by Green and Bates (2003) were not located on Forest Service property. Sites located within 300 m of a major stream fall within the Class II and III site size ranges. Sites located beyond 300 m fall within the Class IV site size range. There are exceptions within both groups. Lacking from Green and Bates' (2003) and the present analyses, were tighter temporal controls on the numerous, smaller Mississippian sites dotting the landscape. The lack of temporal recognition prevented firm associations between the widely scattered Mississippian period sites and their presumed political centers. Nevertheless, their proposal offers avenues for future Mississippian period research on the Enoree Ranger District.

The Long Cane Ranger District displays the most numerous sites with Mississippian period components, compared to the Andrew Pickens and Enoree Ranger Districts. Because the level of investigation for nearly all of these sites is at the survey level, we do not have fine enough temporal resolution to determine during what phase(s) of the Mississippian period these sites were occupied. Based upon accounts of early explorers traveling through the middle Savannah River Valley, the Long Cane Ranger District Mississippian sites probably date to the early and middle parts of the period. Hernando De Soto found the central Savannah River valley and the adjacent Broad River Valley to be largely uninhabited in 1540 (Hudson 1997:169).

Anderson (1990b:623-630) determined that the central Savannah River Valley was abandoned by 1450. Abandonment was probably a consequence of the rivalry between two paramount chiefdoms in concert with political and economic instability provoked by climatic uncertainty during the fifteenth century (Anderson et al. 1995). After abandonment, the uninhabited central Savannah River Valley served as a buffer zone between rival chiefdoms of Cofitachequi, centered in the Wateree River Valley, and Ocute, centered in the Oconee River Valley of central Georgia. The buffer zone was likely frequented by hunters from both chiefdoms. Given that late Mississippian period hunting camps can be identified to a specific phase of the Mississippian period, both the Long Cane Ranger District and the Enoree Ranger District should contain some of these logistical site types.

While the central Savannah and Broad River Valleys witnessed significant resident population decreases, it is probable that the upper Savannah River Valley experienced population increases. A total of 13 Mississippian period sites have been recorded on the Andrew Pickens Ranger District through 2002. Pisgah (early Mississippian) and Jarrett (middle Mississippian) phase ceramics have been recorded on at least two sites, respectively. Presently the site database is not specific enough to determine whether or not later Mississippian period components are also present on the Andrew Pickens Ranger District. Nearby Chauga, Estatoe and Tugalo mound centers were

occupied during the late Mississippian period, so sites dating to this phase are likely to exist on the Andrew Pickens Ranger District.

Historic Native American Synthesis

Cherokee Site Distribution and Analysis

Cherokee period land use in the Blue Ridge Province continued and amplified a pattern of greater floodplain use along larger drainages, which facilitated an increasing dependence upon agricultural production. Of the seven Cherokee sites recorded through 2000 on the Andrew Pickens Ranger District, all are located within 300 m of a major drainage. Average site size is 42,420 m^2, largely because of Chattooga Town, which consumes nearly 250,000 m^2. Without Chattooga Town, the range of sizes for Cherokee sites would be equal to the range of site sizes recorded for riverine-oriented Mississippian period sites on the Andrew Pickens Ranger District. Among the seven Cherokee sites recorded on Andrew Pickens, five are re-occupied Mississippian period sites.

Even though all seven Cherokee sites are located within 300 m of a major drainage, occupation is not exclusively on lowland landforms. Four of seven are located on upland landforms. All four of these particular sites are clustered on a single, broad ridge nose with a broad and slightly lower saddle, approximately 1 km west of Tomassee (38OC186). Gradual slopes on either side of the saddle lead toward the floodplains of two different, relatively large streams. Like Tomassee, these upland Cherokee sites also contain Middle Woodland components. These sites may have been outlying, special extraction camps affiliated with Tomassee.

Throughout this interpretive synthesis aspect was used to infer longer-term, multiseasonal and/or colder season occupation, reasoning that southern and western slopes are drier and warmer due to increased solar radiation. The effectiveness of this variable appeared to be somewhat contradictory to other environmental variables and artifactual evidence that suggested longer-term occupation during the Mississippian period. During the Cherokee period the aspect variable appears to have far less bearing upon settlement choice. Southern and western aspects are not preferred over other aspects. It may be that during the Cherokee period, and perhaps in the later Mississippian period, other factors such as floodplain productivity, location and size, as well as sociopolitical reasons (e.g., which direction offers better protection from enemies), overrode aspect considerations. During these periods, larger-scale agricultural production likely usurped other settlement and subsistence concerns, whereas prior to these periods, horticultural production was one of several equally important subsistence endeavors, allowing greater flexibility in settlement location.

Historic Euro/African American Period Synthesis

Historic Euro/African American Period Site Distribution

Change in settlement patterns through time in the historic period generally is a truncated mirror image of the prehistoric period. The prehistoric period gravitated toward greater riverine use over the course of 10,000 years and the historic period gravitated toward greater inter-riverine use over the last 400 years. Table VI.5 provided a general comparison between Historic Euro/African American and prehistoric land use patterns in respect to selected environmental variables.

On the Long Cane Ranger District, upland landform use was greater in any one of the four Euro/African American periods (eighteenth, early nineteenth, late nineteenth-early twentieth and early-to-middle twentieth centuries) than any individual prehistoric period (Tables VI.3 and VI.27). Only Early and Middle Archaic period site distributions showed greater use of upland landforms than eighteenth century historic habitation sites on the Enoree Ranger District. After the eighteenth century, upland landform use was greater than any prehistoric archeological period. No eighteenth century or early nineteenth century Euro/African American historic sites have been recorded on the Andrew Pickens Ranger District. Mid nineteenth-early twentieth century historic habitation sites reveal equal use of upland and lowland landforms (Tables VI.3 and VI.27). On the Andrew Pickens Ranger District, inter-riverine upland landform use did not increase substantially until the early-to-middle twentieth century.

Table VI.27. Distribution of Historic Euro/African American Habitation Sites among Landform Types.

	18th Century		Early 19th Century		19th-20th Century			20th Century		
Landform	**EN (n=16)**	**LC (n=23)**	**EN (n=56)**	**LC (n=51)**	**AP (n=27)**	**EN (n=129)**	**LC (n=145)**	**AP (n=13)**	**EN (n=67)**	**LC (n=67)**
Upland										
Ridge top	0.0%	4.3%	3.6%	0.0%	0.0%	0.8%	3.4%	0.0%	0.0%	1.5%
Knoll	25.0%	21.7%	19.6%	23.5%	3.7%	31.0%	21.4%	7.7%	35.8%	22.4%
Ridge nose	50.0%	52.2%	58.9%	47.1%	29.6%	40.3%	48.3%	38.5%	38.8%	41.8%
Saddle	6.3%	8.7%	3.6%	13.7%	7.4%	10.1%	4.1%	0.0%	11.9%	14.9%
Upland slope	0.0%	0.0%	10.7%	3.9%	0.0%	13.2%	10.3%	23.1%	10.4%	13.4%
Upland flat	0.0%	0.0%	0.0%	2.0%	0.0%	1.6%	6.2%	0.0%	1.5%	3.0%
Total Upland	**81.2%**	**87.0%**	**96.4%**	**90.2%**	**40.7%**	**96.9%**	**93.8%**	**69.2%**	**98.5%**	**97.0%**
Lowland										
Toe slope	18.8%	13.0%	1.8%	9.8%	51.9%	3.1%	6.2%	30.8%	0.0%	3.0%
Terrace	0.0%	0.0%	1.8%	0.0%	7.4%	0.0%	0.0%	0.0%	1.5%	0.0%
Floodplain	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Lowland	**18.8%**	**13.0%**	**3.6%**	**9.8%**	**59.3%**	**3.1%**	**6.2%**	**30.8%**	**1.5%**	**3.0%**

AP-Andrew Pickens Ranger District
EN-Enoree Ranger District
LC-Long Cane Ranger District

Among lowland landforms in the two Piedmont ranger districts of the Sumter National Forest, all eighteenth century habitation sites were located on toe slopes. Occupation of toe slopes adjacent to floodplains would have been advantageous, since they are well drained, bottomland locations. Elevated higher and located further from stream and river channels, toe slope occupation

would greatly reduce potential loss of improvements (house and outbuildings) from periodic floods, while remaining in close proximity to fertile floodplains.

Though lowland landforms are used for occupation during the eighteenth century on the Enoree and Long Cane Ranger Districts, land use is still decidedly upland in orientation. Plantations, among other large farmsteads, are clearly included in the eighteenth century sample, which is essentially weighted towards the later half of the 1700s. Earlier pioneer sites are very few and these are more likely to represent subsistence farmers, hunters and traders utilizing stream and river bottomlands more intensively. Pioneer agriculturalists focused on the same fertile bottomlands as did the late prehistoric inhabitants of the region (Richter and Markewitz 2001:116).

Floodplain and terrace habitation did not occur in the eighteenth century or in any of the following periods (Table VI.27), but floodplains clearly were used for other reasons in addition to agricultural pursuits, mainly for water powered mills. On the Enoree Ranger District there are only two eighteenth century sites within 300 m of a major drainage and neither are habitation sites. One site, 38NE99, records the potential location of Pennington's Fort on an elevated and sloping toe slope overlooking the Enoree River, and the other site, 38NE144, is the Smithy Mill situated adjacent to the Tyger River. All remaining Historic Euro-American habitation sites dating to the late eighteenth century are located beyond 300 m from a major drainage (Table VI.28).

Table VI.28. Comparison of Eighteenth Century Habitation Site Size between Riverine-oriented and Inter-riverine Upland Sites on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
Areal values (m^2)	Within 300 m of major drainage (n=0)	Beyond 300 m of a major drainage (n=11)	Within 300 m of a major drainage (n=5)	Beyond 300 m of a major drainage (n=10)
Average size	NA	4,127	6,971	6,604
Minimum	NA	829	424	1,281
Maximum	NA	15,896	23,872	37,434
Standard deviation	NA	4,500	8,506	10,428
P-value*	NA		0.94	

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

On the Long Cane Ranger District there are seven Euro/African American sites within 300 m of a major drainage. Two of these are in floodplain settings and both are special-use sites. The Faulkner/Bussy Mill (38MC524) is on Stevens Creek and 38MC254 records an abandoned bridge across Turkey Creek. The remaining five are habitation sites, four of which are re-occupied prehistoric sites. Among the ten habitation sites located beyond 300 m from a major drainage, only two are re-occupied prehistoric sites. Between the two data sets, there is no differentiation based upon site size (Table VI.28). The lack of differentiation suggests that late eighteenth century occupation on the Long Cane District predominantly consisted of people engaged in similar activities, whether they were riverine oriented or inter-riverine zone oriented. Eighteenth century

habitation site size, on average, is small on the Enoree Ranger District compared to the Long Cane Ranger District.

The earliest Euro/African American sites were early nineteenth century sites on the Andrew Pickens Ranger District. Like frontier sites in the Piedmont Province, inhabitants of the earliest settlements took advantage of the more fertile bottomlands in the Blue Ridge Province. While river floodplains were surely used for agriculture, use of stream bottomlands was perhaps more important. Only the larger farmsteads and plantations intensively utilized the more expansive river bottomlands, and these were few and far between. Smaller-scale subsistence farms were far more numerous throughout the region and these farmers used stream floodplains for agricultural pursuits.

Occupying slopes with southerly aspects also was an apparent effective variable for settlement location. Greater than half (n=17) of all nineteenth through early twentieth century habitation sites on the Andrew Pickens Ranger District occur on south-facing slopes. Occupation of southerly slopes, in addition to settling in coves, would help to ameliorate the harsher winters experienced in the Blue Ridge Mountains compared to the milder Piedmont.

Of the four early nineteenth century habitation sites recorded on the Andrew Pickens Ranger District, all are located beyond 300 m from a major drainage. It is unlikely that any historic period habitation site would be located less than 300 m from a major drainage. Farmers that cultivated the floodplains of larger streams and rivers chose places that allowed access to broad floodplains but kept their structures out of harms way from periodic floods. Occupation of toe slopes or terraces adjacent to broad floodplains, which often were greater than 300 m in width, would be preferred locations. This settlement pattern continued through the nineteenth and early twentieth centuries on the Andrew Pickens Ranger District. Unlike the Piedmont ranger districts, lowland landform use was more frequent in the nineteenth century than it was for any of the prehistoric periods. Nearly 60 percent (n=16) of nineteenth-early twentieth century habitation sites on the Andrew Pickens Ranger District occurred on terraces or toe slopes, most of which were adjacent to stream floodplains, rather than to river floodplains (Table VI.28). Consequently, this settlement pattern is reflected in distances to water sources. Nineteenth century habitation sites were located closer to both potential and permanent water sources on average than any prehistoric period on the Andrew Pickens Ranger District, except for Mississippian period sites in regard to distance from permanent water sources (Tables VI.4 and VI.5). This differential pattern of land use between the historic and prehistoric periods is converse of the diachronic pattern observed for the two Piedmont ranger districts on the Sumter National Forest.

For the two Piedmont ranger districts, inter-riverine upland use was pervasive, with little use of inter-riverine or riverine lowlands. Habitation close to cultivated fields was desired, and cultivated fields expanded into the uplands to host the explosion of cotton farming (among other crops) in the nineteenth century. Clearing the inter-riverine uplands of forest land for cultivation is reflected in Delcourt and Delcourt's (1997:1012) study. Sedimentation rates in bottomlands increased from 0.004 cm/year prior to 1830 to 0.086 cm/year between 1830 and 1900 due to extensive erosion of the uplands. Increased upland use is reflected on the Enoree and Long Cane Ranger Districts site distribution data (Table VI.27).

Few early nineteenth century habitation sites are located within 300 m of a major stream or river on the Enoree and Long Cane Ranger Districts (Table VI.29). Only about eight percent (n=6) of all habitation sites are riverine-oriented between the two ranger districts. Between these two data sets for each Piedmont ranger district, no significant difference in site size exists (Table VI.29). Like the prior eighteenth century, the lack of difference in site size implies a lack of significant differences in activities between riverine-oriented and inter-riverine zone habitation sites. Half of the Long Cane early nineteenth century riverine-oriented sites are special-use sites, which leaves only four riverine-oriented habitation sites. One site records the remains of a bridge, another records a grist mill and the remaining two are cemeteries. The two cemeteries are located on elevated ridges high above their respective rivers. The other four riverine-oriented, early nineteenth century sites are habitation sites, as reported in Table VI.29. Three of these are reoccupied prehistoric sites. The two early nineteenth century, riverine-oriented habitation sites on the Enoree Ranger District are single component sites.

Unlike the Andrew Pickens Ranger District, there was not a strong preference for south-facing slopes in the two Piedmont ranger districts during the early nineteenth century period or the following nineteenth-early twentieth century period. This is largely because inter-riverine zone upland landforms with no slope were occupied frequently. More than one-third of nineteenth century occupations occur on landforms that register no slope (upland flats, ridge tops and knolls) on the Long Cane Ranger District (Table VI.27). For early nineteenth century occupations on the Andrew Pickens Ranger District, western and northern slopes were occupied more frequently than southern and eastern slopes. On the Enoree Ranger District, southern slopes were occupied more frequently than any other aspect, but sites located on level landforms with no aspect were most frequently occupied. By the late nineteenth-early twentieth century, occupation of landforms with no aspect jumped from ca. 27 percent in the early nineteenth century period to ca. 43 percent in the nineteenth-early twentieth century period (see Appendix A for details).

Table VI.29. Comparison of Early Nineteenth Century Euro-American Habitation Site Size between Riverine-oriented and Inter-riverine Zone Sites on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
Areal values (m^2)	Within 300 m of major drainage (n=2)	Beyond 300 m of a major drainage (n=53)	Within 300 m of a major drainage (n=4)	Beyond 300 m of a major drainage (n=46)
Average size	1,841	1,887	3,388	3,555
Minimum	1,533	454	2,509	312
Maximum	2,148	1,533	5,138	23,631
Standard deviation	308	876	1,238	4,456
P-value*	0.91		0.88	

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

The Sumter National Forest area experienced a population explosion during the nineteenth-early twentieth century period. The site database records seven times as many nineteenth-early

twentieth century habitation sites (n=8,76) as early nineteenth century habitation sites (n=126) between the two Piedmont ranger districts. The nineteenth-early twentieth century temporal frame largely includes habitation sites dating to after the Civil War, but a considerable number of pre-Civil War sites likely also are included. This presumption is based upon a substantial increase in habitation site size from the early nineteenth century to the nineteenth-early twentieth century (compare Tables VI.29 and VI.30), suggesting that plantation sites and large farmsteads probably comprise an effective proportion of the sample. Though many of these plantations and large farmsteads were established prior to 1850, most also were occupied through the end of the nineteenth century as postbellum tenant plantations. Artifacts collected from these sites during survey phase investigations likely identified them as nineteenth-early twentieth century sites. Consequently, the site data set will represent both ante- and postbellum occupations and alter observable changes in land use and habitation site size across the ante/postbellum transition.

Table VI.30. Comparison of Nineteenth-Early Twentieth Century Habitation Site Size between Riverine-oriented and Inter-riverine Zone Sites on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
Areal values (m^2)	Within 300 m of major drainage (n=19)	Beyond 300 m of a major drainage (n=363)	Within 300 m of a major drainage (n=9)	Beyond 300 m of a major drainage (n=361)
Average size	5,060	3,092	4,823	3,598
Minimum	458	320	404	273
Maximum	26,667	59,946	33,280	272,709
Standard deviation	6,972	5,028	10,070	14,592
P-value*	0.25		0.74	

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

In spite of the probable inclusion of many antebellum plantations and farmsteads in the nineteenth-early twentieth century period sample, comparing site size between riverine and inter-riverine zone sites in the Piedmont ranger districts illustrates dispersal into smaller farmsteads and tenant sites, as well as non-farm related residences, in the inter-riverine zone. Differences in site size between riverine-oriented and inter-riverine zone sites are not statistically significant (Table VI.30), but for both Piedmont ranger districts, upland-oriented site sizes are smaller on average, especially on the Enoree Ranger District. The shift toward greater inter-riverine zone use is further emphasized by increased use of upland landforms (Table VI.27) and statistically significant increases in distances from both potential and permanent water sources (Table VI.31). The difference between the two historic periods is more pronounced on the Long Cane Ranger District.

Increased inter-riverine zone, upland landform use continued into the first half of the twentieth century for all Sumter National Forest ranger districts. On the Andrew Pickens Ranger District, which displayed greater lowland landform use than upland landform use in the nineteenth-early twentieth centuries, occupation of upland landforms surpassed occupation of lowland landforms (Table VI.32). The frequency of historic habitation sites located closest to first order

drainages increased more than 30 percent. Though upland landform use increased significantly, average distance from potential water sources actually decreased slightly. This lack of observable change is largely due to habitation sites moving from toe slope occupations to ridge nose occupations, where settlement is relatively higher in elevation but still close to adjacent streams dissecting the ridge slopes. Twentieth century habitation sites are elevated one meter higher above potential water sources and more than three meters above permanent water sources on average compared to nineteenth-early twentieth century habitation sites (Table VI.32).

Table VI.31. Comparison of Upland Use Frequency between Early Nineteenth Century and Nineteenth-Early Twentieth Century Habitation Sites on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
	Early 19th Century (n=56)	19th-20th Century (n=129)	Early 19th Century (n=51)	19th-20th Century (n=145)
Percent Upland Landform Use	96.4	96.9	90.2	93.8
Mean Distance from Potential Water	101.4 m	103.7 m	100.3 m	117.9 m
Mean Distance from Permanent Water	252.0 m	263.2 m	209.3 m	249.9 m

Table VI.32. Comparison of Land Use between Nineteenth-Early Twentieth and Twentieth Century Habitation Sites on the Andrew Pickens Ranger District.

	19th -20th Century (n=27)	20th Century (n=13)
Upland Landform Use	40.7%	69.2%
First Order Drainages as Closest Potential Water Source	51.9%	84.6%
Mean Distance to Potential Water Source	55.4 m	53.8 m
Mean Distance to Permanent Water Source	109.1 m	153.5 m
Mean Elevation above Potential Water Source	6.8 m	7.8 m
Mean Elevation above Permanent Water Source	12.1 m	15.2 m

The proportion of riverine-oriented, Euro/African American habitation sites on the Andrew Pickens Ranger District remained about the same (ca. 31%) from the nineteenth-early twentieth century to the early-mid twentieth century period. Differences in site size between riverine-oriented and inter-riverine zone habitation sites for both of these time periods are evident. Average size of riverine-oriented habitation sites is larger (but not significantly) than inter-riverine zone habitation sites in the nineteenth-early twentieth century (Table VI.33). Conversely, inter-riverine zone habitation sites are much larger than riverine-oriented sites on average during the early-mid twentieth century period.

Table VI.33. Comparison of Riverine-oriented and Inter-riverine Zone Habitation Sites during the Nineteenth-Early Twentieth and Early-Mid Twentieth Centuries on the Andrew Pickens Ranger District.

	19th-20th Century		Early-Mid 20th Century	
Areal values (m^2)	Within 300 m of major drainage (n=9)	Beyond 300 m of a major drainage (n=19)	Within 300 m of a major drainage (n=4)	Beyond 300 m of a major drainage (n=9)
Average size	7,706	2,872	1,724	3,899
Minimum	1,105	826	890	1,467
Maximum	36,799	12,324	2,206	7,693
Standard deviation	12,091	3,162	518	2,003
P-value*	0.30		0.02	

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

The difference in habitation site size between riverine-oriented and inter-riverine zone sites was significant in the early-mid twentieth century. Though the change in geographic orientation suggests a shift in economic orientation, it does not suggest that larger riverine-oriented farmsteads were abandoned. It likely means that new residences in the early twentieth century were located in the inter-riverine zone and not necessarily focused upon surplus agricultural production as a primary means of economic production. Many of these residences probably had gardens, and some perhaps were subsistence farmers, but the majority were probably engaged in a variety of economic activities.

Similarly, early-mid twentieth century habitation site distribution in the two Sumter National Forest Piedmont ranger districts illustrates a stronger inclination toward inter-riverine upland landform use (Table VI.34) and a decrease in site size in both riverine an inter-riverine contexts (Table VI.35 and Figures VI.8 and VI.9). Unlike the Andrew Pickens Ranger District, this trend was initiated during the later part of the nineteenth century. The early-mid twentieth century in the Piedmont exaggerates a trend toward smaller residences scattered throughout the inter-riverine zone.

Table VI.34. Comparison of Upland Use Frequency between Early Nineteenth Century and Nineteenth-Early Twentieth Century Habitation Sites on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
	19th-20th Century (n=129)	**Early-mid 20th Century (n=67)**	**19th-20th Century (n=145)**	**Early-mid 20th Century (n=67)**
Percent Upland Landform Use	96.9	98.5	93.8	97.0
Mean Distance from Potential Water	103.7 m	119.3	117.9 m	128.6 m
Mean Distance from Permanent Water	263.2 m	271.0	249.9 m	249.0 m

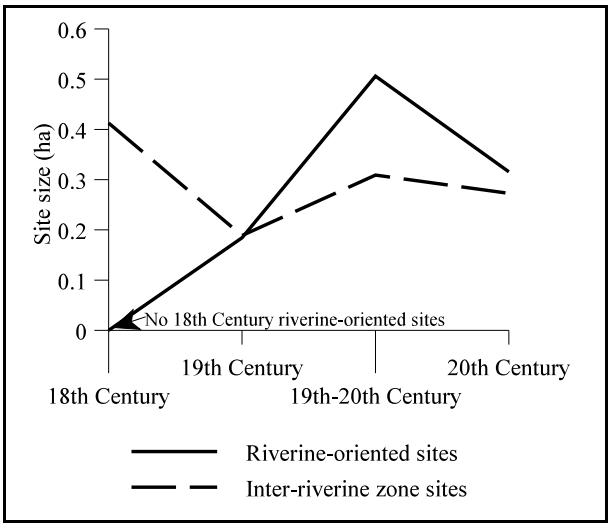

Figure VI.8. Average Euro/African American Historic Site Size Through Time on the Enoree Ranger District.

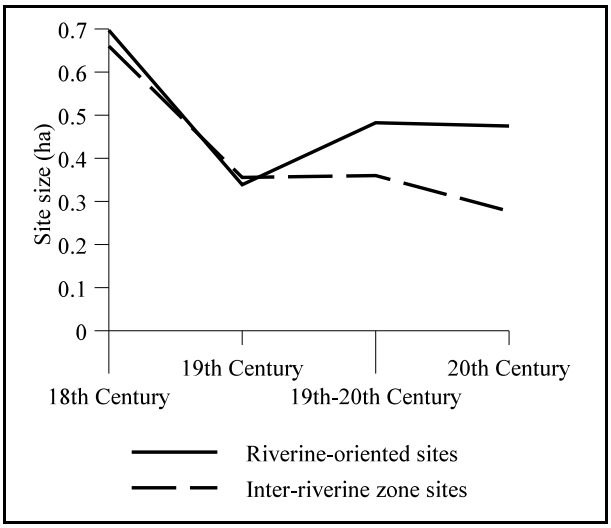

Figure VI.9. Average Euro/African American Historic Site Size Through Time on the Long Cane Ranger District.

Table VI.35. Comparison of Early-mid Twentieth Century Habitation Site Size between Riverine-oriented and Inter-riverine Zone Sites on the Enoree and Long Cane Ranger Districts.

	Enoree Ranger District		Long Cane Ranger District	
Areal values (m^2)	Within 300 m of major drainage (n=3)	Beyond 300 m of a major drainage (n=164)	Within 300 m of a major drainage (n=4)	Beyond 300 m of a major drainage (n=177)
Average size	3,157	2,728	4,748	2,773
Minimum	1,277	336	2,634	1,277
Maximum	6,632	33,583	9,566	1,564
Standard deviation	2,460	3,644	2,815	2,949
P-value*	0.83		0.31	

*Probability value of a two-tailed *t-test* assuming unequal variances with alpha=0.05. As in Appendix A, a significant difference between the means of the two data sets exists if $P \leq 0.20$. In other words, if there is a 20 percent or less probability that the difference between two data sets occurs by chance, then the difference is considered significant.

Far fewer residences were established within the riverine zone during the early-mid twentieth century compared to previous historic periods. The decrease was marginal for the Enoree Ranger District, but a decrease was more substantial on the Long Cane Ranger District, dropping from 6.0 to 2.2 percent over the same temporal transition. Also, it is during the early-mid twentieth century that differences in site size between riverine-oriented and inter-riverine habitation sites is nearly statistically significant, with riverine-oriented sites larger on average (Table VI.35).

Throughout the Euro/African American period in the Piedmont Province habitation site size changed, and changes in site size appear to correlate positively with general prosperity in the region. In both Piedmont ranger districts average site size decreased in riverine (only Long Cane Ranger District) and inter-riverine contexts from the late eighteenth century to the early nineteenth century. This is in large part due to a relatively high proportion of early plantations among the relatively few known eighteenth century sites. With the increase in population in the early nineteenth century came many more people who farmed the area but were not necessarily plantation owners. The influx of new, smaller-scale farmers produced more numerous, smaller habitation sites.

Site size increased substantially in both riverine and inter-riverine contexts, much more so on the Enoree Ranger District, during the nineteenth-early twentieth century period. As indicated above, an effective proportion of these sites reflect establishment of larger farmsteads and plantations during the early part of the nineteenth century that had continuous occupation through the late nineteenth and early twentieth centuries. Thus, the larger average size of nineteenth-early twentieth century sites occurred when the South Carolina Piedmont was most prosperous, with farmlands consolidated among plantations and large farmsteads.

Notwithstanding, larger site size during the later nineteenth century might be influenced by archeological visibility. Technological change in the later half of the nineteenth century made a considerable number of utilitarian items, such as cans, bottles, nails, and other building materials, available to local people. The sheer increase in the number of items per household could increase the visible size of an archeological site. Later historic period sites would also be better preserved, so outbuildings are more archeologically visible, further increasing site size.

The center of cotton production in the United States around 1821 extended from the eastern Georgia Piedmont to the central South Carolina Piedmont (Richter and Markewitz 2001:121). Such prosperity would have attracted more people to the South Carolina Piedmont and more farmsteads and plantations would have been established soon after 1821, even though soil fertility in the region was rapidly declining. Thus, new farm construction would have accelerated for a short period, as many likely opted to move west in search of available fertile land for cotton production. Declines in cotton production by the middle nineteenth century already were being felt when the Civil War began, and prosperity surely declined during and after the Civil War. Soil conservation and fertilization efforts also began soon after the Civil War (Richter and Markewitz 2001:122-123). Even though cotton production rebounded at the end of the nineteenth century, prosperity was limited to fewer large landholders. The majority of the people who actually worked the land as tenant farmers and sharecroppers were extremely poor. Thus, economic prosperity was limited.

Not until the early-mid twentieth century is there archeological evidence for decreases in residential site size in the South Carolina Piedmont. The reduction in size was accompanied by an increase in inter-riverine zone upland landform use. Greater expansion and land clearing in this zone, occupation of places that had no prior evidence of occupation in both the prehistoric or earlier historic periods (Figures VI.10 and VI.11), created even greater erosion problems in the South Carolina Piedmont. Riverine-oriented residential site size decreased sharply on the Enoree Ranger

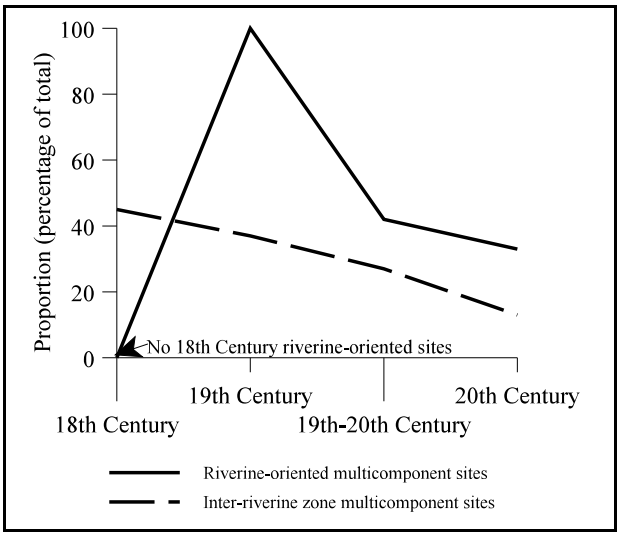

Figure VI. 10. Proportion of Euro/African American Residential Sites with Prehistoric Components on the Enoree Ranger District.

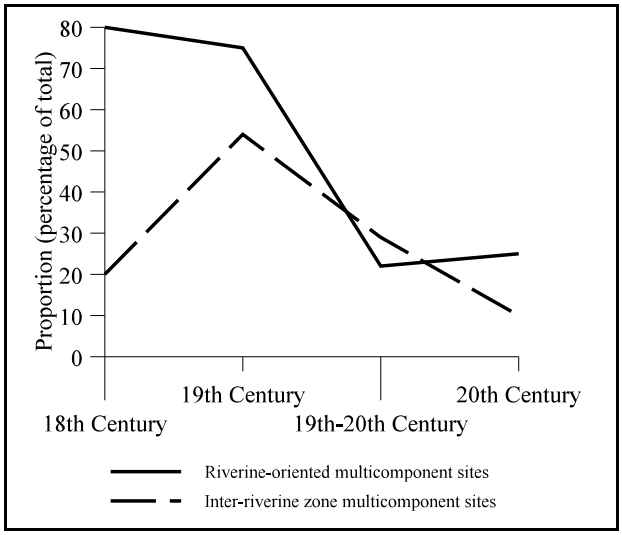

Figure VI. 11. Proportion of Euro/African American Residential Sites with Prehistoric Components on the Long Cane Ranger District.

District (Figure VI.8), but only slightly on the Long Cane Ranger District (Figure VI.9), suggesting that river and large stream floodplains became less attractive for large scale farming pursuits. This was in part due to the most productive floodplains already being farmed since the nineteenth century, but also because flooding was probably far more frequent in stream and river valleys due to sediment-choked stream channels. Periodic floods are desirable for renewed soil fertility, but frequent and unpredictable floods are more destructive than productive.

New roads also strongly influenced residential locations. Construction of new roads that followed upland ridges began in the late eighteenth century. By the late nineteenth century upland ridge roads had a major impact on house locations. As more roads were added along upland ridges through the nineteenth century, more houses were built along these roads in upland areas for transportation access. With the advent of the automobile, new houses were constructed on or near roadways.

A collection of archival sources by Orser (1988) already documents the decline in residential site size throughout the South Carolina Piedmont. The site distribution data presented through time for the Sumter National Forest illustrates this decline. The proportion of owner-operated farms declined from 1880 to 1900, but remained constant through 1925 (Orser 1988:61) across the Piedmont. Ownership in Oconee County remained considerably higher (54.7%) from 1880-1890 compared to all other Piedmont counties (Orser 1988:60). During the period of 1880-1925 average farm size continually decreased (Orser 1988:63) along with a decrease in the proportion of owner-operated farms and a proportional increase in sharecropper and cash renter residences (Orser 1988:61). Since owner-operated farms were consistently larger than farms tended by sharecroppers and cash renters (Orser 1988:64), the reduction in residential site size on the Sumter National Forest Piedmont ranger districts indirectly documents the relative decline in owner-operated farms.

Interestingly, average residential site size for Euro/African American habitation sites located beyond 300 m of a major drainage on the Andrew Pickens Ranger District increased from the

nineteenth-early twentieth century period to the early-to-mid twentieth century period (Table VI.33), as opposed to decreased residential site size on the Enoree and Long Cane Ranger Districts during the same period (Table VI.33). The increase in residential site size on the Andrew Pickens Ranger District, which consists of a single county (Oconee), may reflect the relatively higher proportion of farm ownership reported for Oconee County from 1880-1890. It was not until 1920 that the proportion of farms worked by sharecroppers grew to more than one-half of all farms in Oconee County (Orser 1988:62).

The distribution of Euro/African American period residential sites on the Sumter National Forest displays opportunistic land use in regard to agricultural production. The best cultivable tracts were relatively large, productive floodplains bordering rivers and large creeks. Earlier farmers selected these bottomlands first, occupying well-drained landforms like toe slopes or terraces adjacent to these floodplains. These places also were desirable places for people in the previous prehistoric period. Eighteenth century sites show the highest frequency of reoccupation (Figures VI.10 and VI.11). Occupation of the most desirable landforms, or former settlement locations, especially in the inter-riverine zone on the Long Cane Ranger District (Figure VI.11), grew in frequency in the early nineteenth century. Though residential site size grew in the nineteenth-early twentieth century period, inter-riverine zone upland landform use also grew considerably. Consequently, many locations that had never before been occupied were now hosting later nineteenth century residences (Figures VI.10 and VI.11). Finally, in the early-mid twentieth century period, residential site size decreased as inter-riverine zone upland landform use continued to expand along upland ridge roadways until the federal government began purchasing property in the late 1920s and 1930s.

Non-Habitation Historic Site Distribution

Among the variety of non-residential, special-activity historic period sites (see Appendix A), only a few of these site types are numerous enough to generalize about their geographic distributions. These site types include mineral prospecting and mining sites, liquor stills, cemeteries and granite quarries that were recorded through 2000.

Mineral (gold) prospecting and mining sites (n=10) on the Andrew Pickens Ranger District are more complex than those recorded in the two Piedmont ranger districts. Six of the ten mineral prospecting/mining sites are within a 1200 m radius around Moody, Cantrell and White Oak Creeks. Several have extensive tunnels (adits) (38OC275, 38OC276 and 38OC277) and some also show evidence of smelting at the mining site (38OC277 and 38OC382). Mineral prospecting and mining sites are located in both upland and lowland situations. On upland landforms they are typically found on slopes (n=3). One is located on a saddle. In lowland situations three are recorded on toe slopes and three more are located in drainages. All three that are located in drainages are gold mines.

On the Enoree Ranger District mineral prospecting and mining sites (n=8) mostly occur on knolls. Only two were not located on knolls; one was on a ridge side slope and the other was on a saddle. Though it can not be presently confirmed, these knolls likely have quartz outcrops, which would be more resistant to weathering (leaving a knoll) and also are favored locations for prospecting. Gold often is found in association with quartz veins. Among all eight mineral prospecting sites, at least one historic period residence was within 500 m.

Mineral prospecting and mining sites on the Long Cane Ranger District are more numerous (n=36) and also are more evenly distributed among different types of landforms. These sites are distributed among ridge noses (n=12), steep (>10%) ridge slopes (n=13) and knolls (n=10). One site is located on the edge of a saddle. Those located on steep ridge slopes took advantage of the natural grade to access rock outcrops, which were probably quartz veins. Similar to the Enoree Ranger District, residential sites were typically within 500 m of the prospecting or mining site.

Liquor stills are invariably located near flowing water, but two of nine stills recorded on the Enoree Ranger District were located about 60 m from water. No liquor stills were recorded on streams greater than rank order three and seven of nine were located on first or second order streams. One of these appears to be a flowing spring head. All stills have at least one historic residence within 500 m. There were two pairs of stills identified on the Enoree Ranger District. One pair is about 350 m apart on the same stream. The other pair is separated by about 90 m on the same stream. Both of these pairs were surrounded by several historic residential sites on the adjacent slopes. Only one liquor still was recorded on the Long Cane Ranger District through 2000, and this particular still was located adjacent to a first order stream. Three liquor stills have been recorded on the Andrew Pickens Ranger District through 2000. All three are located on second order streams.

A total of six cemeteries have been recorded on the Andrew Pickens Ranger District through 2002. Four of these were recorded after 2000, so only two are plotted on the GIS site database layer. Both are located on broad, elevated ridge noses. Recorded cemeteries are far more numerous on the Enoree (n=67) and Long Cane (n=66) Ranger Districts. Most (90%) of these date to the nineteenth and nineteenth-early twentieth centuries. Five date to the late eighteenth-early nineteenth century on the Enoree Ranger District and six date to the same period on the Long Cane Ranger District. Most cemeteries are "stand-alone," where there are no houses or churches recorded nearby. Cemeteries typically are located on knolls and saddles along main ridges and adjacent to roads that follow these ridges. Older cemeteries are more likely to be found on the dissected lower ridges, typically on the crests of ridge noses but sometimes on the ridge side slopes. Popular locations at lower elevations are well-elevated ridge noses situated above large waterways.

Granite quarries on the Enoree Ranger District (n=5) are generally small and are distributed among knolls (n=2), saddles (n=1), toe slopes (n=1) and ridge side slopes (n=1). The largest quarry was located on a toe slope. One of the two quarries located on a knoll is about 850 m from a church and cemetery and the two locations are connected by a dirt road. The quarry may have specifically supplied the church with building stones and head and foot stones for the cemetery.

Among the four granite quarries recorded on the Long Cane Ranger District, one dates to the eighteenth century and is located on a ridge nose outside of Forest Service property. It lies on the northern edge of the current community of Bordeaux and is likely the quarry used for structures for the historic community of New Bordeaux. A small cluster of eighteenth century sites is in the vicinity of the granite quarry. Two granite quarries date to the nineteenth century period on the Long Cane Ranger District. One is particularly small, located on a toe slope and is surrounded by five nineteenth-early twentieth century houses and farms. The other is moderately large and is situated on a ridge nose crest. Two small early-mid twentieth century residential sites are located downslope about 200 m. Approximately one kilometer east is a cluster of eleven houses and farms dating to the

nineteenth or nineteenth-early twentieth centuries. One cemetery dating to the nineteenth century is among the cluster of residences.

Two named granite quarries, Persimmon Mountain Rock and Winding Stairs Rock, have been recorded on the Andrew Pickens Ranger District. Winding Stairs Rock quarry was used by the CCC in the 1930s to produce gravel for road construction in the region.

Summary

Broad land use patterns are observable in the Sumter National Forest, in spite of deficiencies in the database described above and in Appendix A, among other shortcomings that will be covered in the following chapter. Among three broad archeological periods, the Archaic, Woodland-Mississippian and Historic, significant differences exist in the way people used the landscape. The Archaic period demonstrated effective use of upland landscapes, but not to the complete exclusion of bottomland landscapes. Rather, the widespread distribution of archeological sites from this period probably reveals a resource base that incorporated upland and lowland landscapes more or less equally. The Middle Archaic period would be the hallmark of this type of generalized land use. The terminal (ceramic) Late Archaic period site distribution reveals characteristics of a transition toward an emphasis upon lowland landscape exploitation. Unlike the following Early Woodland period, there is evidence of aggregation nodes, or perhaps settlement locations with a suite of different activities as opposed to inter-riverine zone settlements, at specific riverine-oriented locations. This new pattern of settlement-subsistence during the terminal Archaic period was only evident on the Long Cane Ranger District and not on Enoree Ranger District.

Site distribution in the Woodland period demonstrated a more comprehensive shift toward lowland landscapes. Lowland settlement was not necessarily riverine focused; smaller river tributaries actually constituted the primary focus of settlement. Thus, even though site distribution data indicated increases in lowland landform occupation and a decrease in distance to water sources, the overall distribution of settlements was still inter-riverine, rather than riverine. Sites on the Enoree Ranger District did not demonstrate this clear shift in settlement choice until the Middle Woodland period. Regionally, increases in lowland landform occupation correlated positively with increases in ceramic use for both Piedmont ranger districts, regardless of archeological period. The Mississippian period revealed a return to larger riverine-oriented occupations with the addition of smaller inter-riverine, upland-oriented occupations. This final prehistoric period demonstrated a clear dichotomy of sites, simply based upon site size, that were located in respective upland or lowland geographic landscapes. The Cherokee period on the Andrew Pickens Ranger District continued the Mississippian settlement-subsistence pattern with even greater emphasis upon intensive riverine landscape use.

The distribution of Euro/African American habitation sites begins where the late prehistoric period left off, such that eighteenth century sites were more likely to be located in lowland landscape situations than the following historic periods. Early nineteenth century habitation sites expanded rapidly into the surrounding inter-riverine zone as the more fertile bottomlands quickly became less available. Expansion into the uplands continued throughout the nineteenth century and was most pervasive in the early-mid twentieth century, when residential site size notably decreased.

Chapter VII
Site Predictive Modeling

Site predictive modeling provides environmental parameters within which archeological sites are found. Collectively, predicting site location is based upon prior cultural resources surveys. Four site predictive models are presented here. The first is House and Ballenger's (1976) survey of the I-77 corridor through the South Carolina Piedmont. Results of this survey have provided the basis upon which cultural resources surveys in the South Carolina Piedmont have been designed over the past two-and-half decades. The second and third models were designed by the Forest Service and are in use on the Sumter National Forest Piedmont ranger districts (Enoree and Long Cane) and the Andrews Pickens Ranger District, respectively. These two site predictive models guide survey intensity on the Sumter National Forest. The fourth site predictive model, developed here and called the Sumter Site Database Model, is based upon environmental parameter data collected from a sample of sites on the Sumter National Forest.

The House and Ballenger Site Location Model

House and Ballenger (1976:103-117) provide a statistical analyses of site location in the inter-riverine Piedmont of South Carolina. Statistical tests were run (chi-square and Kolmogorov-Smirnov) comparing site location and randomly selected locations and between distributions of particular site types, e.g., habitation sites against lithic extraction sites. Within a half-mile catchment area (hypothetical extractive zone) surrounding site and randomly selected locations, they compared the amount of bottomland area and the number of rank 1 and rank 2 streams around these locations. They found no significant difference in the amount of bottomland area or the number of lower order streams between site locations and randomly selected locations. Furthermore, they found no significant differences between site types in regard to these environmental variables. These test results prompted four conclusions (House and Ballenger 1976:110):

1) Hypotheses that determined which environmental variables to measure were incorrect and the wrong variables were selected.

2) The environment is fairly homogeneous and variability cannot be detected with the methods used.

3) There was not enough variability in the site sample; there were especially not enough good, unambiguous habitation sites.

4) The sample sizes were not large enough.

In spite of the lack of statistically significant site patterning of the inter-riverine Piedmont in the I-77 corridor, frequency distributions of sites among several environmental variables were documented but not subjected to statistical analyses (Table VII.1). The attributes considered were topographic position, slope direction and magnitude, and distance to permanent water (House and

Ballenger 1976:87). Selection of these variables was based upon their ability to inform upon site function. For instance in regard to topographic position, sites located on ridge tops may mark trail routes for both humans and game animals. Sites on southern exposures with relatively low slope magnitude were more likely to be habitation sites, and sites located close to permanent water probably represent whole kin groups engaged in a number of household tasks. Such settlements would require a plentiful and reliable water source. Special-use sites (extractive locations) would involve smaller groups of people and thus would not require locating close to permanent water (House and Ballenger 1976:87).

Table VII.1. Summary of Environmental Parameters Regarding Site Location on the House and Ballenger (1976) I-77 Survey.

Distance to Permanent Water* (n=51)		**Topographic Situation** (n=51)				
Mean	Range	Ridge top	Steeper hillside	Gently sloping hillside	Elevated area by stream	Low Creek Terrace
181 m	12-790 m	41%	18%	22%	18%	2%

Slope Percent (n=50)		**Slope Face** (n=51)								
Mean	Range	None	N	NE	E	SE	S	SW	W	NW
4%	0-15%	29%	18%	2%	6%	6%	25%	8%	4%	2%

*Permanent water is not defined by House and Ballenger (1976). It is assumed that it refers to third order and higher streams.

House and Ballenger (1976:103, Table 8) found that the majority of the 51 sites recorded on the I-77 corridor survey were located on ridge tops (41%), followed by "gently sloping hillsides" (22%). "Steeper hillsides" and "elevated areas by streams" contained equal numbers of sites (18%), and one site (2%) was found on a low creek terrace. Definitions for landform types were not provided. House and Ballenger (1976:104, Table 9) also found that sites tended to occur on southern exposures more often than other directions, but those found on level or nearly level landforms were most numerous. Among 51 sites, 25 percent of sites were on southern exposures and 29 percent were on level landforms.

A summary table for distances to permanent water sources was not provided, but Appendix B of House and Ballenger (1976) reports these figures for all sites. The mean distance of sites from permanent water sources calculated from Appendix B is 181 m. The range is 12 m to 790 m. Slope percent is also reported in Appendix B and each site records a single value or a slope range, e.g., 0-5% slope. The median value for each site with a reported slope percent range was used for calculating the mean slope percent for 50 sites recorded in the I-77 corridor. The slope percent for one site was recorded as "variable." The average landform slope among these 50 sites is 4 percent with a range of 0-15 percent.

The environmental parameters of selected variables regarding site location includes a broad range of landscape situations with tendencies toward particular environmental aspects, e.g., relatively level landforms, southern exposures and within 200 m of a permanent water source. House and Ballenger (1976:103) cautioned that creek side occupation (bottomland) in the inter-riverine zone

is likely under represented due to a significant amount of historic alluvium that covered potential site locations. The I-77 survey relied upon inspection of exposed surfaces for site identification. Thus, site identification would be biased toward upland landforms because of thin topsoil and a greater amount of surface disturbance from more frequent contemporary use.

Sumter National Forest Site Predictive Models

The Sumter National Forest uses two site predictive models. One is designed for the Piedmont Enoree and Long Cane Ranger Districts (Piedmont Province) and the other is designed for the Andrew Pickens Ranger District (Blue Ridge Province).

The Piedmont Site Predictive Model (Bates 1991t:3-4)

Prehistoric sites in the Piedmont are most often located on ridge tops, crests of ridge noses, toe slopes, saddles, knolls or low slope areas adjacent to surface water. Prehistoric sites are also often located in the vicinity of lithic raw material sources, regardless of slope or proximity to water. Piedmont historic sites are most often found on ridge tops, noses, or knolls. House sites are often adjacent to old road beds which usually follow ridge crests. Cemeteries are usually located on ridge tops or knolls and are usually in association with nearby churches or house sites.

Survey areas in the Piedmont of the Sumter national Forest may be divided into three geographic zones. These are:

Zone I – broad floodplains and larger drainage bottoms;
Zone II – Upland areas of low topographic relief, including areas at least 100 meters across with slopes of less than 10 percent; and
Zone III – areas of high relief containing slopes greater than 10 percent and well defined ridges and drainages.

The probability of historic or prehistoric sites being located in these areas is as follows:

<u>High Probability</u>
Zone I – Elevated areas within a floodplain including old levees and ridge partially buried by alluvium. Fish traps, historic dams and mills are often located on shoals of major creeks and rivers.

Zones II and III – All ridge tops, noses, saddles and crests and all well-drained low slope areas within 150 meters of the nearest water source or areas within 150 meters of Zone I. Areas within 50 meters of old road beds or lithic raw material sources. Locations of former buildings and/or known previously recorded sites identified through archival research.

<u>Moderate Probability</u>
Zone I – Broad floodplains or bottoms along major creeks and rivers.

Zones II and III – Lower slope and mid slope areas with less than 10 percent slopes more than 150 meters from water. In Zone III these are less than 100 meters across.

Low Probability

Zone I – Active floodplains with deep alluvial deposits formed in the past 200 years, swamps, and beaver ponds. Areas obviously deposited in the past 100 years following stream channel migration. Deeply alluviated bottoms may contain deeply buried sites which can not be identified using shovel tests.

Zones II and III – Ridge side slopes with over 10 percent slopes, erosional gullies and drains, slopes where agriculture and erosion have resulted in the loss of several feet of soil.

Figure VII.1 provides a visual representation of the Sumter National Forest Piedmont site predictive model for portions of Compartments 211 and 213 on the Long Cane Ranger District. The visual representation was produced by creating a 150 m buffer around all streams in the GIS streams layer and then eliminating portions of the buffered area that would qualify as steep slope areas (>10 percent slope) from a 1:24,000 scale perspective. The limited area designated as moderate probability on Figure VII.1 is so because the true nature of bottomland along the creek is unknown. The bottomland area is along the base of ridge side slopes, so elevated landforms are unlikely to extend to the creek margins. The bottomland appears to be a well-drained stable landform, but it may be composed of a thick deposit of recent alluvium or colluvium or it could be poorly drained. At a 1:24,000 scale this area really cannot be determined as moderate or high probability. Firm determinations only can be made in the field. Thus, areas determined as high, moderate, or low probability on 7.5' USGS topographic maps should only be used as a guide for conducting Phase I archeological surveys.

The Andrew Pickens Ranger District Site Predictive Model (Bates 1999d:4-5)

Prehistoric sites in the Southern Appalachians are most often located on well-drained low-slope areas near water or on lower ridge tops, in saddles and gaps, and on lower ridge noses. Most floodplains of any size contain prehistoric sites. Prehistoric sites are also often located in the vicinity of lithic raw material sources regardless of slope or proximity to water. Prehistoric sites may be found on steep slopes when rockshelters are present. The Andrew Pickens Ranger District does not contain rock formations that regularly form rockshelters.

Historic sites are most often found on lower slope ridge tops and ridge noses near streams. House sites are often found adjacent to cultivable bottoms, streams, and old road beds which usually follow ridge crests. Cemeteries are usually located on lower ridge tops, or are in association with a nearby church. Historic liquor stills usually occur in drains where they are hidden and adjacent to water sources.

Survey areas in the foothills and mountainous section of the Sumter National Forest may be divided into three geographic zones:

Zone I – floodplains;

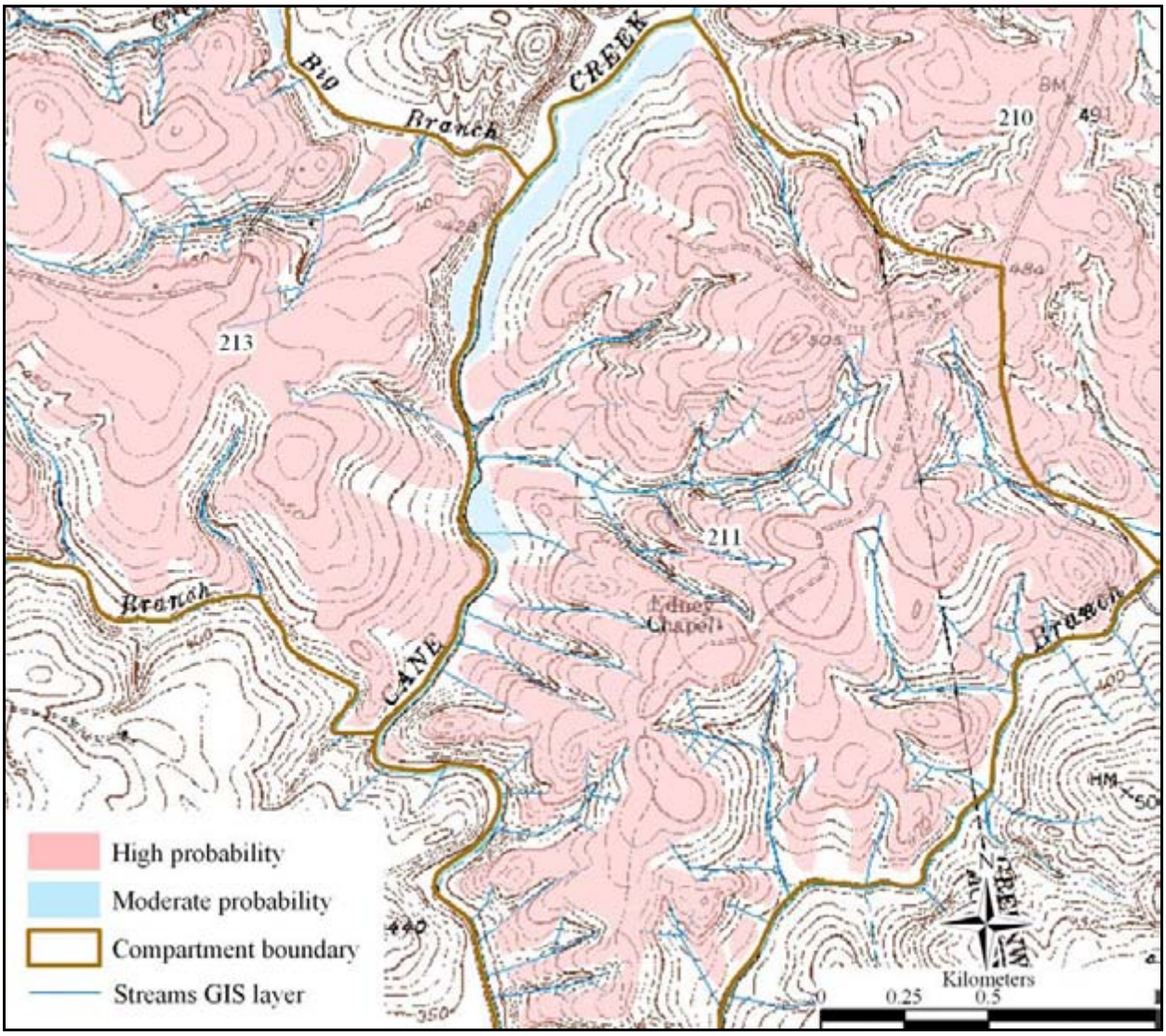

Figure VII.1. The Sumter National Forest Site Prediction Model Showing High, Moderate and Low Probability Areas on Portions of Compartments 210, 211 and 213 on the Long Cane Ranger District; Low Probability Areas are not Colored.

Zone II – lower mountain slopes; areas of low topographic relief including areas at least 100 meters across with slopes of less than 15 percent; and
Zone III – mountain slopes and crests; areas of high relief containing slopes greater than 15 percent and well-defined ridges and drainages.

The probability of historic or prehistoric sites being located in these areas is as follows:

<u>High Probability</u>
Zone I – Floodplains or bottoms over 50 meters across;

Zone II – All ridge tops, noses, saddles and crests and all well-drained low-slope areas within 150 meters of the nearest water source or areas within 150 meters of Zone I. Areas within 50

meters of old road beds or lithic raw material sources. Locations of former buildings and /or known previously recorded sites identified through archival research; and

Moderate Probability
Zones II and III – Lower slope and mid-slope areas with less than 15 percent slopes more than 150 meters from water. In Zone III these are less than 100 meters across.

Low Probability
Zone I – Active floodplains with deep alluvial deposits formed in the past 100 years, swamps and beaver ponds. Areas obviously deposited in the past 100 years following stream channel migration. Deeply alluviated bottoms may contain deep buried sites which can not be identified using shovel tests.

Zone II – Erosional gullies and drains; slopes where logging, agriculture and erosion have resulted in the loss of all topsoil.

Zone III – High mountain crests; ridge side slopes of over 15 percent slopes; erosional gullies and drains.

The Sumter Site Database Model

The Sumter Site Database Model is generated by environmental parameters determined by a sample of existing site locations on the Sumter National Forest. The sample includes all site records on the Andrew Pickens Ranger District (n=157), all sites with diagnostic artifacts on the Enoree and Long Cane Ranger Districts through the early nineteenth century, and a ca. 33 percent sample of late nineteenth-early twentieth century and twentieth century sites, respectively, through 2000. The Enoree sample comprises 600 sites and the Long Cane sample comprises 778 sites. The Enoree and Long Cane Ranger Districts site samples do not include the large body of sites identified as "Unidentified Lithic."

Each site of the sample was "visited" on USGS 7.5' topographic maps using the ArcView® GIS and measurements were made in respect to a number of environmental variables. These variables included topographic position (landform type), aspect, slope percent, distance from potential and permanent water sources, elevation above potential and permanent water sources, soil type, and absolute elevation. Definitions for landform types are mutually exclusive and are presented in Appendix A. Definitions for water source types are presented in Chapter VI (Table VI.2) and in Appendix A. Methods for data collection and inconsistencies and biases found in the site database also are presented in Appendix A. Results of these measurements produced a range of environmental parameters within which archeological sites on the Sumter National Forest are likely found.

Andrew Pickens Ranger District

Table VII.2 presents data on environmental parameters for 157 archeological sites on the Andrew Pickens Ranger District. The total sample of sites for all water variables is 133, since historic period prospecting/mining sites, railroad beds, kilns, liquor stills and cemeteries were not

included. This sample consists of all prehistoric and historic period habitation sites. The range at which sites are found from water sources is broad, 1-330 m for potential (rank 1 or higher) water sources and 1-535 m for permanent (rank 2 or higher) water sources. However, 89 percent of sites occur within 100 m of a potential water source and 81 percent of sites occur within 200 m of a permanent water source. Similarly, though sites occur on a range of 0-54 percent slopes, 81 percent of all sites (habitation and non-habitation sites) occur on slopes of 21 percent or less.

Table VII.2. Summary of Environmental Parameters within which Sites Occur on the Andrew Pickens Ranger District.

	Distance from potential water source (n=133)	Distance from permanent water source (n=133)	Elevation above potential water source (n=133)	Elevation above permanent water source (n=133)	Percent slope (n=157)	Absolute Elevation (n=157)
Mean	63.7 m	143.6 m	8.6 m	17.1 m	10.8	462.1 m
Standard Deviation	39.5 m	110.8 m	5.6 m	14.1 m	10.6	113.6 m
Minimum	1 m	1 m	1 m	1 m	0	225 m
Maximum	330 m	535 m	30 m	100 m	54	878 m

Approximately two-thirds of all sites (n=157) on the Andrew Pickens Ranger District occur on upland landforms, with ridge noses most frequently used (Table VII.3). In lowland situations, toe slopes are most frequently used. Six sites are located on drainages. Among these six sites are three prospecting/mining sites, one stone structure, one liquor still, and one historic period quarry. The distribution of prehistoric sites between upland and lowland landforms is approximately 60% on upland landforms and 40% on lowland landforms. Approximately 53 percent of all sites on the Andrew Pickens Ranger District occur on southern aspects (southeast, south and southwest).

Table VII.3. Proportion of Andrew Pickens Ranger District Sites among Landforms and Aspects.

	Topographic Position (n=157)									
	Upland Landforms						**Lowland Landforms**			
	Ridge top	Knoll	Ridge nose	Saddle	Upland slope	Upland flat	Toe slope	Terrace	Flood-plain	Drainage
	0%	6.4%	34.8%	14.6%	8.9%	0%	26.1%	5.1%	1.3%	3.8%
Aspect (n=157)	North	Northeast	East	Southeast	South	Southwest	West	North-west	None	
	2%	7.3%	6.6%	17.9%	10.6%	25.2%	6.6%	4.6%	23.2%	

Enoree Ranger District

Table VII.4 presents data on environmental parameters for 600 archeological sites on the Enoree Ranger District. The range at which sites are found from water sources is broad, 15-290 m for potential water sources and 20-1,125 m for permanent water sources. Approximately 90 percent

of sites occur within 150 m of a potential water source and 85 percent of sites occur within 350 m of a permanent water source. Similarly, though sites occur on a range of 0-46 percent slopes, 92 percent of sites occur on slopes of 11 percent or less.

Table VII.4. Summary of Environmental Parameters within which Sites Occur on the Enoree Ranger District.

	Distance from potential water source (n=600)	Distance from permanent water source (n=600)	Elevation above potential water source (n=600)	Elevation above permanent water source (n=600)	Percent slope (n=600)	Absolute Elevation (n=600)
Mean	97.7 m	223.7 m	8.9 m	16.7 m	4.1	140.1 m
Standard Deviation	45.4 m	132.5 m	5.9 m	8.8 m	4.5	22.3 m
Minimum	15 m	20 m	1 m	1 m	0	87 m
Maximum	290 m	1125 m	36 m	49 m	46	204 m

Approximately 87 percent of sites on the Enoree Ranger Districts occur on upland landforms, with ridge noses most frequently used (Table VII.3). In lowland situations, toe slopes contain sites much more often than terraces and floodplains. Approximately 38 percent of sites on the Enoree Ranger District occur on southern aspects (southeast, south and southwest). Landforms that record no slope are occupied more than twice as often as any individual aspect.

Table VII.5. Proportion of Enoree Ranger District Sites among Landforms and Aspects.

Topographic Position (n=600)									
Upland Landforms						**Lowland Landforms**			
Ridge top	Knoll	Ridge nose	Saddle	Upland slope	Upland flat	Toe slope	Terrace	Floodplain	
1.3%	23.0%	44.3%	6.8%	10.7%	1.0%	10.8%	1.8%	0.2%	
Aspect (n=600)	North	North-east	East	South-east	South	Southwest	West	North-west	None
	7.3%	7.0%	3.2%	10.7%	13.7%	13.5%	5.0%	7.0%	32.7%

Long Cane Ranger District

Table VII.6 presents data on environmental parameters for 778 archeological sites on the Long Cane Ranger District. The range at which sites are found from water sources is 10-390 m for potential water sources and 15-760 m for permanent water sources. Approximately 88 percent of sites occur within 150 m of a potential water source and 92 percent of sites occur within 350 m of a permanent water source. All sites occur on a range of 0-19 percent slopes. Approximately 91 percent of sites occur on slopes of 8 percent or less.

Approximately 70 percent of sites on the Long Cane Ranger District occur on upland landforms, with ridge noses most frequently used (Table VII.7). In lowland situations, toe slopes contain sites much more often than terraces and floodplains. Approximately 39 percent of sites on the Long Cane Ranger District occur on southern aspects (southeast, south and southwest). Landforms that record no slope are occupied more often than any individual aspect.

Table VII.6. Summary of Environmental Parameters within which Sites Occur on the Long Cane Ranger District.

	Distance from potential water source (n=778)	Distance from permanent water source (n=778)	Elevation above potential water source (n=778)	Elevation above permanent water source (n=778)	Percent slope (n=778)	Absolute Elevation (n=778)
Mean	96.1 m	172.1 m	6.1 m	10.9 m	4.0	125.1 m
Standard Deviation	51.0 m	113.2 m	4.6 m	7.7 m	3.6	27.6 m
Minimum	10 m	15 m	1 m	1 m	0	59 m
Maximum	390 m	760 m	64 m	7.9 m	19	253 m

Table VII.7. Proportion of Enoree Ranger District Sites among Landforms and Aspects.

Topographic Position (n=778)									
Upland Landforms						**Lowland Landforms**			
Ridge top	Knoll	Ridge nose	Saddle	Upland slope	Upland flat	Toe slope	Terrace	Floodplain	
1.0%	12.6%	42.0%	5.7%	6.6%	1.9%	25.6%	4.2%	0.4%	
Aspect (n=778)	North	North-east	East	South-east	South	Southwest	West	North-west	None
	5.7%	6.4%	7.3%	9.5%	11.6%	17.4%	9.4%	9.0%	23.8%

Figure VII.2 shows areas that are likely to contain archeological sites (shaded red) in portions of Compartment 210, 211 and 213 on the Long Cane Ranger District. The shaded area was determined by distances from water sources, percent slope and topographic position, using parameters determined by approximately 90 percent of all sites in the sample of 778 sites on the Long Cane Ranger District. The Sumter Site Database Model site predictive map only designates areas of site potential or no site potential, while the Sumter National Forest Piedmont Site Predictive Model (Bates 1999d:4-5) includes moderate probability areas for site potential. The only difference between the two site predictive maps is that areas shaded blue in Figure VII.1, designating moderate probability areas for the Sumter National Forest Piedmont Site Predictive model, are shaded red in the Sumter Site Database Model (Figure VII.2), thus supporting the effective utility of the Sumter National Forest Piedmont Site Predictive Model.

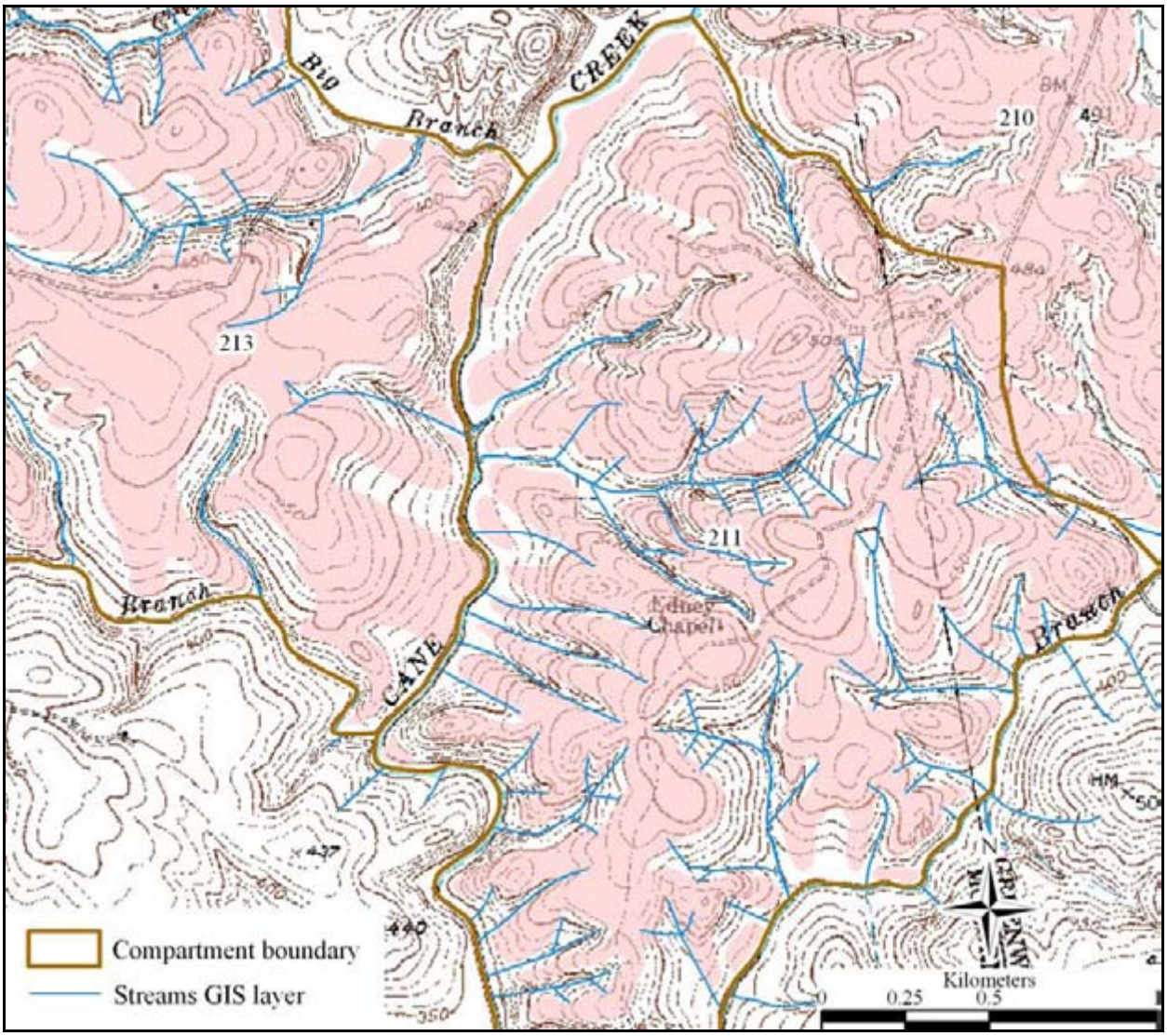

Figure VII.2. Selected Areas (light red) that are Likely to Contain Sites Based Upon ca. 90% of Known Site Location Data in Respect to Topographic Position, Slope Magnitude and Distance from Water in Portions of Compartment 210, 211 and 213 on the Long Cane Ranger District.

Chapter VIII
Research Issues

Archeological survey, excavation reports, and culture histories have been produced for decades for the South Carolina Piedmont and, to a lesser extent, the South Carolina Mountains. Some writers have expressed research questions and directions for future research. These range from very specific questions concerning certain aspects of a single cultural period, or a certain site type, or even aspects of an individual site, to extremely broad questions concerning the preservation status of sites, the research potential of sites, problems in regional cultural chronology and modeling of human behavior through time as reflected in site distributions. Thus, they range from particularistic, which usually can be directly addressed with a limited amount of archeological data on hand and provide specific bits of information, to broadly general, which require large amounts of data and broad overviews to discern anthropological patterns in human behavior over time.

A review of existing research questions and issues reveals that few comprehensive sets exist for the Piedmont and mountainous sections of South Carolina. The draft overview for the Sumter National Forest (Anderson et al. 1991) was one very pertinent source, but the discussion on research issues was limited. The seminal survey report on the I-77 corridor in the lower Piedmont just east of the Enoree Ranger District presented in-depth discussion of site location modeling and research issues relating to mostly upland Piedmont sites (House and Ballenger 1976). The focus was prehistoric site location in regard to various environmental variables (mainly site size and distance from streams) and lithic procurement strategies. Following this work, the excavation of one Piedmont upland lithic scatter (Windy Ridge), provided more research questions (actually hypotheses and test implications), principally regarding site function and the question of whether this site was used for habitation or a special extractive activity (House and Wogaman 1978).

The proposed Laurens-Anderson connector survey, located west of the Enoree Ranger District and north of the Long Cane Ranger District, presented and addressed a variety of research issues, mainly dealing with upland versus riverine land use over time (Goodyear et al. 1979). This report also dealt with modeling site location using environmental variables (such as slope, aspect, stream rank) and discussed several "problem domains," including assemblage variability, internal site structure, quartz procurement, effects of erosion on sites and various issues related to particular cultural periods. Together, these three works presented a sound, still valid set of research issues and discussion of site location modeling. These studies have been very useful for the present document primarily because they dealt with upland, inter-riverine sites and settings, which applies to the vast majority of the Sumter National Forest.

Until quite recently, comparable analysis and research issue development in the Piedmont (especially the uplands) outside of the Savannah River valley has been minimal. A diverse and comprehensive suite of research issues was presented in many volumes of archeological and historical research conducted by many entities prior to construction of the Richard B. Russell Dam and Lake, located on the Savannah River between Lake Hartwell and Lake Thurmond. This body of research and most of the research issues were summarized by Anderson and Joseph (1988).

Thinking about research issues in the Piedmont of South Carolina, and especially in the uplands of the Sumter National Forest, resumed recently with several large scale surveys contracted out to cultural resource management firms. One of the more comprehensive of these is a review of current issues pertaining to the Long Cane Ranger District (Wheaton et al. 2005). Here, a wide variety of issues were grouped into the following themes: prehistoric typology/chronology, prehistoric cultural pattern and process, prehistoric lithic site types, and for the historic period, issues such as ethnicity, early architecture, post-bellum African American life and the rise of the textile industry. Another recent work (Adams et al. 2001) added issues of techno-functional analysis of prehistoric pottery, regional modeling of settlement/subsistence and protohistoric occupation and use of the middle Savannah River drainage.

A review of existing sets of research issues and questions indicates that most will fit into several categories. One research question may lead to others and include other issues and themes. Most issues can be formulated broadly to cover a wide geographic and typological range of sites, or can be directed at an individual site or cultural period. Some issues are purely academic, others are of administrative concern, and many are both. The issues have been sorted by themes that are not cultural-period specific or by issues which pertain to individual cultural periods.

This chapter concludes with a discussion on what makes a site eligible or possibly eligible for listing on the National Register of Historic Places under criterion d, the ability to yield important information in prehistory or history.

Thematic Issues

1. Site Integrity/Preservation

This overview and many other studies have shown that a large portion of the Sumter National Forest had been subjected to clearing, plowing and erosion during most of the nineteenth century until the Sumter National Forest was created in the 1930s. Some logging practices, such as the skidding of logs and the construction of logging roads and decks, furthered erosion and damaged sites. Given early twentieth century photographs of severely eroded, deeply gullied ridge slopes (see Chapter II), it is not unreasonable to wonder if any upland archeological sites could have survived. Excavations at Windy Ridge (House and Wogaman 1978) showed that some sites survive with enough intact information to yield important information. In the case of Windy Ridge, the data was mostly artifact distributions, rather than intact features. In contrast, Ledbetter (1988) recovered important information from partially intact, late prehistoric features in the Georgia Piedmont found in a bulldozed logging platform. This area had been subjected to plowing, erosion and bulldozing, yet excavations still revealed 24 features. The distribution of artifacts was not especially informative.

To evaluate the research potential of a site in terms of National Register eligibility, one must first assess site integrity. As cited above, sites can be disturbed (even heavily disturbed) and still retain certain aspects or a certain degree of integrity. Although there are few cases to demonstrate the point, it is likely that many upland sites are indeed too badly disturbed to yield important

information. Issues of integrity/preservation focus mostly on how to determine integrity status most effectively, that is, with the least amount of excavation. Questions that arise include:

a. How has plowing and erosion affected upland sites? Are sites on certain landforms affected more? Does soil type significantly affect erosion rate?

b. Can erosion and soil loss be quantified on a site? Does this require a geomorphologist?

c. Does erosion move artifacts? How much, how far and under what conditions?

d. Can an eroded site still have a meaningful distribution of artifacts?

e. How often do features remain on eroded, ridge top sites?

f. How does plowing in the absence of erosion affect artifact distribution? Do sites get smeared and expanded by plowing? How much and how far?

g. Has erosion completely removed some sites?

h. What effect has agricultural terracing had on sites? Do artifacts accumulate (or puddle) at the tops of terraces?

i. Can degree and location of erosion be accurately quantified and predicted using archival (aerial photographs) sources?

j. Has plowing affected lowland sites? Or are sites in alluvial settings especially well preserved due to a mantle of alluvium?

k. How has river scouring affected sites?

l. Is preservation of organic material better in certain soil types or on certain landforms?

2. Lithic sources

The majority of sites in all three ranger districts are prehistoric lithic scatters and lithic artifacts occur on virtually every prehistoric site on the Sumter National Forest. Since the 1970s, locating lithic sources and relating them to the types of lithic material found on various types of sites has been a frequently cited need. Very few studies have focused on lithic sourcing, besides soapstone. This is particularly acute with quartz, which composes the bulk of lithic material at most sites in the Piedmont, yet has been subjected to little formal classification or investigation. Problems also arise in the nomenclature for other, especially metamorphic, lithic resources. Questions that arise include:

a. What types of rock were used? Is there confusion or lack of precision in the names of these rock types? Can this confusion be reasonably sorted out?

b. Where do the various rock types occur? Is their location predictable? Can artifacts be traced to their source material using trace element analysis?

c. How do they occur? (Is the source on the surface or subsurface? Does it occur in veins, float, alluvium or other? Is it in the form of cobbles or angular pieces?) How was the stone extracted/quarried?

d. Can types of quartz be uniformly and consistently defined and discerned? How and where does each type occur?

e. Are there soapstone outcrops on the Sumter National Forest? Where?

f. Does quartzite occur on the Sumter National Forest? In what quantities and where?

3. Unidentified Lithic Scatters

The most common site on the Sumter National Forest is the unidentified lithic scatter, or more precisely, a lithic scatter that cannot be identified to cultural period(s). Many of these sites probably contain diagnostic artifacts that were not encountered during initial site recording and investigation. Since the 1970s, archeologists have grappled with how to deal with this common, yet relatively uninformative, site type. A great deal of site location modeling and modeling of settlement/subsistence patterns uses the abundance of unidentified (mostly upland) sites, without much detail on these sites. Fundamental issues of site function, cultural affiliation, seasonality and land use hinge on inadequate assemblages (generally too small) with often questionable, poor or contradictory typology and description of bifaces. Questions that arise include:

a. How can more information (mainly cultural period) be most expediently gathered? What is the ideal minimal types of information?

b. What is (are) the cultural period(s) of these sites?

c. What are the functions of these sites? Can occupation sites be distinguished from special activity sites? Can they be distinguished with survey data alone?

d. What types of special activities took place? Can or how can seasonality of special activity sites be established?

e. What was the nature, timing and duration of occupation?

f. Is there a qualitative difference among lithic scatters? Are large scatters aggregates of many small scatters/occupations? Do aggregates reflect numerous occupations during one cultural period or over two or more cultural periods? Do scatters vary by landform?

g. What makes a lithic scatter eligible for listing on the National Register?

4. Quarries/Workshops

Prehistoric lithic scatters with numerous artifacts and with greater than average proportion of early stage reduction debris (cores, primary flakes, preforms) are usually classified as quarries, workshops or quarry/workshops. Some of these sites occur at the source of the raw material and others do not; many times it is difficult to know. Many have been recorded during surveys, but few have been investigated in any detail. Wheaton et al. (2005) provide a good overview of the current status of quartz quarries in the Piedmont. There is some degree of inconsistency in the terms and definitions of these types of sites and the processes that occur at them. Questions that arise include:

a. What is a consensus definition of quarry, workshop and quarry/workshop?

b. What is a typical assemblage for each? How do these differ by raw material type?

c. Was stone actually quarried? If so, where, how and for what material?

d. Can loci of distinct quarrying activities be discerned at sites?

e. How much was quartz float used, as opposed to quartz from outcrops?

f. What lithic reduction activities took place?

g. What other activities took place at an outcrop? What were the usually numerous flake tools found at quarries used for?

h. In which cultural periods were various types of rock and particular outcrops exploited?

i. Was lithic material cached? If so, how and during which cultural periods?

j. What is the distribution and nature of soapstone quarries?

5. Riverine Sites

The nature of Forest Service land use and management in the past several decades has led to an archeological focus on uplands because river and stream bottoms are almost always excluded from timber sales that prompt archeological survey. Intensive archeological work has been conducted on the Savannah River in the Lake Russell basin (just north of the Long Cane Ranger District) and some work has been conducted on the Broad River in the Enoree Ranger District. Very little survey, testing or large scale excavation has taken place in river and large stream bottoms on the Sumter National Forest. Questions that arise include:

a. Are the data and interpretations from the Russell Lake area applicable to the Long Cane Ranger District? To the Broad, Tyger and Enoree Rivers of the Enoree Ranger District?

b. How and when were river valleys used? How many and what types of sites occur in river valleys on the Sumter National Forest? During which cultural periods?

c. Is there a focus on agriculture of bottomlands? Does Mississippian settlement focus on river bottoms?

d. How are bottoms used? What are the differences in use between levees, first terraces, second terraces and toe slopes?

e. Are shoals a focus of use/occupation? If so, during which periods? Were certain shoals-related aquatic resources especially sought?

f. How were rivers themselves used? How common are fish weirs, mills, and ferry crossings? Are their locations predictable?

g. How well preserved are sites in the river bottoms? How deep are they? Have they been damaged by scouring? Do organics survive in bottomland settings? Could dugout canoes survive, and if so, where?

6. Historic Period Farmsteads/Houses

Next to prehistoric lithic scatters, nineteenth-twentieth century rural house/farmsteads are the most common site on the Sumter National Forest. There are some limitations to the research value of these sites, given their usually poor condition, sparse amount of data and redundancy. Dating of these sites is usually cursory and based on artifact types with broad time spans. The vast majority are described as late nineteenth-early twentieth century. Very little or no archeological research beyond the survey level has been done on these sites, which overwhelmingly receive Class III (ineligible) recommendations. A number of research issues are posed for this site type later in this section under specific cultural period. General questions and ones that transcend time are presented here.

a. Are there differences in house locations, house types, farm layouts and road systems over time?

b. How did the proximity of cultivable fields, major roads and water sources affect house location?

c. Did local topography affect building and field placement and land use?

d. Can archeological studies discern ethnic, temporal, or socio-economic differences in building form, style farm layout or other aspects of material culture?

e. Can vernacular house and outbuilding types be identified, described and dated from archaeological remains?

f. What types of features, especially non-structural, could be expected on rural house and farmstead sites? Can activity areas (such as a hog-scalding area) be recognized?

g. What did slave houses look like? What did eighteenth century cabins look like? Nineteenth century farmer's houses?

h. What was the typical lifespan of the various types of houses? Of various types of outbuildings? What was the tempo and frequency of repair on these structures?

i. How did refuse disposal patterns change over time and across socio-economic, ethnic and geographic boundaries?

j. What can artifact studies reveal about rural behavior, participation in local and regional economies, socio-economics and culture change? What can archeological investigation of farmsteads reveal about the local community? What can archeological studies reveal about small farming communities on the Sumter National Forest?

k. How have Forest Service land management practices affected historic period house/farm sites, their outbuildings and the historic landscape? What degree of preservation can be expected?

l. What kinds of historic/archival records are available to address specific house/farm sites?

7. Cemeteries

Cemeteries are a special site type, as they are considered sacred and are protected by state and federal laws. They also have anthropological and archaeological value. Many historic period cemeteries are known, since they appear on county maps and on Forest Service land acquisition plats. Some are not recorded and are discovered during surveys. These latter ones are usually poorly marked and are almost totally lacking in archival documentation. Most rural cemeteries contain many graves with no inscribed tombstones, and many cemeteries are composed of only unmarked graves. Questions that arise in regard to historic period cemeteries include:

a. On what topographical features are most cemeteries found?

b. How many are associated with adjacent churches? Or houses?

c. When do professionally carved stones first appear in each ranger district?

d. Where did carving/inscribing take place, who did it, what was the cost?

e. What is the distribution of carved stones on the Sumter National Forest?

f. What are the most common types of gravestone markers?

g. Can a typology/chronology of grave markers be developed?

h. Can ethnic, socio-economic class, religious affiliation or temporal period be determined for some types of markers and cemeteries? Even those with uninscribed markers?

i. What features characterize a slave cemetery? Can they be found?

j. What mortuary motifs are present and what are their cultural or temporal associations?

k. What kinds of biological information and research potential exists in cemeteries on the Sumter National Forest?

l. Can information on health, mortality, economics and social patterns be obtained from non-invasive study of cemeteries?

m. What are differences between family, church and community (public) cemeteries?

n. What types of historic/archival information is available for cemeteries on the Sumter National Forest?

o. What differences exist between cemeteries in the Mountains, the Piedmont and the Coastal Plain?

p. How have Forest Service land management practices affected cemetery preservation?

8. Mining

In a relatively brief period of time, gold mining tremendously affected the landscape of the gold belt that runs southwest-northeast through northern South Carolina. Placer mining (of alluvial deposits), prospecting (test holes and shafts), hard rock mining (deep shafts with processing mills nearby) and hydraulic mining (washing hillsides down with water cannon) all left their mark on the Andrew Pickens, Long Cane and Enoree Ranger Districts. Prospecting pits are found in many sections of the Sumter National Forest. Other minerals, such as lead, also were mined or prospected. Research into mining has so far been rather disjointed. Questions related to this topic include:

a. What was the period of greatest minerals prospecting and mining in each ranger district?

b. What minerals other than gold and lead were sought and mined?

c. Did mining significantly boost local economies, or was most of the benefit reserved for outside investors?

d. Were prospectors and miners local men? Did outsiders flock into the region, or were miners brought into the region? What ethnic groups were represented?

e. Were specialists involved? Were these large, sophisticated operations?

f. What kinds of remains do gold exploration and mining leave behind on the Sumter National Forest? What types of features? What types of sites?

g. What kinds of historic/archival records exist related to mineral prospecting and mining?

h. Are mines and mining areas hazardous? Do they pose dangers from visually obscured deep shafts, cave-ins or chemical drainage? If so, what practical steps can the Forest Service take to eliminate or minimize these dangers?

9. Typological/Chronological Issues

Virtually every review of research issues in South Carolina cites problems, inconsistencies, lack of precision or lack of documentation for a variety of typology/chronology issues. By definition, most of these cross-cut specific cultural period, as they deal with how to distinguish one period from another. Specific issues relating to certain cultural periods will be presented in the following section. These types of issues seem to occur more frequently in South Carolina than surrounding states because most major projectile point types, pottery types and cultural phases were identified, named and described from excavations in North Carolina, Georgia and Alabama.

10. Modeling

Since the 1970s, with the pioneering work of House and Ballenger (1976) and Goodyear et al. (1979), archeologists have been modeling for site location and for human use of the landscape (settlement/subsistence) in Piedmont South Carolina. Such modeling is one principal focus of this overview and is the subject of Chapter VII. The adequacy of existing models, a discussion of a modeling program developed for this overview and steps to improve modeling are presented in that

chapter. While issues and questions surrounding site location and settlement/subsistence models are discussed in Chapter VII, they can be summarized here as follows:

a. Does the current Sumter National Forest model of site location work? Can it be improved with minor tweaking?

b. What environmental variables best predict site location? Have earlier site location models failed to adequately predict site location?

c. Are certain landforms associated with certain activities (habitation, special activities), and during certain cultural periods?

d. Can site location be modeled accurately and finely enough to assist the Forest Service with cultural resource management?

e. Can the location of Class II (possibly eligible) sites be modeled more accurately than sites in general? And effectively (finely) enough to assist with cultural resource management?

11. Current Survey Methods

Archeological survey and investigation on the Sumter National Forest have become largely standardized in the past decade, due mostly to standards and guidelines produced by the Council of South Carolina Professional Archaeologists, the South Carolina Institute of Archaeology and Anthropology and the South Carolina Department of Archives and History. The Forest Service and its consultants now largely adhere to these standards, in large part because of standardized scopes of work produced by the Forest Service for its contracted surveys of generally large tracts of land. Still, site detection rates vary within similar settings, presumably due in large part to differences in survey techniques and intensity of coverage by the various surveying entities. Differences in the ability of field technicians to recognize artifacts (such as quartz shatter) and some site types (such as a mineral prospecting pit) may also be a factor. In the past, variations in how a site was defined caused some of the variation in reported site density, but site definition is now quite standardized.

One of the most fundamental limitations of the Sumter National Forest site database is the lack of sites and survey coverage in river and large stream bottoms. This is due almost entirely to these areas typically exempted from timber harvests, and the Sumter National Forest has a very limited (essentially no) scope to conduct pure research. The almost 100 percent focus on uplands survey yields sites that are the worst preserved, since upland sites tend to be located on ridge crests, spurs and saddles that have been subjected to decades of plowing and erosion. A second major impediment is that our knowledge of the sites that have been recorded comes almost entirely from Phase I survey, usually a handful of shovel tests and a small surface collection. Few sites have received Phase II testing, which almost always yields more information, including diagnostic artifacts.

Some of the issues and questions concerning current survey methods include:

a. Is it important to more rigidly standardize survey methods? How comparable must this be?

b. Are low probability areas, especially those that may contain rare site types, being adequately searched?

c. Is there enough emphasis on obtaining diagnostic artifacts? Is there too much emphasis on determining site boundaries?

d. What measures can be taken to increase identified components and other information (such as artifact diversity) at the survey level? Are close order shovel testing, small block test pitting and post harvest surface collections possible methods?

e. Are certain site types missed more than others?

f. Can the Forest Service's inventory and survey strategy be adjusted to allow survey of river and stream bottoms?

g. If so, how would this survey be done? Would it require heavy equipment?

12. Rare Site Types

The vast majority of sites on the Sumter National Forest are prehistoric lithic scatters and late nineteenth-to-early twentieth century house sites. There are also large numbers of a few other site types, such as prehistoric lithic/pottery scatters, cemeteries, saw mills, and mining/prospecting sites. Some rare site types can be very important, partly because of their rarity, but also because they played an integral role in prehistory and history. Some site types and questions they pose include:

a. Rock piles. Which are prehistoric and which are historic? What are the distinguishing traits? Should all rock piles be recorded as sites? Are some rock piles of Cherokee origin?

b. Fish traps/weirs. How many are there? On which rivers and where? What is the variation in shape/construction? Are they prehistoric, protohistoric or historic? Is a certain type of site associated with them, adjacent on shore?

c. Caves/rock shelters. How many are there? Where do they occur? What was their function? To which cultural period are they usually associated? Are there any dry caves with good organic preservation?

d. Rock art. Are there pictographs and petroglyphs on the Sumter National Forest? Have they been adequately sought? Are they likely to be missed by typical large-area surveys?

e. Forts/trading posts. Are there any of these on the Sumter National Forest? How can they be located and verified? What new information can they yield?

f. Modern Military sites. What was the nature and extent of military training on Forest Service lands in the twentieth century? How many and what types of sites were created?

g. Revolutionary battle/skirmish sites. Can these be archeologically recognized? What information do they hold?

h. Early historic sites. What is the nature and distribution of eighteenth century sites on the Sumter National Forest? Can camps, log cabins, and cattle pens, all of which would have very few artifacts, be recognized?

Culture Period Specific Issues

Paleoindian Period

Like all of the Southeast, Paleoindian sites are exceedingly rare on the Sumter National Forest and consist almost entirely of single points, perhaps with associated debris. Ongoing projects

to record Paleoindian points from around the state continue to add to the database for the period, and the recent work at the Topper Site in Allendale County has raised intriguing possibilities of pre-Clovis Paleoindian sites in South Carolina. Borrowing heavily from the overview of the Paleoindian period in Georgia (Anderson et al. 1990), the following issues and questions arise for the Piedmont and Mountains of South Carolina:

a. What is a Paleoindian site, besides a certain type of projectile point? Can distinctive site types be discerned? What activities were undertaken at various types of sites?

b. Is the current typology of point types for Early, Middle and Late Paleoindian valid in the Piedmont and Mountains of South Carolina?

c. Do Paleoindian sites occur on certain landforms? In particular regions?

d. Do sites correlate with certain raw material sources? What raw materials were Paleoindians using? How far was the material being transported?

e. Do Paleoindian sites spatially correlate with trails and travel corridors?

f. When did the period begin in the Piedmont and Mountains? Are there pre-Clovis sites?

g. Are there geomorphological settings similar to that of the Topper Site?

h. What is the nature of settlement/subsistence through the period? How does it change? How large an area did groups utilize? What seasonal rounds were employed?

i. What other artifacts are associated with the period? Are any of these distinctive to the period (and not carried on to the Early Archaic period)?

j. What was the subsistence base? Did Paleoindians in the Piedmont and Mountains of South Carolina rely on megafauna in the Early Paleoindian period?

k. Did the mountainous portions of the Andrew Pickens Ranger District contain tundra or boreal forest conditions during the Paleoindian period? If so, did those conditions affect settlement and use of the area?

l. Is the rarity of Paleoindian sites a reflection of the kinds of sites, inability of archeologists to recognize Paleoindian technology, low population density, length of occupation, or site destruction?

Early Archaic Period

A significant increase in use and occupation of the Piedmont and Mountains occurred in the Early Archaic period. Perhaps partly because the corner and side-notched points that mark the period are so distinctive, sites of this period are well represented in all three ranger districts and occur in a wide range of geographical and environmental settings. As noted elsewhere in this overview, the Early Archaic period has seen a great deal of attention in regard to modeling settlement-mobility and subsistence behavior. Many research questions can be posed to address these models, but it may not be realistic to expect survey data to answer many of these questions. Such questions include:

a. What was the seasonal range of Early Archaic groups? How far did they travel in a year? To where did their seasonal rounds take them?

b. Were ranges oriented along and within river basins, or across basins?

c. Was access to high quality lithic resources a major factor in their settlement-mobility system?

d. What seasonal resources would have been exploited in the Piedmont and Mountains?

e. How and why did bands interact? For trade, lithic resources, social interaction?

f. Where on the landscape do Early Archaic sites occur?

g. Does the shift from Dalton points to side-notched points indicate a radical difference in lifeways, technology or subsistence?

h. What is the density of sites? By landform and by region (river basin)?

i. Do Early Archaic sites focus on shoals of rivers and at the Fall Line?

j. What is the maximum duration of occupation? How mobile were inhabitants?

k. Are there unrecognized types between Kirk Corner Notched and Morrow Mountain points?

l. Can we refine the chronology of Early Archaic point types, especially with more (or any) radiometric dates?

m. What was the function, spatial extent and time span of the Edgefield scraper? Do they occur on the Sumter National Forest?

n. How was the Andrew Pickens Ranger District used during the Early Archaic period? Were residential base camps established along the Chattooga River, Chauga River and major streams? What kinds of upland sites may be present?

o. Do the projectile point types and the time periods of their occurrence differ between the mountains and Piedmont Districts?

p. What kinds of non-local lithic material are represented on Early Archaic period sites and can their sources be identified?

Middle Archaic Period

As defined by the Morrow Mountain and Guilford hafted bifaces, Middle Archaic sites are plentiful and widespread on the Sumter National Forest. Modeling of settlement-mobility has mostly focused on use of local lithic raw materials and climatic change. The Middle Archaic period is characterized by intensive use of locally occurring quartz, and it is possible that a large percentage of unidentified quartz scatters date to the Middle Archaic period.

a. What was the range of Middle Archaic groups; was it considerably more restricted than during the Early Archaic period?

b. What does the focus on local quartz say about settlement, mobility, subsistence and lifeways?

c. Does the increase in number of Middle Archaic sites (over Early Archaic sites) on the Sumter National Forest reflect greater population or more widespread use of the landscape?

d. Are there large aggregation sites along rivers and major creeks, especially near the Fall Line?

e. What is the tool kit of the Middle Archaic period? What does the greater reliance on expedient tools say about subsistence and lifeways?

f. Can the chronology/typology of the period be refined and more radiometric dates obtained? What is the variation in projectile point morphology across the Sumter National Forest?

g. What is the geographical and chronological range of the Guilford point? Is it essentially a Carolina Piedmont point?

h. What is the relationship between Guilford and Morrow Mountain? How do their distributions compare?

i. What is the nature of the Middle Archaic to Late Archaic transition, and how does the Allendale point fit into this transition?

j. What is the distribution of the Stanly Stemmed point on the Sumter National Forest? Has it been correctly identified or confused with Woodland and Late Archaic stemmed types?

k. The use of the Piedmont during the Morrow Mountain phase appears to have been more intensive than on the mountainous Andrew Pickens Ranger District. Is this perceived difference actual, or the result of differing archeological survey coverage? Are there other reasons to be considered?

Late Archaic Period

The Late Archaic Period is a time of significant change in the prehistoric adaptation to the southeastern environment. It is characterized by three easily recognized artifact types, the Savannah River point, fiber-tempered pottery and soapstone vessels and slabs, but exhibits a wide range of point and tool types. It spans the time when sea levels stabilized and river floodplains acquired modern characteristics. It is usually associated with riverine sites and a riverine adapatation, especially as reflected by large shell midden sites, but contains a range of site types occupying many landforms. Late Archaic site density is slightly less on the Sumter National Forest than the preceding Middle Archaic period, but there is no reason to believe population decreased. Questions that arise in regard to the Late Archaic period include:

a. Can the period be fairly characterized as riverine-oriented? What role did large, riverine sites play in the settlement/subsistence system of the period on the Sumter National Forest?

b. Are riverine aggregation sites present on any of the ranger districts, or are they restricted to the Fall Line area?

c. Were there distinct cultural (ethnic?) groups occupying the Savannah and Broad River valleys at this time?

d. Is there evidence of inter-basin and moderately long distance trade?

e. Why is there so little fiber-tempered pottery on the Long Cane Ranger District and none on the Enoree and Andrew Pickens Ranger Districts? How prevalent is Thom's Creek pottery on the Sumter National Forest?

f. Is there a significant increase in sedentism on the Sumter National Forest at this time? Is such sedentism limited to ceramic, riverine sites, and thus quite rare?

g. What effects did the introduction of pottery have on subsistence technology and settlement systems on the Long Cane Ranger District?

h. What is the spatial distribution of perforated soapstone slabs on the three ranger districts?

i. What is the spatial distribution of soapstone vessels on the three ranger districts?

j. What is the nature of the soapstone distribution network in the Piedmont? Do soapstone artifacts concentrate near rivers, or do they occur in the uplands?

k. When, or during which periods, were the soapstone quarries of the Andrew Pickens Ranger District utilized?

l. Can the projectile point typology/chronology be improved? Especially at the beginning and end of the period? What points were used at these ends of the period?

m. Are phases defined for the Middle Savannah River and Upper Savannah River valid on the Long Cane Ranger District?

n. Is greater diversity of raw material use through the Late Archaic period evident on the Sumter National Forest as it is in the Savannah River?

o. Is there a temporally reliable chronology of Late Archaic point types? What do Late Archaic-Early Woodland transitional types look like?

Early Woodland Period

The Early Woodland period is characterized by widespread use of sand-tempered pottery, along with a variety of a generally small, usually square-stemmed points and larger triangular points. A hallmark of the Early Woodland period is how little we confidently know about the period, in terms of diagnostic artifacts and lifeways. Anderson and Joseph (1988:208) noted that "virtually nothing is currently known about the Early Woodland period in the South Carolina Piedmont." That statement is still true. There is a great deal of uncertainty, ambiguity and confusion in the point and pottery type names and their corresponding absolute and relative chronology. Points, pottery and phases have for the most part been defined in surrounding states and applied to the South Carolina Piedmont. Pottery of the period seems to begin with fabric-marked wares, with check, linear check and simple-stamped wares following. Work in the Upper Savannah River showed that the pottery sequence developed in northern Georgia seems to apply to much of Piedmont South Carolina. Questions that arise for this period tend to focus on basic typology/chronology, and include:

a. What are the projectile points and pottery types that mark the period on the three ranger districts?

b. Are Swananoa and Pigeon series ceramics valid terms for all three ranger districts?

c. Can the small, squared-stemmed points of the Late Archaic/Early Woodland (variously termed Swannanoa Stemmed, Gypsy Stemmed, Otarre, Woodland Stemmed) be sorted into finer chronological units and with chronometric dates?

d. How do stemmed points and triangular points (Yadkin) relate, and what pottery types are associated with each?

e. Does Thom's Creek pottery co-occur with other types on the Long Cane Ranger District?

f. What is the geographic relationship between the squared-stemmed points and triangular points?

g. What are the range of chronometric dates for various pottery types of the period?

h. Does soapstone use continue into the Early Woodland period? How and to what extent?

i. What are the subsistence/lifeways implications of the relatively sudden fluorescence of pottery?

j. Does the adoption of pottery and greater lowland use signify the adoption of horticulture?

k. What was the function and nature of non-ceramic sites; what activities took place?

l. Did the adoption of pottery and a shift to greater use of lowlands occur earlier in the Savannah River basin than in the Broad River basin? That is, is there a west to east diffusion?

Middle Woodland Period

The Middle Woodland Period is seen mostly as a continuum of trends and patterns established in the preceding period, with increased reliance on horticulture, more sedentary lifeways and a trend toward lowland occupation. The Middle Woodland period is marked by different types of pottery, and again these pottery types, such as Cartersville, Swift Creek and Connestee, were defined and named in adjoining states. The period is also noteworthy in the eastern woodlands for its long-distance ceremonial and exchange network, which has been termed the Hopewell Interaction

Sphere. However, there is little evidence of Hopewellian influence in Piedmont South Carolina. Only one recently recorded site on the Long Cane Ranger District (38MC1876) revealed evidence of participation in the Hopewell Interaction Sphere (Bates 2005). The typology/chronology for the Middle Woodland is at least as poorly understood as the Early Woodland period, and most of the same questions that pertain to the Early Woodland, especially those dealing with artifact types and chronology, can be posed for the Middle Woodland. These include:

a. What are the projectile points and pottery types that mark the period on the three ranger districts?

b. Are Pigeon and Connestee ceramics valid terms for the Andrew Pickens Ranger District and are Cartersville and Swift Creek valid for the Long Cane and Enoree Ranger Districts? That is, do the ceramics found on the Sumter National Forest adequately match the type descriptions of these Georgia and North Carolina types?

c. What is the temporal range for the Yadkin point?

d. Do stemmed points continue into the Middle Woodland period?

e. What are the correlations among pottery and point types?

f. What are the geographic ranges for the various pottery types?

g. What are the ranges of chronometric dates for various pottery types?

h. Are there functionally distinct types of sites? Are there non-ceramic sites?

i. Are there villages, or clusters of houses, by this time?

j. When does maize first appear?

k. How and where are the dead buried? Are some rock mounds burials/crematoria?

Late Woodland Period

The Late Woodland is one of the least known periods in the South Carolina Piedmont and Mountains. Confusion and ambiguity over typology and chronology is at least comparable in degree to the preceding periods. It is difficult to name markers distinctive of the period, as Connestee and Cartersville series ceramics probably continue through or well into the period. Swift Creek (especially B-Complex Swift Creek) and Napier pottery of northern Georgia is virtually non-existent in Piedmont South Carolina outside of the Savannah River basin. With so little known about the period, questions abound. But the first set of questions must deal with basic typology/chronology, and include:

a. What are the projectile points and pottery types that mark the period on the three ranger districts?

b. Is Connestee a valid term for ceramics of this period on the Andrew Pickens District and are Cartersville and Swift Creek valid for the Long Cane and Enoree Ranger Districts?

c. Is decorated pottery indistinguishable from earlier Connestee and Cartersville wares?

d. Does it make sense to distinguish a Late Woodland period on the Sumter National Forest?

e. Which projectile point types are associated with the period? Do small stemmed points continue; do non-Yadkin triangular points emerge; do Woodland Spikes date to this period?

f. What are the correlations among pottery and point types?

g. Can chronometric dates be obtained for the period?

h. Are there functionally distinct types of sites? Are there non-ceramic sites?

i. Are there villages, or clusters of houses, by this time?

j. Did climatic variability and unpredictability affect the reliability and emergence of horticulture?

k. What was happening to set the stage for the emergence of the Mississippian way of life?

Mississippian Period

While the Mississippian period is subdivided into early, middle and late subperiods, it spans only about 600 years and will be treated as one unit here. The period is notable by its great socio-political change, a period when a stratified socio-political organization emerged along with towns, intensive agriculture and a riverine orientation. Mississippian culture is well documented in river valleys, but is poorly understood in inter-riverine and upland contexts. This is largely due to the strong riverine nature of the period, but also may reflect less intensive work in the uplands. Detailed sequences of Mississippian occupation in the middle to upper Savannah River and the Wateree River near Camden have been developed, but are difficult to apply to the uplands of the Sumter National Forest, mainly because of a lack of excavation and sequence building. In adjoining states, Mississippian sites are abundant in some portions of the inter-riverine Piedmont, but this does not seem to be the case in South Carolina, as several large scale surveys have yielded few or no such sites in the uplands.

Complicated stamped and incised pottery and small triangular points mark the Mississippian period. An abundance of plain pottery in the period may hamper the recognition of sites. The earliest Mississippian pottery in the Piedmont is the Etowah series. In the mountains of the Andrew Pickens Ranger District it is the Pisgah series. In the Piedmont, subsequent Mississippian phases would be marked by Savannah series and then Lamar series pottery, but both are exceedingly rare on the Sumter National Forest. Much of the Savannah River basin, especially in later Mississippian times, was depopulated at this time, and continued to be so when De Soto passed through the area in 1540. The area in the Andrew Pickens Ranger District saw continued occupation. This period is identified as the Tugalo Phase and it is identified by Lamar pottery. The paucity of sites and research into the Mississippian period in the inter-riverine portion of the Piedmont direct initial research questions to fundamental ones of chronology building and site recognition. Questions include:

a. How much occupation and use of uplands occurred? Where did it occur? Are there discernible loci of upland occupation? During what periods?

b. Why is there an apparent dearth of upland sites?

c. What is the size and nature of the villages associated with the McCollum and Blair mounds?

d. What is the number, size, nature and location of non-mound towns/villages, such as Tyger Village?

e. Are there clusters of contemporaneous sites around these two mound sites?

f. What is the basic cultural chronology of the inter-riverine uplands, especially for the Enoree Ranger District?

g. Are Mississippian farmsteads common on the Sumter National Forest? Do they cluster in certain areas?

h. Are farmsteads moving to facilitate clearing and use of new, richer land?

i. Were river and large stream bottoms used exclusively for agriculture?

j. Did a chiefdom exist along the Broad River within the Sumter National Forest? When, where and how big was it? Were Blair and McCollum mounds part of a chiefdom?

k. Is the dearth of sites on the Sumter National Forest related to cycling (expansion and contraction) of chiefdoms? Was any such cycling related to climatic episodes?

l. Did the mountains in and around the Andrew Pickens Ranger District serve as a refuge during the period, as the Tugalo phase sites might suggest?

Historic Native American (Cherokee) Period

The Andrew Pickens Ranger District has a moderate number of Cherokee (Tugalo and Estatoe phases) sites, including Lower Cherokee Chattooga Town, which is on National Forest land. There are also smaller hunting and gathering camps and/or farmsteads on the Andrew Pickens Ranger District. Cherokee occupation did not extend into the Long Cane and Enoree Ranger Districts, but some of the Piedmont was known in historic times as Cherokee hunting grounds. Thus, Cherokee camps may exist. To date, Cherokee sites are virtually unknown in the two Piedmont ranger districts. However, there were almost certainly some Indians occupying these ranger districts after 1540. Historic documents clearly cite Indian tribes in the backcountry during the eighteenth century, when British trade with interior Indians flourished.

The Saluda may have occupied the southern portion of the Long Cane Ranger District and the Catawba may have occupied the eastern portion of the Enoree Ranger District. As the preceding discussion mentions, late prehistoric occupation in this inter-riverine portion of the Piedmont was quite sparse and insubstantial, especially late in the period, around 1540. Thus, it could well be that there are very few protohistoric sites on the Long Cane and Enoree Ranger Districts. Those that might be there probably are located along larger water courses that usually are not subject to intensive survey. It is possible that protohistoric sites have been encountered, but not recognized, because the native ceramics would be difficult to distinguish from prehistoric late Lamar pottery. Most protohistoric sites are recognized by the presence of European trade goods associated with native materials. The Cherokee acculturated more quickly and thoroughly than most other groups, accumulating European goods early on. Cherokee period research questions include:

a. Are there more village/town sites in the Andrew Pickens Ranger District?

b. What is the distribution of farmsteads and house sites around Chatooga Town?

c. What is the nature and function of upland Cherokee sites? Are any of these occupations, or are they simply hunting camps?

d. What other types of Cherokee sites exist? Can trails be discerned? Are any clusters of rock piles of Cherokee origin? Did the Cherokee use caves and rock shelters?

e. What is the southern geographic extent of Cherokee habitation?

f. What is the typical cultural assemblage of a Cherokee farmstead? What is the range in percentage and types of European goods on such sites?

g. Where are protohistoric sites on the Long Cane and Enoree Ranger Districts?

h. Was there a void of occupation between the early protohistoric chiefdom on the Wateree River (Cofitachique) and the Appalachian-based Cherokee that included most of the Piedmont forest?

i. Are there a series of sites (camps) along the old trade route from Charles Town to Ninety-Six and Cherokee Country?

j. Are there clusters of aboriginal sites around early European outposts/forts, such as Ninety-Six?

Colonial Period

The history of Europeans in the Piedmont and Appalachians of South Carolina is essentially a sequence of exploration, trade, Indian fighting and pioneering new settlements in the backcountry. The earliest sustained contact with Europeans in the area is linked to the De Soto entrada in 1540 when he passed through the Long Cane Ranger District, but left few tangible remains. The Colonial Period in the upstate begins in the early eighteenth century with the first English traders and cattle drivers. These newcomers fashioned simple dwellings in this backcountry.

The Colonial government in Charles Town encouraged settlement, along with requisite land clearing and small scale farming, to serve as a buffer between the colony on the coast and the Cherokee and other Indian groups. Settlement first centered on the Cherokee Road and the outpost of Ninety-Six, located between the Long Cane and Enoree Ranger Districts. Europeans of various ethnic groups, including English, Scots-Irish, French (Huguenot) and German, slowly began to settle in clusters in the backcountry. As the population increased, saw mills, grist mills, stores and communities developed. The Cherokee gradually resisted the steady incursion into their territory and sporadic raiding finally gave way to the Cherokee War of 1759-1761, in which the Cherokee were beaten back to the near summits of the Appalachians. The Long Cane Massacre, located on the Long Cane Ranger District, was one of the more noteworthy battles. The consequence of the Cherokee War opened up the backcountry for increased European settlement. Some settlements focused on planned communities, such as Huguenot-based New Bordeaux and German-based Londonborough. There was less settlement closer to the Cherokee, in what would become the Andrew Pickens Ranger District. When the Revolutionary War began, half of the white population of South Carolina resided in the backcountry, growing subsistence crops and tobacco. The backcountry settlers did not have a major stake in the Revolutionary War, and loyalties were divided. Few major battles occurred on the Sumter National Forest, those being focused on settlements such as Ninety-Six. Still, skirmishes occurred, especially on the Enoree Ranger District. Questions regarding this period include:

a. Have colonial farm sites survived and can they be identified? Have later occupations obscured or mixed with colonial components?

b. Can national, ehnic or racial indicators be found on these sites? Do refuse disposal patterns vary?

c. Can we reliably distinguish acculturated Cherokee from European cabins/farmsteads?

d. Can we determine what activities took place on such farmsteads?

e. What was the standard of living in the backcountry?

f. How did settlement of the backcountry evolve spatially?

g. How do backcountry and lowcountry settlements, sites and assemblages compare?

h. *Can frontier forts be detected? How difficult is it to find them? What are they like?*

i. Can fortified houses be distinguished from garrisoned small forts?

j. Can the Long Cane battle site be located? Does it have archeological potential?

k. Do other battle/skirmish sites have research potential? Are they worth looking for?

l. Can ephemeral sites such as cattle pens be recognized? Are they worth looking for?

m. What evidence remains of the New Bordeaux, Londonborough and Boonesborough settlements?

Antebellum Period

Post Revolutionary War settlement of the backcountry increased, mostly with new immigrants from the mid-Atlantic states and overseas, but also with war veterans. The modern system of counties and county seats was established, although boundaries changed frequently. Cash-crop farming expanded with cotton becoming dominant. The plantation system using slave labor soon dominated the landscape, even though there still were many more smaller-scale farmers. The tremendous expansion of cotton farming in the nineteenth century quickly led to soil exhaustion and severe erosion. Land often traded hands, as some farmers moved westward seeking fertile land. Many stayed behind, some taking measures to stabilize or improve the quality of the land, while others eked out an existence on worn out land. Questions related to this period include:

a. What can be learned archaeologically from farm/plantation sites that cannot be learned by other means?

b. How well preserved are farm/plantation sites?

c. Can components of a plantation, such as main house, slave quarters, outbuildings, be discerned archeologically?

d. Is there a pattern to the distribution of mills?

e. Are there entities shown on old maps (ferries, stores, churches) that occur on the Sumter National Forest and have not been field verified? Can they be?

f. What did a typical Piedmont slave house look like? What was the range in slave housing?

g. What activity areas can be identified around a slave house?

h. What was the slave subsistence base? What was the amount of wild game/foods?

i Did slaves have access to weapons for hunting?

j. What did a typical yeoman farmer's house look like? How was his economic status reflected in material remains?

k. What is the number and distribution of non-habitation sites, particularly gold mines, mills, churches and stores?

l. Can historic landscapes be reconstructed? Is this a fruitful approach?

m. Can and should landscape features, such as field and property boundaries or old roads, be recognized and recorded? How and to what degree?

n. Can the effects of the agricultural reform movement (or scientific agriculture) be recognized on sites? How did agricultural reform movement affect the layout and design of outbuildings on farmsteads?

Post-Bellum Period

Few Civil War battles were fought on the Sumter National Forest. The most significant impact of the war was economic deprivation and loss of able bodied men. On most farms women and the young and old were left to work the farm or manage the slave force. When the plantation (slave) system was disbanded at the end of the war, small farms proliferated. Many large land holdings were subdivided, with former slaves and poor whites acquiring farms of their own. However, most land was still held by relatively few, and much of the land was worked by tenants, sharecroppers or hired hands. These new systems (mainly sharecropping) led to a significant dispersal of the rural population and a late nineteenth to early twentieth century boom in rural housing. All of these systems, even owner-worked farms, did not promote land and soil conservation. Consequently, erosion and soil

quality degradation was rampant at the turn of the century. Much of this land became impossible to farm and reverted to woodland. Early in the twentieth century the federal government began establishing National Forests, often buying eroded, worn out, abandoned farm land at very low prices. Most of the Sumter National Forest was acquired in the 1930s and was composed of degraded land, much of which had regenerated to young forest. Questions that arise from this period include:

a. What is the archaeological research value of late nineteenth/early twentieth century farmstead and tenant sites?

b. How many are there and how well preserved are such sites?

c. What can artifact studies tell us about consumer behavior, participation in local and regional economies, and socio-economic status at these sites?

d. Are there ethnic (white versus black) differences in these houses/farmsteads? Or is the only discernible difference along economic lines?

e. How many were abandoned in place, how many burned and how many were largely salvaged? And does this appear archeologically?

f. Where on the landscape were tenant/sharecropper houses placed? What factors influenced house site location?

g. What are differences between farmsteads and non-farm rural housing?

h. How well can house types (saddlebag, double pen, gabled ell) be recognized on sites?

i. Can the effects of modernization (rural electricity, tractors) be seen on farm sites on the Sumter National Forest?

j. What is the number and distribution of non-habitation sites, especially mills, stills, portable saw mills, stores, churches and communities?

Forest Service Era

The federal government began buying old farms and unused land that would become the Sumter National Forest in 1914 on the Andrew Pickens Ranger District and in the 1930s for most of the Piedmont Ranger Districts. The majority of Sumter National Forest was acquired in a relatively short period of time. While many of the farms were abandoned and most of the structures were appraised by the government as being in poor condition, many structures were acquired. Some structures were substantial. The Forest Service razed most of these, saved a few, and began a comprehensive program of land restoration and tree planting. The Civilian Conservation Corps and Works Progress Administration carried out much of the tree planting and infrastructure construction in the 1930s. During World War II, Sumter National Forest was used for training exercises and a prisoner of war camp was established at Indian Creek on the Enoree Ranger District.

Multiple use management of natural resources was the objective of the Forest Service. The focus was on timber, soil and water restoration, wildlife management, and recreation. It was possible in a few years to harvest trees in substantial amounts. This required improvement and construction of logging roads and construction of temporary logging decks since its inception to balance the conservation of natural and cultural resources with other forest uses. Since the Forest Service created few "sites" during its stewardship, most questions dealing with this period concern the preservation status and effects to pre-existing sites. Such questions include:

a. Do we know of all CCC and WPA structures on the Sumter National Forest? Are there any such former structures that are now ruins and archeological sites?

b. Are there CCC/WPA trails on the Sumter National Forest? Should special efforts be made to preserve and protect these?

c. What sorts of land disturbances and sites were created by the U.S. military during World War II? Can the locations of their activities be determined?

d. What can be learned about the WW II POW camp at Indian Creek? Is there archeology to be done at this site?

e. Can the method of Forest Service razing (burning, moving, gradual deterioration) be determined for specific structures and compared to the current archeological signature of the site?

f. What types of saw mills were used and what imprint did these leave?

g. How have logging decks been created over the years and how does (did) their construction and existence affect sites?

h. How does (did) the skidding of logs affect sites?

i. How does mechanical site preparation for replanting affect sites?

j. How do different timber harvest methods affect sites?

k. How do controlled burns and wild fires affect sites?

l. What kinds of Forest Service historical land acquisition and land managment records should be preserved?

m. What kinds of information do historic records contain pertaining to the condition of the land when the Forest Service acquired it, e.g., pre-Forest Service buildings and improvements, historic farming practices, and land disturbance?

n. Do Forest Service records document CCC work or the administration of the POW camp at Indian Creek on the Sumter National Forest?

o. Can Forest Service records document land use and forestry practices under National Forest ownership for specific pieces of land over the past sixty years?

p. Can Forest Service records document land management practices which many have affected heritage resources on the forest?

q. How should Forest Service historical records be accessed and curated?

Discussion of Selected Research Themes

Selected cultural period-focused themes and research topics are discussed here. Some themes provided from outside sources also are included. The research themes are designed to be reasonably addressed by the existing Sumter National Forest data with improved data management and archeological investigation strategies. Recommendations for improving data management, investigation strategies, and some identified research objectives and strategies follow.

Archaic Period

What is the pattern of lithic raw material use through the Archaic period among the three Sumter National Forest ranger districts and how does its use reflect settlement-mobility patterns?

In Chapter VI, Table VI.6 presents data on lithic raw material use for formal, diagnostic tools on the Enoree and Long Cane Ranger Districts. These data represent only a small sample of the entire available database. If this sample is representative of lithic raw material use, then the Early and Late Archaic represent periods of greater variety in lithic raw material use than the Middle Archaic period. Early Archaic points exhibit materials from the Piedmont of North Carolina to the upper Coastal Plain of South Carolina. Late Archaic points exhibit materials across the South Carolina and eastern Georgia Piedmont and upper Coastal Plain. Quartz provides the bulk of raw material used for all three archeological periods.

For the Early Archaic period, the Enoree Ranger District holds a significant geographic position in regard to settlement-mobility models presented in Chapter VI. For instance, Daniel's (1998) model predicts that this region should represent an overlap zone between Uwharrie rhyolite-based and the Allendale chert-based macrobands. Early Archaic sites, specifically the earlier portion of the Early Archaic period represented by Taylor/Big Sandy points, should represent relatively equal proportions of Uwharrie rhyolite and Allendale chert. Presently, the sample provided in Table VI.6 is not large enough and lithic raw material identification is not fine enough to adequately address this issue. The identification, classification and recognition of non-quartz tool sources (Research Objective 5, below), can greatly enhance our ability to evaluate this research issue.

Both the Middle and Late Archaic periods reveal very little use of lithic raw material outside of the Piedmont and Blue Ridge Provinces (Table VI.6). Quartz is clearly the lithic raw material of choice during the Middle Archaic period. While quartz is clearly abundant in the Piedmont and Blue Ridge we have not established whether particular types of quartz were favored over others or why other locally available lithic raw materials, such as rhyolite and dacite, were not used on a regular basis. The identification of tool sources other than local quartz for either flaked or non-flaked tools should assist in establishing a pattern of local lithic raw material use during the Middle Archaic period. Establishing local lithic raw material use patterns should open research avenues that can address why specific lithic raw materials were preferred over others.

Other research that could be conducted with existing data (including an artifact inventory) would be to evaluate Late Archaic lithic raw material use in light of the Russell Reservoir data. Three divisions of the Late Archaic period were recognized (Wood et al. 1986:331-334; Anderson and Joseph 1988:190-193). One particular aspect noted was changes in lithic raw material use and an increase in the diversity of lithic raw materials through time, where extralocal lithic raw material was more frequently associated with the third division (Division III) of the Late Archaic period. Division III is dominated by Stallings ceramics, but is notable by the diversity of lithic raw material used for hafted bifaces and the appearance of soapstone vessels. For the Long Cane Ranger District we would expect to see an increase in the frequency of Coastal Plain chert, compared to the previous Late Archaic Divisions I and II. Division III Late Archaic sites on the Enoree Ranger District might reveal increased frequencies of Coastal Plain chert, but other lithic raw materials from more distant sources might also appear. Lithic assemblages from Late Archaic sites on the Enoree Ranger District could be used to test a model of Late Archaic Period settlement systems tied to watersheds. There are no concentrated sources of Coastal Plain chert in the Broad-Congaree-Santee River valley as there are in the Savannah River valley. Thus, if Coastal Plain chert frequency does increase on Division III sites, then cross-drainage social and political ties to the Savannah River valley would be demonstrated. Sociopolitical ties to other regions, represented by extralocal lithic raw material, also could be demonstrated with this kind of analysis.

Is use of the South Carolina Piedmont seasonal, or is settlement year-round taking advantage of specific microenvironments within the Piedmont Province? If settlement is seasonal, which seasons would be most favorable for occupation?

The Anderson and Hanson (1988) model proposed summer and fall logistic-oriented occupation, while O'Steen (1983) proposed fall and winter residential occupation in the southeastern Piedmont. Based upon settlement location preference and a comparison of Early Archaic period site size between riverine-oriented and inter-riverine, upland sites, it was suggested that the Sumter National Forest Early Archaic site data more closely represented O'Steen's (1983) model of residential occupation during the fall and winter. Additional research on Early Archaic sites can focus upon seasonality, given the presence of cultural features that can supply such evidence. One such site, of course, is Mims Point which has enjoyed continued research by Sassaman (1993b), but there are other known Early Archaic sites on the Sumter National Forest that have fewer additional (and confounding) components and may be able to provide significant information concerning seasonality and occupation duration with additional excavation. The excavation of stratified sites (Research Objective 2, below) and the investigation of larger creek and river bottomlands, we may find substantial, well-preserved Early Archaic sites in these riverine contexts.

O'Steen's (1983) model of Early Archaic settlement-subsistence in the Georgia Piedmont proposed a three-tiered system of settlement types that she was able to recognize in the archeological landscape of Lake Oconee in the Georgia Piedmont. It was suggested in Chapter VI that Early Archaic period isolated finds might represent one aspect of O'Steen's (1983) three-tiered site type model. To envision the three-tiered settlement system model in the Lake Oconee area, O'Steen had access to artifactual data that the present database for Sumter National Forest does not contain. If artifactual data is included in the ArcGIS database, as suggested for Priority Objective 8, below, then the ability to produce culture-specific models of settlement-mobility and subsistence systems would be greatly enhanced.

Site distribution data from the Sumter National Forest Piedmont ranger districts does not reveal a significant change in settlement location choice from the Early to Middle Archaic periods. The only notable difference is an apparent "broadcast" distribution of Middle Archaic sites, where, from the perspective of aspects, occupation of southern aspects no longer dominated in the Middle Archaic period. This notable change suggested the potential for year-round occupation of the Piedmont inter-riverine uplands in the Middle Archaic period, rather than seasonal occupation, as proposed for the Early Archaic period.

Data requirements to test this proposition are essentially the same for testing the potential for seasonality during the Early Archaic period. Excavation of features on Middle Archaic sites in upland contexts and investigation of bottomlands in larger creek and river valleys for well-preserved Middle Archaic sites, if they exist in bottomland environments, can help us characterize Middle Archaic land use in the South Carolina Piedmont and Blue Ridge. Again, inclusion of artifactual data in the Sumter National Forest database will enhance our ability to discern potential differences among Middle Archaic sites. Currently, we have no means to compare differences in light of artifact assemblages. Artifact diversity indices among sites, which can inform us about settlement-mobility strategies and subsistence endeavors, cannot be developed at the present time. We cannot even measure level of occupation intensity based upon artifact density–whether we are looking at repeated, short-term occupations or longer-term occupations.

Are there recognizable patterns in lithic artifacts on individual Archaic period sites, and if so, what do they look like?

An artifact inventory integrated with geographic information for Middle Archaic sites (as well as any other cultural period) coupled with lithic raw material differentiation opens additional means of intrasite and lithic technology analyses within the Piedmont region. In the North Carolina Fall Line Hills, distinct intrasite patterns based upon the distribution of rhyolite debris were able to suggest not only how particular locations were used (e.g., repeated occupations or longer-term occupations) but also how lithic technology was organized between the North Carolina Piedmont and Fall Line Hills (Benson 2000a, 2000b; Gunn and Rovner 2003). Because specific types of southern Uwharrie rhyolite were differentiated and able to be identified from field collections, distinct episodes of biface reduction in the Fall Line Hills were identifiable. Apparent caches of biface reduction flakes, specifically earlier to later stage biface thinning flakes of porphyritic rhyolite, were distinct from other "caches" of biface reduction flakes that were dominated by later stage biface thinning flakes and retouch flakes of aphanitic rhyolite. The differences in lithic raw material and lithic debris stages suggested two different archeological periods within a single site. The biface flake caches also indicated the stage of reduction at which bifaces arrived in the Fall Line Hills.

A similar approach can be taken in regard to quartz use if we can clearly identify specific types of quartz and perhaps link their uses with specific cultural periods. In this kind of analysis, it is not imperative that we actually link specific quartz types found on archeological sites with their specific quarries. As long as we can differentiate among types of quartz, then we can apply this kind of intrasite analysis on the Sumter National Forest, as well as lithic technology analysis from a regional perspective that focuses upon the relationship between the Piedmont Province and Fall Line Hills.

What changes in land use intensity and landform use are visible through the Archaic period among the three Sumter National Forest ranger districts?

The Sumter National Forest archeological site data summaries indicates that no notable changes occurred in site location between the Early and Middle Archaic periods in respect to a number of measurable environmental variables. The only difference between the two periods was a significant increase of Middle Archaic sites over Early Archaic sites. The lack of change in site location and the significant increase in the number of Middle Archaic sites is consistent between the two Piedmont ranger districts. The Andrew Pickens Ranger District in the Blue Ridge Province does not contain enough Archaic period data to draw similar comparisons.

The Late Archaic period saw a significant difference in occupation intensity between the Long Cane and Enoree Ranger Districts. Occupation intensity decreased from the Middle to Late Archaic periods in the Enoree Ranger District, but remained about the same across this transition on the Long Cane Ranger District. Both Piedmont ranger districts displayed a shift toward lowland occupation. Fiber-tempered wares do not occur on the Enoree Ranger District as they do, albeit in small numbers, on the Long Cane Ranger District. The Savannah River has long been a focal point of Late Archaic studies because of its large and dense occupations along its margins, as well as for its diversity in artifacts. Use of ceramics clearly had an effect on subsistence technology, which in turn influenced settlement systems on the Long Cane Ranger District.

Even though both Piedmont ranger districts displays a shift toward lowland landform occupation in the Late Archaic period, particular aspects of the settlement transition were different between the two ranger districts. Late Archaic settlements on the Long Cane Ranger District moved closer to larger drainages, and Late Archaic settlements on the Enoree Ranger District moved closer to smaller tributaries. Furthermore, on the Long Cane Ranger District, even though larger drainages became closest potential water sources for Late Archaic settlements, settlements were not located significantly closer to water sources compared to the previous Middle Archaic period. Closest water sources were simply larger in the Late Archaic period. In contrast, Late Archaic settlement in the Enoree Ranger District associated with the same order of stream size as did the Middle Archaic period, but Late Archaic settlements were located significantly closer to these water sources in respect to both distance and elevation. On neither ranger district, however, was there a site size differentiation between riverine-oriented sites (those located within 300 m of a major drainage) and upland-oriented sites (those located beyond 300 m of a major drainage). While this similarity between the two types of sites might be expected on the Enoree Ranger District, since utilization of larger drainage areas did not increase over the Middle Archaic period, it was not expected on the Long Cane Ranger District.

Documenting settlement changes in regard to specific environmental variables across cultural periods and between regions, such as those just presented, lead to a number of research topics that can be addressed with additional information from existing databases and with additional archeological fieldwork. For instance, relating to the Middle-Late Archaic settlement transition, are there significant differences in other archeological aspects, specifically, from the range of artifact types found on Late Archaic sites in respective environmental situations? If so, is the addition of ceramics the determining factor that signifies longer-term or multi-seasonal occupation? If not, then does the lack of differentiation in site size reflect a continuation of residentially mobile groups, as opposed to a mixture of residentially and logistically mobile groups throughout the year? Why do no Late Archaic sites in the Enoree Ranger District have ceramics when, similar to the Savannah River, the Broad River originates in the Blue Ridge Province, runs through all physiographic provinces on its way to the Atlantic Ocean? Do watersheds represent clear social boundaries that were not present during the Early and Middle Archaic periods? Are there sites similar to Mims Point along the Broad River? Did Late Archaic groups in the Long Cane Ranger District participate in spring aggregations to harvest anadromous fish and/or shell fish at Mims Point and Stallings Island, and if so, how far-reaching, geographically, did this pattern extend? Are there other sites similar to Mims Point close to or on the Long Cane Ranger District? Did Late Archaic inhabitants of the Enoree Ranger District participate in a similar pattern of aggregation and dispersal if sites similar to Mims Point occur on the Broad River?

What is the pattern of soapstone use among the three Sumter National Forest ranger districts during the Late Archaic period?

The Enoree Ranger District is a short distance south of the Pacolet and Broad River confluence. Several soapstone quarries, including soapstone bowl quarries, have been recorded along the Pacolet River in Spartanburg and Cherokee Counties (Edens 1971; Ferguson 1976, 1979; Overton 1969; Lowman and Wheatley 1970; Peck 1981). Among Late Archaic sites on the Enoree Ranger District there are some that have soapstone artifacts, but how many and what they represent, soapstone slabs or soapstone bowl fragments, is not really known. Artifact inventories incorporated into the Sumter National Forest site database could be used to evaluate patterns in regard to

geographic location and environmental zones. For example, do Late Archaic sites with soapstone concentrate near rivers or large streams or are they also found in the inter-riverine uplands? Does soapstone use include only bowls or are soapstone discs and slabs also present? Soapstone vessel use has at least a 1000 year temporal span (ca. 3600 to 2600 B.P.) (Sassaman 1997). Do soapstone vessel fragments found on the Enoree Ranger District represent terminal Late Archaic or Early Woodland occupation? Does the presence of soapstone vessel fragments and the absence of Stallings ceramics indicate a social interaction sphere separate from that of the Long Cane Ranger District? Similar questions can be applied to the Long Cane Ranger District, but most pertinent is not only the presence or absence of soapstone on Late Archaic or Early Woodland sites, but rather, is there any evidence of soapstone vessel use within the range of Stallings ceramic use on the Long Cane Ranger District?

The Andrew Pickens Ranger District has its own soapstone bowl quarries (n=2) with six Late Archaic sites and six Early Woodland sites as of 2002. One of the six Early Woodland sites contains soapstone vessel sherds, according to notes accompanying the existing site database. What the other five Early Woodland sites and the six Late Archaic sites might contain are not readily available. Again, adding an artifact inventory to the existing database would be immensely helpful for conducting distribution studies on the Andrew Pickens Ranger District, as well as elsewhere on the Sumter National Forest. The potential for conducting a geographic distribution study of soapstone vessel sherds and, potentially, soapstone slab and perforated disc studies is great on the Andrew Pickens Ranger District. Presently, very little Forest Service land has been surveyed on this ranger district compared to the Enoree and Long Cane Ranger Districts. Both Phase I survey and subsequent Phase II testing investigations would greatly add to our understanding of Late Archaic and Early Woodland land and material use. It would also be particularly interesting and informative to compare relative ages of sites with soapstone vessel sherds among the three ranger districts. According to Sassaman (1997:8-10), soapstone vessel use should be older (Stallings phase) on sites near or down river from soapstone quarries and should be younger (Early Woodland [Thoms Creek and Refuge]) further from soapstone quarries. The Sumter National Forest is in a unique position to test this proposition.

Woodland Period

Is there a diffusion from west to east of widespread use of ceramics and the adoption of new settlement-subsistence patterns?

As illustrated in Chapter VI, significant increases in the use of lowland landforms correlate positively with an increase in the use of ceramics. Ceramic and lowland landform use increased sharply during the Early Woodland period in the Long Cane Ranger District, and ceramic and lowland landform use increased sharply during the Middle Woodland period on the Enoree Ranger District. Between these two regions, widespread adoption of pottery use with a concomitant change toward bottomland settlement along smaller tributaries occurred several hundred years earlier in the Savannah River watershed than in the Broad River watershed.

The primary question is whether or not the correlated shift to lowland and ceramic use that occurred earlier in the Savannah River watershed and then later in the Broad River watershed represents technological diffusion from west to east. Presently, the Sumter National Forest has little in the existing database to evaluate this question. First and foremost, temporally diagnostic ceramics

of the Woodland period need to be evaluated. This can only be accomplished locally with more intensive archeological investigation of known Woodland period sites, including those identified as Woodland/Mississippian, or unknown ceramic. Datable materials need to be correlated with specific ceramic traits so as to confirm or refute the apparent delayed adoption of ceramic technology from west to east. Doing so also will establish a ceramic chronology specific to the Piedmont ranger districts of the Sumter National Forest. A larger Woodland period database also is necessary in the Blue Ridge Province (Andrew Pickens Ranger District) so comparisons can be made with the Piedmont ranger districts in regard to the timing and character of ceramic adoption.

Does the adoption of ceramic technology and the increased use of lowland landforms signify the widespread adoption of horticultural production?

If a delayed transition is confirmed, then we can entertain the possibility of a geographic diffusion of horticultural production through time. Ceramic use suggests an increased capacity for or focus upon food storage, as well as changes in cooking technology. A larger sample of ceramics from Early and Middle Woodland sites, along with ethnobotanical studies, will inform us more about the relative importance of both uses. Use of ceramics also suggests longer-term occupation of specific geographic locations. Site distribution data already suggests longer-term occupation by an increased use of southern and western aspects in the Piedmont ranger districts, but current evidence is very limited and cannot presently adequately address these issues.

When does maize enter the food production system? Is the adoption of maize production a transition that spreads gradually across regions?

If a horticultural production system was in place during the Woodland period in the South Carolina Piedmont and Blue Ridge, then maize was probably a part of that system by the Middle Woodland period. Maize pollen has been recognized as early as the Late Archaic period along the Gulf Coast (Fearn and Liu 1995), in the Early Woodland period in the Georgia (Seielstad 1994) and North Carolina Coastal Plain (Whitehead 1972), in the Early-Middle Woodland Period in the Georgia Piedmont (Wood 1981) and in the Middle Woodland period in the Ridge and Valley Province (Delcourt et al. 1986). Given this geographic and temporal distribution of maize introduction, it is likely that maize was introduced to the South Carolina Piedmont and Blue Ridge sometime during the late Early Woodland and early Middle Woodland periods. The period in which maize became a dominant crop for surplus production is generally assumed to occur during the Late Woodland period. If horticultural production was in place during the Early and Middle Woodland periods, it is unlikely that maize affected a distinctive change in the settlement and subsistence system if it was incorporated into an existing production system. When maize became a dominant crop for surplus production over other local cultigens, larger fertile cultivated fields would be necessary, as well as labor sufficient to maintain these cultivated fields. Thus, larger nucleated settlements located adjacent to broad and fertile bottomlands would be expected presumably during the Late Woodland period.

Presently we have no evidence to support such a transition to maize cultivation in the Late Woodland period on the Sumter National Forest. Average site sizes of riverine-oriented Late Woodland sites appear to be considerably larger than inter-riverine upland-oriented sites in the Long Cane Ranger District, but the sample size is too small to generate a statistically significant difference between the two data sets. In the Enoree Ranger District, the overall Late Woodland period site

distribution indicates greater use of inter-riverine upland landforms compared to the previous Middle Woodland period. The Enoree Late Woodland site distribution may represent one component of a more complex settlement/subsistence system that included larger, drainage-based nucleated settlements that have not been discovered, or it could represent an area that perhaps had developed into a traditional hunting/gathering ground due to its inability to support larger-scale horticultural or agricultural production reliably during less favorable conditions. Both the Savannah and Broad River valleys were described as wilderness areas during the late Mississippian period (Hudson 1997:169). Though wide floodplain areas do exist in the Enoree Ranger District, the topography in the middle Piedmont is generally more extensively dissected by small drainages than it is in the mid-to-lower Piedmont of the Long Cane Ranger District. During favorable climatic conditions, such as have been depicted for most of the Middle Woodland period, horticulture mixed with hunting and foraging for wild foods might have been a sustainable subsistence system. Unpredictable climatic conditions, as portrayed after the A.D. 536 event, might have made horticultural pursuits too risky or untenable. Greater reliance upon seasonal availability of wild foods in the Late Woodland period could have been an adaptive response to a drastic change in climate. How Late Woodland populations responded to climatic change among the three ranger districts of the Sumter National Forest may illustrate different adaptations that were delimited by local physical geography, natural environment and cultural tradition.

Are there discernible Woodland period site traits that suggest functional variation among sites?

The present Sumter National Forest Woodland period site database suggests limited variability in site types during the Early and Middle Woodland periods across the Piedmont landscape. The Blue Ridge Woodland period database was too small to make comparisons. Differences among sites were measured by site size in the previous chapter. Presently, site size, with all its inherited biases, is the only variable available to conduct site variability comparisons in the Sumter National Forest database. Comparisons of site size were drawn between sites that were located close (<300 m) to larger streams and rivers (riverine-oriented sites) and those located far (>300 m) from larger streams and rivers (inter-riverine zone sites). No significant site size differences existed between the two samples for the Middle and Late Woodland periods in the Piedmont ranger districts. Significant differences in site size existed between riverine-oriented and inter-riverine upland zone sites during the Early Woodland only in the Long Cane Ranger District, suggesting differences in site function between the two Early Woodland site types.

Complementary lines of investigation are necessary to substantiate or refute the present findings indicated by site size comparisons. Excavation beyond survey level investigation can help refine actual sizes of individual components on multi-component sites so that site size comparisons can achieve a greater level of accuracy. The existing database can be greatly enhanced with the addition of artifact data to the site locations in the Sumter National Forest database, allowing comparison of artifact assemblages between sample data sets.

Importantly, intensive surveys of larger drainage bottomlands need to be conducted to even approach explanations for observed changes in site distribution and functional variability relating to settlement choice, mobility range and subsistence during the Early-to-Middle-to-Late Woodland transitions. Phase II investigations that lead to full-scale excavation need to be conducted on known

and potentially newly discovered, riverine-oriented Early, Middle and Late Woodland sites to acquire site-specific information. Site-specific information can inform us on types of occupation (long-term versus repeated short-term), settlement structure and subsistence, as well as refine chronologies of local ceramic series with datable material found associated with specific ceramic types.

Mississippian-Historic Native American (Cherokee) Periods

The present Sumter National Forest site database clearly shows Mississippian period sites located on lowland landforms, but not in floodplains. Were large stream and river floodplains used exclusively for agriculture?

In spite of the lack of archeological survey in larger drainage bottoms on the Sumter National Forest, the existing data show that sites with Mississippian period components are more prevalent in bottomlands than any other archeological period on all three Sumter National Forest ranger districts. In each period since the Early Woodland period, greater use of ceramics correlates positively with increased lowland landform use. The Mississippian period follows this pattern. All Mississippian period sites located in bottomland situations have ceramics and are located on terraces or on toe slopes adjacent to stream and river floodplains. This settlement pattern suggests (with floodplain survey investigation pending) that Mississippian people left floodplains uninhabited for use as agricultural fields. As Richter and Markewitz (2001) point out, floodplains are the most fertile environmental zones in the South Carolina Piedmont due to periodic floods that rejuvenate the nutrient value of the soil. Natural fertility is further enhanced with the use of fire for initial clearing of the floodplain and then subsequent maintenance of the cultivated field prior to replanting. To test the validity of the present conclusion regarding the lack of occupation in large stream and river floodplains, archeological survey needs to be conducted in floodplains.

Field and settlement rotation: How far away must agricultural fields be from settlements before settlements move?

Though burning vegetation, inter-cropping maize and legumes and use of less destructive means of cultivation in a naturally fertile zone extends the use-life of cultivated fields, they eventually lose their fertility. Fallow periods eventually rejuvenate soil nutrients. One potential avenue of research is to correlate settlement duration with cultivated field use-life. Is the correlation 1:1, where a particular settlement is abandoned when the cultivated field loses its fertility? Alternatively, is there a rotation among a number of cultivated fields, some located close by and others further away, that enables a settlement to remain in one location beyond the use-life of a single cultivated field? Are patterns of settlement and abandonment the same for individual households and villages? The answer to these questions would require good estimates on the use-life of cultivated fields in floodplain environments and tight ceramic sequences that can accurately inform about settlement duration. These goals can be achieved only with significant amounts of archeological excavation of well preserved Mississippian period sites.

What is the scope of site function variation during the Mississippian period?

Also indicated by the Sumter National Forest data was a differentiation of site sizes between inter-riverine Misssissippian sites with ceramics and inter-riverine Mississippian sites without

ceramics. Those with ceramics tended to be larger, multi-component and located on lowland landforms adjacent to streams. Those without ceramics were smaller, single component and located on upland landforms further away from streams. It is suggested that the upland Mississippian ceramic sites represent small farmsteads and the upland Mississippian lithic sites represent special-extraction or logistic sites, a pattern recognized for the Late Woodland and Mississippian periods in the eastern Georgia Sandhills (Benson 1995c:118-120). This division would essentially separate limited activity sites and camps from farmsteads in Green and Bates' (2003) Mississippian period Class IV sites category of their proposed Mississippian settlement hierarchy. Additional excavation of a representative number of these respective site types could indicate whether or not a division truly can be made. Farmsteads should contain site structure related to activities performed at the household level, including features identifying physical structures and hearths, and a range of tool types. Logistic sites would be unlikely to have a rigid site structure, since they are presumably single-activity, briefly occupied locations, and are unlikely to contain evidence of physical structures.

What is the scope of proposed political hierarchies in the Broad River watershed?

Green and Bates (2003) divided Mississippian period sites based upon size, creating four classes, each representing different spheres of political control within the Broad River watershed. Blair Mound, McCollum Mound and 38UN185 (situated midway between the two mounds) represent ceremonial centers and towns (Class I); Tyger Village, among others near the Enoree Ranger District, represents larger villages (Class II); hamlets and small villages that range in size from ca. 1-2 hectares compose Class III sites; and limited activity sites, camps and farmsteads that are generally less than one hectare in size comprise Class IV sites. Class I and II sites served as principal political centers in successive Mississippian phases, with Tyger Village and its Camden series ceramics representing the final phase before apparent "settled-life" abandonment of the area after A.D. 1450. Key information concerning site distribution by size and archeological phase relies upon finer resolution, which can be achieved with greater temporal control over ceramic types and/or with absolute dating methods on Mississippian period sites. Additional excavation on key sites could help refine size range classes in Green and Bates' (2003) scheme. We may find that some Mississippian settlements contained within larger, multicomponent sites are actually substantially smaller, thus reclassifying them into a different size class and sphere of political control. Also, greater spatial resolution on individual sites, coupled with better temporal control, is likely to indicate whether sites represent repeated occupations or single occupations within a single phase. Ultimately, with continued research into Mississippian period inter- and intrasite analyses and temporal frames, we would be better able to evaluate whether the Broad River chiefdoms were independent from or a component of the Santee River basin paramount chiefdom.

As demonstrated in the Savannah River Valley, are cycles of expansion and contraction correlated with favorable and unfavorable climatic episodes?

Mississippian period settlement that was enmeshed in chiefdom-level political, tributary-economic and social spheres apparently dispersed in the Broad River watershed after A.D. 1450. In the Savannah River Valley, Anderson et al. (1995) were able to correlate favorable and unfavorable climatic phases, based on dendrochronological data, with cycles of expansion and contraction for Savannah River basin chiefdoms. Essentially, climatic uncertainty, which decreased maize surplus potential, provoked political and economic instability within chiefdoms. Prolonged and more frequent

droughts in the fifteenth century, coupled with being centered between two larger rival chiefdoms to the east and west, eventually undermined chiefdom political and social control and collapsed the chiefdom-level sociopolitical structure in the middle and lower Savannah River basin. Shortly thereafter, mound centers at Tugalo and Chauga were re-occupied, Tugalo considerably earlier than Chauga, and a new mound center, Estatoe, was formed in the Blue Ridge Province. The concentration of people in the Blue Ridge suggested to Anderson et al. (1995) that chiefdom-level intensive agriculture became untenable in the middle and lower Savannah River basin in the mid-to-late fifteenth century. Economic and political instability prompted migration of people further up the river basin, or to neighboring river basins, and were incorporated into more powerful and politically and militarily secure chiefdoms. The middle and lower Savannah River basin largely remained a wilderness area by the time De Soto arrived in 1540 (Hudson 1997:169), in spite of the return of favorable climatic conditions for agriculture (Anderson et al. 1995:277). It served as a buffer/hunting zone between the two political rivals, Cofitachequi in the Wateree River Valley and Ocute in the Oconee River Valley of Georgia.

The chiefdoms in the Broad River basin, given that they were independent chiefdoms like those of the Savannah River basin, may have been similarly affected by poor climatic conditions and a lack of political and military power compared to their neighbors. Insecurity, both political and economic, may have provoked migration out of the area. Where these people went, as pointed out by Green and Bates (2003), is an open question. Some could have chosen incorporation into Cofitachequi, the political sphere to the east and north of the Broad River (Hudson 1997:148, 185-188), or into the upper Savannah River chiefdoms to the northwest. Tracking these people would be difficult and it would certainly involve excavation and fine-resolution dating of a number of Mississippian period sites within and beyond the Enoree Ranger District and correlating the chronology with existing (or new local) sets of dendrochronological data.

Did the Blue Ridge Province serve as a "refuge" for Mississippian period people of collapsed chiefdoms, as well as for those avoiding contact with Europeans?

The regional importance and geographic remoteness of the Blue Ridge Province chiefdoms on and around the Andrew Pickens Ranger District when Europeans arrived in the sixteenth century predisposed the area to longer lasting political control that continued into the Revolutionary War period. The area also served as a "refugee" center since prior to the Contact period, as implied by Anderson et al. (1995). Thus, later Mississippian period and Cherokee sites offer much by way of tracking immigrant populations from the surrounding regions through cultural material and, potentially, site structure.

Through 2002, there are 13 known Mississippian period sites and seven known Cherokee sites recorded on the Andrew Pickens Ranger District. All of the Mississippian period sites have ceramics, but we do not have ready access to ceramic type information on each of these sites. Ceramic collections from most of the sites are small and are not in a comprehensive database. Thus, we do not know to which phase of the Mississippian period these sites belong or how the ceramics compare to those in the middle Savannah River basin or the Broad River basin. Furthermore, five of the seven Cherokee sites have Mississippian period components, but we do not know if this expresses continuous occupation or periods of occupation, abandonment, and then reoccupation.

Because of its archeological visibility, Chattooga Town has received some extensive archeological investigation (e.g., Cutts 1998; Howard 1997; Schroedl 1993, 1994; Schroedl and Parmalee 1997), but other smaller Cherokee sites have not received additional archeological attention beyond the Phase I survey level. Site 38OC211 did have one 1-x-2 meter test unit that discovered a structure and large historic Cherokee (Estatoe phase) check and complicated-stamped ceramics (Bates 1985b). There are also several known large Cherokee sites, small historic villages on private land within the Andrew Pickens Ranger District proclamation boundary (see pages 64-66). Tomassee, Chauga, Estatoe and other sites in the Keowee-Toxaway reservoir have received some investigation (Beushel 1976; Caldwell 1956; Harmon 1986; Kelly and de Baillou 1960; Kelly and Neitzel 1961; Miller 1959; Smith et al. 1988; Williams 2004). In addition to on-going investigations at Chattooga Town, archeological investigation of the surrounding smaller Cherokee sites will add to our understanding about subsistence (e.g., how much hunting and gathering supplemented agricultural production), political and economic relationships with principal towns, level of social integration of new comers with the existing residents, level of social integration of Cherokee populations with the advancing European agrarian population, and sociopolitical organization and structure.

Historic Period

The historic period synthesis in Chapter VI presented habitation site distribution through time and documented growing use of inter-riverine zone upland landforms during the historic period. Rapid nineteenth century expansion into the Piedmont uplands was a consequence of a number of factors driven primarily by capitalism in the cotton production industry. Expansion of homesteads into the inter-riverine uplands during the nineteenth century did not happen everywhere in South Carolina over the same period, as illustrated by the Andrew Pickens Ranger District (Chapter VI) and by the upper Coastal Plain of South Carolina (Brooks and Crass 1991). Expansion into the inter-riverine uplands did not occur until the early-to-middle twentieth century in these two geographic regions. Reasons for the expansion were likely different than those for the earlier Piedmont Province expansion.

Reasons for the disparate expansion are multifaceted. Multiscalar analyses, similar to those undertaken by Orser (1996, 2004), would be the best approach to provide explanations for temporally disparate site distribution patterns across these geographic regions. Such explanations would incorporate analyses of relational networks, at individual, household, community, national and international scales, all of which influence decision-making processes within past social structures. Orser (2004) utilized field analytic perspectives of practice theory for conducting analysis upon sociohistorical structures. He focused upon racial structures during the nineteenth century U.S. and the process of racialization from the seventeenth to nineteenth centuries in Ireland, with the archeological tools of cultural materials and spatial and temporal analyses. Orser (2004:248) maintains that archeological analysis of a social variable like race (or racialization), a socio-political construct that is manifested economically and in material culture, can be approached in several ways. It is amenable to both in-depth, site-specific examination and to broader comparative studies at any scale of analysis.

Further analysis concentrating on historic period site distributions could focus on clusters of habitation sites that may be grouped by geography, period of occupation, size, industry or distance from transportation arteries. For instance, a diachronic analysis of settlement patterns could focus

upon a comparison between the physical structure of frontier communities and later nineteenth-to-twentieth century communities within the broader spatial pattern of lowland versus upland landform occupation. A synchronic, land-use comparative analysis could be conducted upon recognized, historically unique communities like New Bourdeaux in Hillsborough Township on the Long Cane Ranger District against the backdrop of a predominantly English and Irish settlement region. Inevitably, as one of the basic tenets stressed by Orser (2004), a diachronic assessment of social structures that define sociocultural dispositions (see Orser's [2004] concept of habitus) would be necessary even in a synchronic analysis of communities. The expression of physical structures like households, communities and regional settlement patterns have both temporal and spatial contexts, where people bring with them a host of tendencies, attitudes and dispositions supported by past sociocultural structures. How these structures play out within a "field," the slice of time and space one may be analyzing, requires investigation into broader temporal and spatial contexts.

The same practice is employed in prehistoric archeology, but typically across longer periods and broader geographic regions. For instance, the above discussion about changes in Woodland and Mississippian period settlement patterns required taking into consideration traditional subsistence practices, geographic region and sociopolitical relationships to assess potential settlement pattern changes as a consequence of climate change. Historic archeology has the same approach but many more tools are available for the archeologist to conduct an "historic ethnology" to analyze social networks more closely. Textual documentation adds an entirely new dimension to the artifacts available for analysis. Consequently, reconstructing historic period patterns is much more fine grained and can involve many more particular details.

Orser's (2004) approach applied to the study of communities is useful in the context of understanding historic period use of the forest. However, early frontier communities on the Sumter National Forest have been somewhat difficult to define. The early settlements of Hillsborough (French Huguenot New Bordeaux), Londonborough (German Palantine), and Boonesborough (largely Scots-Irish Presbyterian), established in the 1750s and 1760s on the Long Cane Ranger District, were township names but not towns or well-defined communities. The initial settlers took farms of their own and soon intermarried and mixed into the general colonial population. Thus, identifying and comparing specific community traits against the backdrop of the predominantly English and Irish colonial frontier may be especially difficult.

The goal is to reconstruct the interrelated aspects and networks of social, economic and political life of the recent past. The very abbreviated presentation of Orser's (1996, 2004) work provides a research-oriented perspective that can be applied to a wide variety of particular historic period themes. Below is a list of specific historic period themes and research topics:

1) Gold mining industry in the South Carolina Piedmont and mountains

2) Logging industry in the South Carolina Piedmont

3) Military sites study

4) Effects of Reconstruction on farmers and planters; agricultural tenancy in the South Carolina Piedmont

5) Level of participation in local and regional economies; consumer behavior

6) Effects of farm modernization during the twentieth century

7) Household and domestic architecture through time; spatial structure and composition through time

8) Settlement patterns through time

9) Comparative analysis among plantations/farmsteads in different geographic settings

10) How the change from slavery to "freedom" affected African American populations

11) Historical perspective on African American life in the South Carolina Piedmont

12) Effects of the textile industry upon local populations, economics, politics and settlement

13) Historic period cemeteries

This list is by no means exhaustive. It is presented here as an example of research topics that could be entertained with the cultural resources available on the Sumter National Forest. Each theme or topic could be investigated from a number of different perspectives or scales of analysis.

An important factor for researching historic period themes is using available archival information. These sources, for the archeologist, are essentially artifacts that "talk" and can yield different, and often more detailed information than artifacts. Archival documents come in the form of maps, census records, will transcripts, newspapers, cemetery records, court records, land grant records, chains of title to property and property survey plats, diaries, records of bills of sale, tax records, legislative papers, interviews, among other potential forms of documentation. Appendix D of this Overview contains three tables that list available cemetery books, county histories and map sources that apply to all South Carolina counties that the Sumter National Forest covers. Unique to National Forest lands, Sumter National Forest keeps records of land acquisition. These acquisition folders contain correspondence, survey plats, evaluations of the land and structures, and other miscellaneous items.

The heritage resource management files of the Sumter National Forest also hold 1930s era General Highway and Transportation Maps for counties in the Piedmont ranger districts. The South Carolina Department of Archives and History, Thomas Cooper Library, South Caroliniana Library, South Carolina Department of Archaeology and Anthropology, University of Georgia and South Carolina Genealogical Society are major depositories for historic documents. Local libraries and court houses also are significant sources of historic information.

Recently, Joseph et al. (2004) produced a Georgia Archaeological Research Design Paper for historic period archeological research in Georgia. It provides an exhaustive review of known historic period site types in Georgia that is particularly well developed in agrarian, community and European-Native American sites. This focus makes the document especially well suited for addressing historic

period issues on the Sumter National Forest. Research issues center around site function within the context of the role that specific site types played in particular social, economic and political systems. Below is an example of specific research themes developed by Wheaton et al. (2005:37-38) for the Liberty Hill Analysis Area on the Long Cane Ranger District. This example is by no means a complete representation of Joseph et al.'s (2004) research design paper, but it serves as a design for a specific Phase I survey project on the Sumter National Forest. Wheaton et al.'s (2005:37-38) research themes are as follows:

1. Archaeology at historic sites in the Liberty Hill area can address questions about the level of participation in the local and regional economies. Questions about the availability of manufactured goods to people in the backcountry during eighteenth and nineteenth centuries can be addressed as well as the types of farm and home activities that supported the local and home economy.

2 Historic sources...indicate that German farmsteads in the early to mid eighteenth century were distinctive from British farmsteads in their spatial organization. In addition, Thomas Jefferson discouraged the settlement of foreigners in large masses, "wherein, as in our German settlements, they preserve for a long time their own language, habits, and principles of government" (quoted in Linebaugh 1998). Are there sites in the project area that can address issues of ethnic distinctiveness, acculturation, and creation of Southern cultural and identity?

3. Little is known about the early domestic architecture in this area. Work at the de la Howe site in New Bordeaux (Steen et al. 1996) suggests that early architecture may reflect the ethnicity of the occupants. Questions relating to early ethnic identity and the creation of a new Southern culture and identity based on architectural remains can be approached on sites with evidence of intact architectural features, such as foundations and chimney bases.

4 Very little is known about backcountry plantations in South Carolina. Main house complexes and slave settlements can be examined and compared with those elsewhere in the state. How was slave life different in the backcountry from the lowcountry? How was the relationship between planter and slave different from the lowcountry?

5. Sites dating to the latter half of the nineteenth century may be able to address questions relating to effects of the movement from slavery to freedom on African Americans, as well as the effects of Reconstruction on white farmers and planters.

6. How was the area affected by the emerging textile industry? Site abandonment may reflect the movement to towns supporting textile industries. Artifact and features reflecting the changing socio-economic status of the occupants may be able to address questions regarding changing socio-economic realities in the late nineteenth century.

Priority Research Objectives

Research Objective 1: Identification of stratified sites on the Sumter National Forest.

The lack of identified stratified sites on the Sumter National Forest is the result of the small number of projects and archeological survey completed in alluvial settings. It is not that stratified sites do not exist on the Sumter National Forest. Compliance archeological surveys rarely are conducted in areas that can provide such sites for archeological investigation, that is, sites in alluviated bottomlands. Timber stands that are scheduled for harvesting often do not include larger stream and river bottomlands. Vegetation is left undisturbed in these areas as a land management practice to protect watersheds and threatened and endangered species. Bottomlands are generally outside of the areas of potential effects for projects with no potential for ground disturbing activities. Some stratified sites have been identified such as the Huckleberry Bend site (38MC428) and Chattooga Town (38OC18) but these sites are few. Work off the forest may be able to provide information on cultural resources in floodplain settings. Butler and Poplin (2003) recently discovered a deeply buried Archaic-Woodland period prehistoric occupation (38UN989) on the Broad River floodplain in backhoe tests during a bridge replacement archeological survey. The site is on non-national forest lands in Compartment 55 of the Enoree Ranger District.

Even if intensive survey of bottomlands is desired a large proportion of these areas cannot be easily surveyed due to a thick deposit of late nineteenth-early twentieth century sediment. Much of the larger valley bottoms consist of a mixture of colluvial and alluvial sediments deposited from upland erosion. Conventional means of discovering buried archeological sites with hand excavated shovel tests are inadequate because they cannot be excavated deep enough to contact the former valley floors. It should be cautioned, however, that not all valley floors on the Sumter National Forest are filled in with recent historic sediments. Smaller stream valleys may be left undisturbed and well preserved and should be adequately investigated during Phase I surveys. Also, first terraces adjacent to relatively wide floodplains, relatively level toe slopes that grade onto stream and river floodplains and well-elevated hammocks are good, high probability bottomland locations that could have escaped thick sedimentation.

Research Objective 2: Excavation of stratified sites on the Sumter National Forest.

Existing archeological data for the Sumter National Forest is missing information on river and large stream bottomland use for prehistoric and historic periods. The study of archeological sites in these environments would increase our knowledge of culture history and improve our understanding of past cultural structures and processes in riverine settings. Excavation of sites in bottomland locations could dramatically change ideas concerning prehistoric and early historic Euro/African American land use. Any plan for bottomland site investigations should balance preservation and potential research benefits. Strategies for site discovery and inventory in alluviated bottomlands could include limited examinations of these areas when adjacent slopes are surveyed prior to other projects. Alternatively, the Forest Service could develop a research and inventory plan which would specifically target

bottomlands and areas where preserved buried sites may occur. Any archeological investigation involving bottomlands will require a geomorphological investigation to assess the potential for buried archeological sites. The sediments themselves will indirectly provide a land use history for the local watershed, as well as suggest the age of the sites that could be buried beneath the sediment.

Research Objective 3: Cultural period identification of upland sites.

A large proportion of upland sites on the Sumter National Forest are recorded as unidentified to cultural period, restricting the usefulness of the site database. The desirable goal of identifying components on sites is often hampered by site preservation integrity. For instance, a heavily eroded non-diagnostic site with few artifacts has a much lower potential for yielding cultural period data than a non-diagnostic site that is relatively well preserved with many more artifacts. Excavation of better- or well-preserved sites in upland contexts beyond the Phase I level is likely to provide cultural period information. Component identification of the numerous unidentified lithic scatters that have been recorded on the Sumter National Forest is sorely needed. The Sumter National Forest already has implemented new guidelines for site recording, requiring a grid of shovel tests on archeological sites at the Phase I level of investigation. The substantial increase in the number of shovel tests excavated on sites will increase the probability of encountering diagnostic artifacts. Early results of this newly implemented site recording method on the Sumter National Forest is presented in Chapter IX, below. However, as is also illustrated in Chapter IX, test unit excavation on archeological sites was more successful than a close order (10 meters or less) shovel test grid for producing component information in the absence of good surface exposure. Thus, Sumter National Forest may want to consider test unit excavation at the Phase I level on some of the artifactually richer sites.

Beyond identification of cultural period by diagnostic artifacts, better- or well-preserved sites offer other opportunities not only for cultural period identification, but also for improving local cultural chronologies and for addressing site function in the contexts of local and regional settlement-subsistence strategy models. Such sites can provide the means for chronometric dating (radiocarbon or thermoluminescence), as well as subsistence and intrasite data.

Research Objective 4: Identification of quartz types and documentation of quartz quarries.

Much archeological attention in the past has focused upon the use of Coastal Plain chert, rhyolite, dacite, and other lithic raw materials that tend to have restricted natural distributions and relatively distinctive appearances. Such materials are readily identifiable in the archeological record. Quartz is less distinctive, insofar as distinguishing its original source and its natural distribution across the landscape. Nevertheless, quartz has probably been used more as a source for stone tools throughout the Southeast than any other single lithic raw material. For sites located on the Sumter National Forest, quartz probably comprises greater than 95 percent of combined lithic artifact collections from prehistoric sites, and the Sumter National Forest contains numerous quartz quarries that have not been studied in depth.

As with the variety of rhyolite types that have been documented in North Carolina (Benson 1999; Daniel and Butler 1996) and South Carolina Piedmont (Kubilius 2005), the variety of quartz types also can be classified. Scott Jones has classified quartz in the northeastern Georgia Piedmont based upon two basic criteria: opacity and fracture surface texture, with the latter being the main criterion (Benson 2000a:47-49). Fracture surface texture was used to measure quality of fracture, which is directly linked to the amount of flaking detail visible and to the quality of an initial flake edge. The more detail available in flake scars, the more accurate an interpretation can be achieved regarding a tool's manufacture, use and overall life history. The quality of initial flake edge is a function of fracture and the degree to which use-wear and retouch are observable to the lithic analyst. Jones classifies quartz into six main categories, and, as with most classification systems, there is a certain amount of overlap and ambiguity. Nevertheless, these categories are recognizable by anyone who has conducted even a limited amount of archeological research in the southeastern Piedmont. Jones cautions, however, that this classification system should be tailored for specific regions to be most useful (Benson 2000a:47).

Jones' six quartz types are as follows (Benson 2000a:47-49):

Type I-Crystal. This type is clear and glass-like. Flake scars are visible in great detail and fresh edges are smooth and sharp. Minute use-wear is readily evident, but so is any other kind of non-cultural edge damage. Crystal is distinguished from glass by the presence of hackles (small straight lines radiating from the point of force) in the flake scars. In massive form, crystal quartz may show color (i.e. amethyst, rose or smoky) but thin pieces are most often colorless. This type ranges from perfectly clear to just a hint of cloudiness and may grade into Types II and V.

Type II-Ice. Type II quartz has few to many streaks of white mixed with clear. Fracture varies from glassy to slightly irregular, with edge quality and flake scar detail following. With decreasing flake scar resolution, this type typically grades into Type IV quartz. Type II quartz is primarily found in the Piedmont Province but may occur occasionally in the form of Barnwell Formation pebbles and cobbles.

Type III-"Coldcream Jar." Type III quartz is smooth, nearly opaque and glass-like. Flake scars are extremely detailed with smooth sharp edges. Similar to Type I quartz, this quartz is distinguished from milk glass by the presence of hackles. Type III can grade into Types IV or V depending upon its crystalline structure and degree of smoothness.

Type IV-Irregular. Fracture surface of Type IV quartz has a "bumpy" appearance, edges are sharp but ragged and flake scars are discernible with difficulty. Use-wear is virtually impossible to detect with the poorer quality specimens but heavy-duty use-wear is visible on the better quality specimens. This category defines much of the vein or milky quartz invariably associated with Piedmont Province outcrops. Most examples of this type are white or translucent to nearly opaque with thin edges that are almost transparent. Streaked varieties are also common, representing the lower end of Type II. A lower grade ("subtype B") exists that is characterized by the same irregular surface and jagged edges, but the ground mass is comprised of smoky quartz. Small glassy "windows" a few millimeters across are often visible within a piece, particularly noticeable near edges, yielding a smashed automobile "safety glass" appearance.

Type V-Frosty. Increasing graininess of Types I and III may result in Type V quartz. Specimens are very homogeneous with relatively obvious flake scars and correspondingly even edges. This quartz often has the appearance of frosted or sandblasted glass. The slight graininess of the surface and edges result in less visible flake scars and use-wear compared to Types I and III quartz,

but is at least comparable to Type II quartz. Type V quartz is usually clear, white, tan or pink (heat altered) and almost always translucent. This type of quartz will grade into Type VI quartz.

Type VI-Grainy/Sugary. Colors include white, light brown or buff, pale green and pink and red in heat altered specimens. This type of quartz will have a sugary feel and the surface of specimens will display a slight sheen with slightly translucent edges. Details of flake scars are indistinct, but depending upon the coarseness, larger individual scars are readily visible. Use-wear is virtually impossible to detect. This type is similar to, and may be indistinguishable, from orthoquartzite. The only difference may be that orthoquartzite is likely to have a rougher texture.

This classification system can be applied to the South Carolina Piedmont and Blue Ridge Provinces. There are known quartz quarry sites on the Sumter National Forest and these can be recorded in respect to this classification system. If necessary, the quartz type classes can be refined to more accurately reflect the South Carolina Piedmont quartz sources. Presently we are not aware of the amount of variety that may be present throughout the Sumter National Forest. For instance, rhyolite outcrops/quarries in the southern Uwharrie mountains of the North Carolina Piedmont typically consisted of a single type of rhyolite, but at some quarry/outcrop locations there was internal variation. We may find that such is the case for quartz quarry/outcrops on the Sumter National Forest, or we may find that quartz quarry/outcrops are significantly homogeneous.

Wheaton et al. (2005:34-35) recently provided a framework for quartz quarry analysis based upon a model for quarry site investigations developed by Schneiderman-Fox and Pappalardo in 1996 (Ballin 2004:2). This model was applied to a quartz quarry in Scotland by Ballin (2004). According the to model, the quarry site should have four identifiable activity areas. These activity areas are as follows (Wheaton et al 2005:34-35):

1. the location of the stone outcrop

2. the "tailing pipe" below the quarry face that contains detached blocks of quarried material

3. the "ore dressing," "milling," or "transition" area that tends to be located within 50 m of the quarry face (This area represents a zone where larger quarried blocks are split into smaller pieces for transport. Presumably, the quality of the material also is tested in this transition zone.)

4. the "workshop" or lithic reduction area, where the transported material is worked into usable forms

On the Sumter National Forest, most workshops would consist of accumulated debris from producing large bifaces. Workshops may be located within the quarry site, as defined by House and Ballenger's (1976)"quarry/workshop" sites, or they may be located at geographically distinct locations (e.g., on adjacent landforms) close to or surrounding the quarry site. Site 38SA64, a rhyolite quarry described earlier in this document, consists of nearby sites that display workshop flaking debris.

A classification scheme and a methodological investigation applied to quartz quarries on the Sumter National Forest can serve as an integral component in settlement-mobility, land use and techno-functional models of lithic procurement and use. Such investigations can help to develop regional-scale models much in the same way Coastal Plain chert and Uwharrie rhyolite served in Anderson and Hanson's (1988) and Daniel's (1998) Late Paleoindian-Early Archaic models. A specific "quartz-centric" component was proposed as an amendment to Daniel's (1998) model in Chapter VI. Quarry-related studies may discover that particular quartz quarries or specific quartz types were preferred during certain archeological periods, similar to the way Morrow Mountain rhyolite was preferred by Paleoindian and Early Archaic people. Intensity of use may be associated with raw material quality, nodule size, overall outcrop size, accessibility of the outcrop, its location in respect to other environmental variables, or its location in respect to sociopolitical boundaries. Additional excavation of quarries also will provide better definitions of quarries or allow them to be classified into quarry types. For instance, are all quartz quarries specifically quarries or are some or most of them also habitation sites? Documentation of quartz quarries based upon a raw material classification scheme and an archeological investigation framework that are practical and effective can open many avenues of research with the existing archeological database.

Research Objective 5: Identification, classification and recognition of other stone sources for flaked stone tools.

Though quartz dominates the lithic raw material landscape in the South Carolina Piedmont and Blue Ridge, there are other sources of stone that were used for stone tools. Quarry studies and use of other types of stone types also would be beneficial. Two such flakable stone types are rhyolite (technically metarhyolite) and dacite (metadacite). Both are varieties of metavolcanic stone that fracture conchoidally and have had varying amounts of exploitation. Few sources of this stone have been identified on the Sumter National Forest. One such source is a large (27.3 ha) aphanitic rhyolite quarry (personal observation of artifacts collected by Jim Bates) located on the Long Cane Ranger District (38SA64). Walt Kubilius (personal communication, 2005) has inspected the material from 38SA64 and describes the material as "hydrothermally altered rhyolite, with occasional weak flow banding." Fresh surfaces of this rhyolite are fine-grained and gray-blue in color. Presently, the Sumter National Forest does not have an extraordinarily large collection of artifacts manufactured from this type of rhyolite or other types of local rhyolite to provide identification based upon macroscopic characteristics, e.g., weathered surface color, presence or absence of phenocrysts or other types of inclusions, density and types of phenocrysts, etc. The present collections and known locations of some quarries are a beginning for a classification system, however. With additional focus on identifying sources and quarries and linking rhyolite artifacts on archeological sites with these sources, understanding lithic raw material use on the Sumter National Forest clearly will benefit.

The Carolina Slate Belt runs through the Piedmont ranger districts of the Sumter National Forest and it is this same belt that produces the abundance of rhyolite in the North Carolina Piedmont. Outcrops of good quality rhyolite occur on ridge tops and crests, as well as on ridge side slopes in the southern Uwharrie mountains. Whether rhyolite occurs in similar topographic situations on the Sumter National Forest is not clear, but it is likely. Obviously, rhyolite is not nearly as abundant as it is in the North Carolina Piedmont, but identification of these sources and comparison with Uwharrie rhyolite can provide greater insights for settlement-mobility systems. The type of

metavolcanic stone, whether it be rhyolite or metadacite or local rhyolite versus Uwharrie rhyolite, can yield significant information concerning mobility range and, potentially, cultural affiliation simply by raw material identification. As our understanding of local stone sources increases, so will our understanding of local and regional land use throughout prehistory on the Sumter National Forest.

Another metavolcanic flaked stone type that has been recorded on some sites on the Sumter National Forest and in the surrounding Piedmont is argillite. Argillite is a soft greenish or grayish metavolcanic stone that exhibits one cleavage plane and has poor edge-holding qualities. The cleavage plain inhibits conchoidal fracture and is therefore difficult to knap. Nevertheless, this type of stone occasionally has been used for flaked stone tools. Given its relatively poor knapping quality, questions arise as to under what circumstances or for what tasks would argillite be used. Argillite may have been used only for certain activities, either for utilitarian purposes or symbolic significance, or it may have been used merely to supplement a tool kit. Presently there are no known sources of argillite on the Sumter National Forest, but outcrops occur within the Carolina Slate Belt. Identifying argillite sources and potential quarries and possibly linking argillite artifacts with these sources should help us understand its range of geographic use, as well as posit questions concerning its sporadic use during the prehistoric period.

Research Objective 6: Identification, classification and recognition of non-flaked stone sources.

Culturally diagnostic stone use extends beyond chipped stone tools. Initial soapstone use dates to the earlier part of the Late Archaic period, perhaps extending further back into the terminal Middle Archaic period. Soapstone quarries have been identified at various locations throughout the southeastern Piedmont. Quarries have been identified along the Pacolet River in Spartanburg County, a short distance north of the Enoree Ranger District, on the Georgia side of the Savannah River across from the Long Cane Ranger District, and on the Andrew Pickens Ranger District. Soapstone has also been found outcropping on the southern portion of the Long Cane Ranger District. Site 38ED462 is a soapstone outcrop, but no cultural component has been identified there. There is also a soapstone source suspected near 38MC934 near the Lake Spring site (Elliott 1995:132; see page 13 of this report). On the Andrew Pickens Ranger District two quarries have been identified as soapstone bowl quarries, 38OC48 and 38OC205, but unidentified lithic components were assigned to both sites. A third soapstone quarry, 38OC197, has evidence of only recent historic use. Sites 38OC48 and 38OC205 lie on adjacent ridge noses. The closest Archaic period site is over 6 km southeast. Other prehistoric sites undoubtedly occur within the vicinity of these two quarry sites and it is likely that other soapstone quarries are nearby, but no directed study of these resources has been conducted on the Andrew Pickens Ranger District. An investigation similar to that of the Spartanburg Soapstone Archaeological Study by Terry Ferguson (1976, 1979) would increase our understanding of local resource use, soapstone extraction methods, and ground stone tool manufacture and use.

Diabase is a resource used during both the prehistoric and historic periods. Prehistoric period people used diabase for ground stone tools and hammerstones and historic period people used diabase for grinding stones in grist mills. Several diabase dikes are indicated on geologic maps in the vicinity of the Long Cane Ranger District, but they have not been examined for prehistoric use.

Research Objective 7: Address gaps and disparities in the cultural chronology.

One particularly intriguing gap in the cultural chronology of the Sumter National Forest is the rarity of bifurcated points (e.g., LeCroy, MacCorkle, St. Albans), which occur more frequently elsewhere in the Southeast between ca. 9000 and 8000 B.P. One possibility is that Kirk Stemmed varieties persisted for a longer period of time in this area of the Southeast, as suggested by Sassaman et al. (1990). Alternatively, the Morrow Mountain phase of the Middle Archaic period may have begun at an earlier date. Given the present temporal span of the Kirk Stemmed and the Morrow Mountain, there appears to be a lack of (or very minimal) occupation in the South Carolina Piedmont and Blue Ridge for a ca. 1,000-1,500 year period across the Early-Middle Archaic transition.

Of particular interest to Middle Archaic research on the Sumter National Forest is the applicability of Coe's (1964) Stanly, Morrow Mountain (I and II), Guilford sequence. Clearly, the Morrow Mountain point comprises most of the Middle Archaic determinations on sites on the Sumter National Forest. Recent research in the South Carolina Piedmont (Blanton and Sassaman 1989) and Coastal Plain (Sassaman et al. 1990) Provinces depict significant alterations of the Middle Archaic sequence. Significantly, there is a general lack of Stanly hafted bifaces in the Piedmont and Coastal Plain and a near absence of the Guilford lanceolate hafted biface in the Coastal Plain. Other point types, such as the Allendale hafted biface in South Carolina and the Brier Creek lanceolate in eastern Georgia, have been proposed as temporal equivalents to Guilford in the Coastal Plain. Large cultural resources surveys in the Georgia Fall Line Hills and in the southwestern Piedmont of South Carolina have encountered few Guilford hafted bifaces (Benson 1994a, 1995b, 1995c; Pluckhahn 2001).

Possibly, Guilford hafted bifaces are more prevalent in the central Piedmont compared to the lower Piedmont. Several researchers have noted the greater prevalence of Guilford points on the Enoree Ranger District compared to the Long Cane Ranger District. Presently we have no hard data to substantiate this observation. In the Fall Line Hills south of the Enoree Ranger District, quartz Guilford points have been recorded on Fort Jackson, but they are few compared to the number of points identified as Morrow Mountain points. However, hafted bifaces identified as bifacial ovates are notably more prevalent than the combined total of those identified as Morrow Mountain and Guilford (Braley 1991b:94; Steen 1994:357-358). Interestingly, all hafted bifaces defined as Guilfords or as ovates were made from quartz or orthoquartzite, while nearly half of the Morrow Mountain points were made from metavolcanic stone (probably rhyolite). Defining the Guilford form and its spatio-temporal range has been an ongoing research issue in South Carolina. Descriptions of Guilford hafted bifaces range from spikes (Waldorf and Waldorf 1987) to ovates (Coe 1964). Blanton and Sassaman (1989) distinguish two Guilford hafted biface varieties, the differences possibly attributed to functional differentiation. Variety 1 includes the classic form–an almond-shaped cross-section and a pronounced lanceolate outline. Variety 2 includes simple, often poorly finished ovate bifaces that can be either biconvex or planoconvex in cross-section. The latter variety appears most often in the South Carolina Piedmont and apparently also in the Fall Line Hills (Braley 1991b:94; Steen 1991:357-358).

A survey of Guilford hafted bifaces found on previous Sumter National Forest survey projects (Benson 1992a, 1994b, 1995a, 1995b) are split evenly between Varieties 1 and 2 and all fall within the Guilford hafted biface dimensions outlined by Cambron and Hulse (1983:60-1). Guilfords

with rounded stems and lanceolate form are often indistinguishable from Morrow Mountains from the blade shoulders down. Anderson and Joseph (1988), Anderson and Schuldenrein (1985), and Goodyear et al. (1979) all have expressed difficulty in determining absolute morphological differences between Morrow Mountain and Guilford hafted bifaces. Moreover, a definite temporal separation between the Morrow Mountain and Guilford complexes is questionable in the Piedmont (Sassaman et al. 1990:151). Thus, differences between Middle Archaic locations with Morrow Mountain hafted bifaces and Middle Archaic locations with Guilford hafted bifaces may be less a temporal than a geographic or techno-functional differentiation.

Other gaps and disparities in the cultural chronology include (but are not limited to) the terminal Late Archaic-Woodland stemmed point sequence, associations of point types with ceramic types in the Woodland sequence, a well-defined Woodland ceramic sequence among the three ranger districts, and the Woodland-Mississippian period triangular point sequence. Greater detail and availability of existing artifact collections, identification of sites in well-preserved landscapes (e.g., in stream and river bottomlands) and excavation beyond Phase I investigation can greatly enhance our ability to resolve these and other cultural chronology issues.

Research Objective 8: Archeological data management.

The addition of the ArcGIS database for the Sumter National Forest is an unmeasured but significant improvement to site management and research opportunities. Combining site information with geographic location that can be accessed easily greatly improves accessibility and the ability to combine various sorts of information in imaginative ways. The database should make information available which can be used by the Forest Service to manage cultural resources. But, like any database management system, the ArcGIS is only as good as the information (and its accuracy) that it contains. Simple grouping and dividing operations that facilitated expedient analyses of the present site data was possible for this Overview, but these analyses were hampered by data limits and occasional inaccuracies. Presently, the ArcGIS database on the Sumter National Forest consists of sites with known spatial limits (polygons) that have been combined with the Sumter National Forest site database. The site database consisted of cultural component information, eligibility recommendation, site name and occasional additional comments. Notably absent from the database are artifact inventories and descriptions. For instance, though a site has been identified as Early Archaic, we do not know how the component was determined. Was it a Palmer point? Was is it Kirk point? What was the lithic raw material? How artifactually rich is the site?

Many geographic errors and several erroneous component designations were corrected during this Overview project, but others were encountered while writing the Overview and they remain. There are probably others that cannot be immediately recognized without intensive data quality control measures. Quality of the database should be an ongoing, long-term task which will most likely involve incidental encounters of incorrect data while conducting thematic research.

Beyond quality control measures applied to the existing database, adding existing and forthcoming information to the database is a simple (but tedious and time consuming) task. On top of the list for additional data is artifact information. At the minimum, diagnostic artifacts that were used to determine archeological period should be included in the site database. Lithic raw material should be included for diagnostic points. Optimally, the entire artifact assemblage from each site

should be incorporated. This task and end product could be contained in I-Web/INFRA, which is the current Forest Service corporate database, and linked to the existing ArcGIS database. Alternatively, the cultural heritage program at the Sumter National Forest could take a similar route to that of North Carolina. In cooperation with the North Carolina Department of Transportation, the Office of State Archaeology is producing an ArcGIS database for all sites in the state by linking geographic site information with the official state site forms. This method requires all existing site forms to be digitally scanned and then transformed into PDF format. Once transformed the site forms are linked to geographic locations of the sites so that when a particular site is selected on the map the scanned site form appears. Presumably, site data also will be tabularized so that it can be joined or linked to the ArcGIS database.

Once artifactual data is included in the database, then potential site data analyses are greatly expanded. Sites can be selected based upon artifact types, artifact classes, raw materials, or any combination depending upon how fine-grained the artifact data is.

National Register Evaluations

Sites located on the Sumter National Forest have been evaluated by applying National Register of Historic Places criteria (36CFR60.4). Applying these criteria to cultural properties is presented in National Register Bulletins 15 *(How to Apply the National Register Criteria for Evaluation*) and 36 (*Guidelines for Evaluating and Registering Historic Archeological Sites and Districts*) (Townsend et al. 1993). Other National Register Bulletins that provide guidelines for evaluating special site types that occur on the Sumter National Forest are also available, such as National Register Bulletin 40 (*Guidelines for Identifying, Evaluating, and Registering America's Historic Battlefields*) (Andrus 1992) and NRB 41 (*Guidelines for Evaluating and Registering Cemeteries and Burial Places*) (Potter and Boland 1992).

Criteria for evaluation state that the quality of significance in cultural resources (e.g., archeology and architecture) is present in sites that possess integrity of location, design, setting, materials, workmanship, feeling, association, and:

A) That are associated with events that have made a significant contribution to the broad patterns of our history; or

B) That are associated with the lives of persons significant in our past; or

C) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D) That have yielded, or may be likely to yield, information important in prehistory or history.

Most archeological sites on the Sumter National Forest are evaluated under Criterion D, the information potential of an archeological site. Criteria A-C typically are applied to historic period

sites that contain standing structures or are places where significant events took place, such as the birthplace or burial place of famous individuals. Cemeteries would be one prevalent site type on the Sumter National Forest that could be evaluated under one or more of the first three criteria.

While criterion D can apply to properties that already have yielded important information, it usually applies to properties that contain or have the potential to contain important information. Information is considered important if it has some bearing upon archeological research questions or themes. The property can be considered significant at the local, state or national level, depending upon how the information that the site contains (or could contain) is likely to be used. Information from the site may have a bearing on settlement-mobility patterns at the regional level, or it may be able to illustrate how people adapted to a local micro-environment. The geographic scale at which a site is considered significant depends upon what research design questions or themes it has the potential to address. Specific research issues applicable to the Sumter National Forest are those presented in this chapter, or they can be themes tailored especially for a particular region, survey area, site, or other archeological problems.

In theory, archeological sites are considered eligible for listing on the National Register if they demonstrate the capacity to yield new, non-redundant, non-trivial information that could not be gathered from other sources (e.g., archival). In practice, sites are rarely determined eligible for listing on the National Register at the Phase I inventory survey. Such rare instances would include prehistoric archeological sites that clearly contain cultural features or historic sites associated with important persons or events. In either case, the site must first be well preserved, that is, retains integrity of association. Most often, sites recorded during Phase I surveys are assessed as not eligible or possibly eligible.

Archeological site recommendations for the Sumter National Forest are classified under one of three classes provided by the Forest Service. These are:

Class I (Eligible) – Those properties which have been evaluated and meet the criteria for inclusion in the National Register of Historic Places;
Class II (Possibly Eligible) – Those properties that have not been sufficiently evaluated for a decision to be made whether or not they are eligible for inclusion in the National Register of Historic Places; or
Class III (Not Eligible) – Those properties that have been evaluated and do not meet the criteria for inclusion in the National Register of Historic Places

Much of the National Forest is comprised of former agricultural fields that have experienced severe erosion. Ridges in the Piedmont typically lack topsoil and they often are dissected by deep erosional gullies. Most valleys contain a thick bed of colluvium and alluvium. Nevertheless, some areas or pockets of the Sumter National Forest escaped severe alteration. Thus, preservation integrity of the soil and the artifacts it contains is a primary consideration for site evaluations, especially for prehistoric sites.

The following characteristics are some that would indicate that a site is eligible or possibly eligible for the National Register of Historic Places on the Sumter National Forest:

1) The soil strata containing cultural material is relatively well preserved, suggesting that features and artifact distributions are reasonably intact and are likely to yield new insights into prehistoric or historic period lifeways or be able to address specific research issues.

2) Artifacts are present in sufficiently large quantities to permit meaningful spatial and functional analysis and to identify temporal affiliation. "Sufficient" may be high artifact density on a prehistoric quarry/workshop site, or moderate-low density on what appears to be a single component tool use and maintenance site. Spatial and functional data that the site could produce would contribute valuable information about intra- and intersite variability in the South Carolina Piedmont or Blue Ridge along the lines of what was done at Windy Ridge (House and Wogaman 1978). This inter- and intrasite data is critical to understanding the nature of occupation and utilization of the Piedmont and Blue Ridge through time.

3) Artifacts representing rare or unusual temporal or cultural affiliations are present. The relative scarcity of Woodland and Mississippian period sites in the Piedmont uplands, for instance, would suggest that sites containing these components in reasonably good context are more likely to yield important information than Archaic lithic scatters, which are more common.

4) Evidence of rare, early occupations, especially pre-nineteenth century historic period or Paleoindian, if sufficiently preserved to permit even low-level information, such as determining site size.

5) The site occupies an unusual environmental niche which may be unique in the settlement patterns of that particular area. Sites located in rockshelters, on ridge side slopes, near upland springs or small swamps not associated with large streams, where there are rock outcrops, or within other atypical environments may have been utilized for special purposes at certain times in the past. Further investigation of the relationship of the occupation to these environments could yield important information about the utilization of the Piedmont and Blue Ridge.

6) A diversity of artifact types, such as pottery, ground stone or fire-cracked rock is present. These artifacts are associated with longer-term occupation. Such occupations increase the potential for features and midden deposits that may be at least partially preserved. The identification and delineation of features or activity areas relating to specific activities could greatly enhance our understanding of the occupation and utilization of the Piedmont and Blue Ridge.

Sites recommended as Class III are important for settlement studies and, if enough sites are culturally identified, cultural history reconstructions. The discovery of temporally or culturally diagnostic artifacts on sites would contribute valuable information for settlement and cultural history reconstructions. It is important for Phase I survey investigations to spend a reasonable amount of time to meet these needs. The hope of determining cultural affiliation with additional excavation for otherwise unqualified archeological sites is not an adequate reason for recommending a site possibly eligible for listing on the National Register.

Chapter IX
Evaluating Current Survey Methods on the Sumter National Forest

The Sumter National Forest manages 147,334 ha (364,058 ac) of land among the three ranger districts. Archeological survey since 1977 has covered 66,727 ha (164,881 ac) and 374 miles of access roads and firelines through 2003, amounting to about 45 percent archeological survey coverage. All surveys conducted prior to 1992 were reconnaissance-level surveys. Reconnaissance-level surveys account for 28,864 ha (71,332 ac) of land, approximately 43 percent of the total archeological survey coverage. Thus, approximately 109,471 ha (270,503 ac) of land remains to be inventoried at the Phase I intensive survey level.

Cultural resources survey on the Sumter National Forest is predominantly compliance-related, satisfying a part of the Section 106 process. According to 36 CFR 800.4(b), locating historic properties, the agency official "shall make a reasonable and good faith effort to identify historic properties that may be affected by the undertaking and gather sufficient information to evaluate the eligibility of these properties for the National Register." What constitutes a "reasonable and good faith effort" in regard to survey intensity may vary among researchers and consultants, but it generally means applying acceptable archeological survey methods to locate all cultural resources within the area of potential effect. Following is a summary and evaluation of cultural resources surveys that have been conducted on the National Forest and the methods that have been used. Based on these data, recommendations are made for future cultural resources survey on the Sumter National Forest. The limiting factor for the majority of the Phase I survey investigations conducted on the Sumter National Forest is financial resources. Thus, any recommendations will implicitly, if not explicitly, consider efficiency.

Site Discovery

Site discovery methods currently used on the Sumter National Forest follow guidelines established by the *South Carolina Standards and Guidelines for Archaeological Investigations* (SC SHPO, SCIAA and SCDAH 2006) and a 2000 MOU between the Francis Marion and Sumter National Forests, South Carolina State Historic Preservation Office, and the Advisory Council on Historic Preservation regading Forest Service compliance with Section 106 of the Historic Preservation Act and the management of heritage resources on the National Forests (USDA Forest Service, SC SHPO and ACHP 2000). These guidelines allow for classification of survey tracts by site presence potential (high, medium or low) and guide the level of archeological survey intensity based on these potentials. The currently used Sumter National Forest site potential models are presented on pages 225-228 in Chapter VII. South Carolina also requires that until such classifications are verified through field research, all area within a survey tract will be classified as high potential, except for areas that have a slope of 15 percent or more (presumably as measured on a 7.5' USGS topographic quadrangle), for tidal areas and for areas with standing water. Classifications made prior to conducting fieldwork must be verified by a pedestrian survey of all area

within a particular survey tract, which involves occasional judicious subsurface tests in areas determined to have low potential for archeological sites.

Archeological survey coverage intensity is determined by site potential, where high probability areas receive the greatest intensity of field inspection and low probability areas receive the lowest intensity of field inspection. Sumter National Forest fieldwork standards require high site probability areas be examined with pedestrian transects spaced 30 meters or less apart. Shovel test pits must be excavated at 30-meter or less intervals along these transects. Moderate site probability areas also are examined with transects 30 meters apart, but shovel test pits can be spaced as widely as 60 meters. Low probability areas are examined at 30-meter intervals, but shovel test pits are placed judgementally in those areas perceived by the archeologist to have some potential for cultural resources. All of the survey tract is examined by 30-meter-spaced transects. Shovel tests are placed even in low probability areas to gather soils information and confirm the absence of cultural resources.

The requirement to surface inspect all area within a survey tract is the most important site discovery method applied for all survey intensity levels. Many sites on the Sumter National Forest are best discovered through surface inspection, rather than with shovel test pits. These sites would include historic period cemeteries, mine prospects, house sites, liquor stills, mill ruins, old bridge supports, fish weirs, dams, and other sites that could leave above-surface remains. Other above-surface cues include changes in vegetation and areas overgrown with imported ornamental plants, including wisteria, Chinese privet, crape myrtle, daffodils, osage orange, and walnut trees which often indicate the presence of a house site. Periwinkle is often found on historic cemeteries. Changes in vegetation also suggest changes in soil conditions, which might indicate a change from wet swampy soil to well-drained soil. Atypical undulations on the terrain surface, e.g., leveled areas, irrigation canals, pits, also indicate historic alterations of the landscape. Most obviously, pedestrian survey of all area increases contact with potential surface exposures that reveal artifacts.

Another important reason for full pedestrian examination of all areas within a survey tract is to confirm what is depicted by the 7.5' USGS topographic map, the primary source used for determining high, medium and low probability areas prior to executing an archeological survey. It is not uncommon to encounter misrepresentations of landforms on 7.5' USGS maps, and this is becoming increasingly evident with more frequent use of global positioning devices. Aside from obvious mistakes on 7.5' USGS quadrangles, surveyors also must keep in mind that a topographic map is a generalized representation of the terrain at a 1:24,000 spatial scale. These maps cannot be expected to generate actual terrain conditions as observed on a 1:1 spatial scale. To cite a common example, ridge side slopes as depicted by a topographic quadrangle are likely to be comprised of a series of irregularly spaced ridge spurs with varying degrees of slope, rather than a continuous, unbroken slope grading toward drainages. Importantly, such stepped ridge side slopes with a calculated slope of greater than ten percent at a 1:24,000 scale would be classified as having a low potential for archeological sites, when actual archeological site potential is likely to vary and not be recognized if the area does not receive a pedestrian survey.

Since 1992 cultural resources surveys have been conducted using the methods outlined above. Nevertheless, site densities vary considerably, ranging from one site per 13.6 acres to one site per 103.7 acres on the Enoree and Long Cane Ranger Districts (Table IX.1). The only relatively large

cultural resources survey conducted on the Andrew Pickens Range District is the Jordan and Quirk (2002) survey, which returned a one site per 104.2 acre site density. Average site density among 25 cultural resources surveys conducted in the Enoree and Long Cane Ranger Districts over the past 13 years is one site per 29.8 acres. Some of the more recent surveys conducted in the past two years have yielded considerably higher site densities, revealing approximately one site per 14 acres in the Enoree and Long Cane Ranger Districts (e.g., Benson 2002b; Pluckhahn 2001).

There are a number of possible reasons for the wide range of differences in site densities among the survey projects listed in Table IX.1. First, actual differences exist in past land use intensity, i.e., the number of archeological sites particular tracts contain. For instance, lithic quarry areas typically have a higher density of sites. Many of these sites are not quarries themselves, but they often display significant amounts of secondary lithic reduction associated with quarry activity at the nearby quarry site(s) and they also tend to be larger sites. The amount of area covered by cultural resources within a 172-hectare, circumscribed area around Little Mountain Creek Rhyolite Quarry (38SA64) is 24 percent ("site areal cover" = combined site area divided by circumscribed parcel [or survey] area), which is significantly higher than typical values (compare with "site areal cover" figures in Table IX.1). The number of associated sites is often determined by the value of the quarry, or in other words, the relative abundance of stone and its perceived quality. The greater the quality and abundance of the flakable stone, the more often the stone would be exploited and adjacent areas used through prehistory.

Table IX.1 Summary of a Sample of Larger Areal Surveys Conducted in the Sumter National Forest.

	Size/Length		Number of Sites		Site Density			
Survey	Area (ac)	Road/ Fireline (mi)	w/in Area	w/in Road/ Fireline	No. sites/ac	No. sites/mi	Site areal cover*	Ranger District
Price (1991a)	2,051	8.3	47	11	1/43.6	1/0.8	NA	EN, LC
Price (1991b)	1,365	0.3	62	0	1/22.0	0	NA	EN, LC
Price (1991c)	2,001	3.3	82	2	1/25.0	1/1.6	NA	EN, LC
Benson (1992a)	1,709	2.0	63	7	1/27.1	1/0.3	3.1%	EN, LC
Cantley and Cable (1992)	1,208	0.6	25	0	1/48.3	0	NA	EN, LC
Ensor (1992)	2,385	2.5	31	0	1/76.9	0	NA	EN, LC
Jones (1992)	1,866	7.1	18	0	1/103.7	0	NA	EN
Price (1992a)	1,438	3.8	69	3	1/20.8	1/1.3	NA	EN, LC
Price (1992b)	4,640	8.9	154	7	1/30.1	1/1.3	NA	EN, LC
Cole (1993)	1,656	0	24	0	1/69.0	NA	NA	EN, LC
Hayward (1993)	1,993	0	53	0	1/39.1	NA	NA	EN
Benson (1994b)	1,605	0	47	0	1/34.1	NA	1.8%	EN
Benson (1995b)	2,136	0	45	0	1/47.5	NA	1.2%	EN
Benson (1995c)	1,891	0	53	0	1/35.7	NA	2.1%	LC
Benson (1995d)	2,004	0	57	0	1/35.2	NA	1.7%	EN

Survey	Size/Length: Area (ac)	Size/Length: Road/ Fireline (mi)	Number of Sites: w/in Area	Number of Sites: w/in Road/ Fireline	Site Density: No. sites/ac	Site Density: No. sites/mi	Site Density: Site areal cover*	Ranger District
Cantley et al. (1995)	3,804	0	132	0	1/28.8	NA	NA	LC
Ison and Bates (1997)	2,474	0	99	0	1/25.0	NA	2.4%	EN
Benson (2002b)	1,062	0	77	0	1/13.8	NA	2.9%	EN
Jordan and Quirk (2002)	1,146	0	11	0	1/104.2	NA	NA	AP
Keith and Keith (2002)	2,085	0	115	0	1/18.1	NA	5.8%	LC
Pluckhahn (2001)	3,113	0	233	0	1/13.6	NA	NA	LC
Green et al. (2003)	2,037	0.6	49	0	1/41.6	NA	5.7%	EN
Adams and Gunn (2004)	576	0	13	0	1/44.3	NA	0.6%	LC
Fletcher and Philips (2004)	501	0	11	0	1/45.5	NA	1.7%	EN
Total	**46,746**	**37.4**	**1570**	**30**	**1/29.8**	**1/1.2**	**NA**	**AP, EN, LC**
Fireline Surveys								
Smith (2001)	0	34.47	0	11	NA	1/3.1	NA	EN
Benson (2002a)	0	41.25	0	55	NA	1/0.8	NA	EN, LC
Benson (2003)	0	11.7	0	25	NA	1/0.5	NA	EN
Keith (2004)	0	20.4	0	11	NA	1/1.8	NA	EN
Patton (2004)	0	4.3	0	8	NA	1/0.5	NA	LC
Total Fireline	**0**	**112.12**	**0**	**110**	**NA**	**1/1.0**	**NA**	**EN, LC**

* Amount of geographic area covered by archeological sites divided by the total area surveyed.

Second, the amount of Euro/African American Historic period land use and subsequent erosion varies considerably from one area to the next within ranger districts. The greater the physical impact of historic use the fewer prehistoric sites that are likely to remain intact and detectable by traditional survey methods.

Third, determination of high probability areas prior to undertaking surveys varies considerably among survey projects. High probability areas receive the greatest amount of attention. If a considerable amount of land is not considered to be high probability without field confirmation, then the potential for locating archeological sites decreases. Related to this influence is the level of experience of field workers, which can vary considerably. Thirty-meter transects with shovel test pits

placed every 30 meters is a systematic guide to ensure proper coverage of survey tracts. This guide is intended to produce comparable survey coverage. However, precise implementation is always governed by the interaction between individual surveyor and actual terrain conditions. If transects and shovel tests are placed on a strict grid with no regard to local topographic situations, then high probability areas, especially small areas, can be missed, regardless of whether specific areas were delineated as high probability prior to survey implementation. Furthermore, focusing upon only the shovel test aspect of survey coverage detracts from other aspects of archeological survey coverage, such as inspecting exposed surfaces, noting vegetation changes, recognizing above-ground historic period features, and discovering small areas of high probability embedded in 1:24,000 scale-determined low or moderate probability areas.

The fourth influence is the comprehensiveness of exploratory shovel tests that are excavated within a survey tract. These are shovel tests excavated on what has in the past been referred to as "microlandforms" or high probability landforms that are not depicted by the 7.5' USGS quadrangles or GIS digital elevation models. These microlandforms occur within areas of low-to-moderate probability determined at a 1:24,000 scale. There is a range in the level of intensity such "lower probability" areas are explored, which is influenced by the level of experience of the individual surveyor, the level of desire by individual surveyors to find sites (as opposed to "finishing his/her line of shovel tests"), seasons (heat of summer depresses exploration intensity and leafy vegetation obscures visibility), the time of day, satisfaction of the field crew, survey tools supplied to the field crew, survey equipment condition and project budgetary concerns. These influences upon site discovery are probably the least recognized simply because they are not always easily identifiable or quantifiable. They cannot be easily and simply subsumed under survey methods and they are not perceived (or admitted) by many in the archeological community to represent a significant effect upon survey results.

Fifth, the sites per acre method of measuring site density within a particular tract of land does not always accurately measure the amount of cultural resources. For instance, ten archeological sites within 400 acre of land with an average site size of only 1,000 m^2 will be reported as the same site density as another 400 ac tract of land with ten archeological sites that have an average site size of 10,000 m^2. The amount of areal coverage between these two hypothetical tracts is vastly different, where in the first example only 0.5 percent of the land is covered by cultural resources and in the second example 5.0 percent of the land is covered by cultural resources. A good "real life" example comes from the Uwharrie National Forest (Benson 1999). Of two land management compartments that were recently surveyed, one had a one site per 5.9 acre site density (Compartment 18) and the other had a one site per 9.4 acre site density (Compartment 24). However, using the areal coverage method, Compartment 24, located in an area with rhyolite quarries, revealed nearly twice as much cultural resource coverage than Compartment 18. That is, 10.2 percent of they survey tract was covered by cultural resources in Compartment 24 and only 5.3 percent of the survey tract was covered by cultural resources in Compartment 18. In general, where there are not large discrepancies in site sizes among survey tracts, the greater number of sites within a survey tract will also show greater areal coverage by archeological sites (see Table IX.1 for a sample of calculated areal coverages).

Using the areal coverage method for measuring cultural resource density can remove potential bias imparted by "splitting" or "lumping" sites based upon differences in the way respective

archeologists define breaks in artifact distributions. However, this manner of measuring cultural resource density is not without its own biases. For instance, since site size is a component of the equation, the method by which sites are recorded can skew overall site size. If sites are recorded using a 15- or 20-meter shovel test interval and site boundaries are drawn between the last positive and the first negative shovel test, as is required by the Forest Service, then sites will consistently measure larger than those that were recorded using a five- or ten-meter shovel test interval. For example, a single-shovel test site will measure 15 x 15 meters (225 m^2) with a 15-meter shovel test interval and the same site will measure 10 x 10 meters (100 m^2) with a ten-meter shovel test interval. A site-by-site comparison will not show large differences in site size, but when numerous sites are involved then differences compound and become more apparent.

How site size is measured also matters. A length-x-width site size calculation ignores irregularities in site shape. A mapping program like ArcGIS, which will calculate site area while accounting for shape, will invariably return a smaller site size than the length-x-width method. In sum, the site areal coverage method of calculating cultural resource density within a given tract is very simply and readily applied with ArcGIS, as long as the size of the survey area is known.

Sixth, greater amounts of shovel testing implemented after an artifact has been located will result in more sites and fewer isolated finds or occurrences. In past Sumter National Forest surveys it was customary to excavate four shovel tests in cardinal directions, or aligned with and crosscutting the landform axis, around a single artifact-bearing shovel test or surface find. This method recently has been expanded to two shovel tests in each direction around the single artifact. Comparing two recent fireline surveys, where the first survey used the four-shovel test method and the second survey used the eight-shovel test method, the number of archeological occurrences was greatly reduced. The first survey recorded 55 sites and 62 occurrences (Benson 2002a) and the second survey recorded 25 sites and nine occurrences (Benson 2003). Site density increased from one site per 0.8 miles to one site per 0.5 miles. Most importantly, information from only nine cultural resources in the second survey will be lost (due to no comprehensive database incorporating occurrences), as opposed to information from 62 occurrences in the first survey that are effectively lost.

Cultural resources surveys on the Sumter National Forest will benefit from increased numbers of shovel tests excavated within a given tract of land simply because more shovel tests will produce more artifacts. In the interest of efficiency, shovel tests should not be "wasted," meaning that implementation cannot ignore subtle topographic situations that can only be observed while conducting the survey. Shovel tests excavated in a drainage will not return better areal coverage, but inspection of the drainage for potential liquor stills will. Shovel tests are important for discovering sites where there is no surface exposure and they are also important for assessing local conditions through observing soils, but excavation of shovel tests cannot overshadow the importance of reading and discovering the landscape.

Site Recording

Through the year 2000, there are 1,717 sites on the Sumter National Forest with lithic artifacts that are not identified to a specific archeological period. Also, there are 134 sites with prehistoric ceramics that are not identified to a specific archeological period. Given that there have

been 3,165 sites recorded on the Sumter National Forest through 2000, this means that 58 percent of sites have virtually no or only limited component identification. If we eliminate sites with only Euro/African American Historic period components (n=1,162), we are left with 2,003 sites with prehistoric artifacts. Among those 2,003 prehistoric sites, *86 percent* have not been identified to a specific temporal or cultural period. This means that land use patterns through time presented in Chapter VI for the prehistoric period is based upon a 14 percent sample (and not likely random) of the total known prehistoric site universe on the Sumter National Forest. This is perhaps the most significant research problem facing the cultural heritage program on the Sumter National Forest.

Recently, the cultural heritage program at the Sumter National Forest implemented methods to combat the "unidentified" problem. The primary solution has been to increase the number of shovel tests placed on discovered sites during Phase I survey investigations. Around the year 2000, consultants increased the number of shovel tests placed on archeological sites during Phase I investigations by "enhancing" the basic cruciform pattern used to determine length and width dimensions of sites. The enhancement consisted of additional shovel test lines radiating out from positive shovel tests. Additional shovel test lines followed more subtle topographic features that radiated from the main axis of the site, which characteristically followed a main ridge crest. Additional shovel test lines followed crests of ridge spurs or toe slopes radiating out from the main ridge. Such landforms often are classified as ridge side slopes at a 1:24,000 scale. Shovel test intervals ranged between 10 and 20 meters (Table IX.2). Contracts administered since 2002 require newly discovered sites to have a 15-meter , or less, interval grid of shovel tests excavated across sites greater than 50 meters in length, and a 10-meter, or less, interval grid of shovel tests excavated across sites less than 50 meters in length. Two consecutive sterile shovel tests must be excavated beyond each positive shovel test, unless otherwise terminated by distinct topographic features.

Table IX.2. Number of Sites Investigated at Various Shovel Test Intervals and Patterns Excavated Across Sites During Phase I Surveys for Post-2000 Projects.

	Shovel Test Interval (m) on Sites with Artifacts									
Survey	**10**	**15**	**20**	**30**	**5/10**	**10/15**	**10/20**	**15/20**	**Total**	**Pattern**
Benson (2002b)	25	11	1		1	17	3	4	62	"Enhanced" cruciform to grid
Green et al. (2003)		48							48	Strictly grid
Fletcher and Philips (2004)	4	4							8	Strictly grid
Keith and Keith (2002)		112		3					115	"Enhanced" cruciform to grid
Pluckhahn (2002)	67	16	38		1	6	23		151	Cruciform to "enhanced" cruciform; few grids

Three recent surveys on the Enoree and Long Cane Ranger Districts, Benson (2002b), Keith and Keith (2002) and Pluckhahn (2001), have employed the enhanced cruciform or nearly-complete-grid shovel test strategy. Results revealed no improvement in diagnostic artifact recovery. Out of 103 sites with prehistoric artifacts in the Keith and Keith (2002) survey, only three (3%) produced

diagnostic artifacts; of 149 sites with prehistoric artifacts in the Pluckhahn survey, 15 (10%) produced diagnostic artifacts; and, of 60 sites with prehistoric artifacts in the Benson (2002b) survey, seven (12%) produced diagnostic artifacts. None of these Phase I investigations were able to meet the Sumter National Forest-wide prehistoric, archeological period identification rate of 14 percent. Furthermore, a sample of seven relatively large timber stand surveys conducted in the early-to-mid 1990s had a significantly larger success rate (19 percent on average) for discovering prehistoric diagnostic artifacts (Table IX.3). None of the three recent surveys referenced above suffered from lack of effort. All three recorded high site densities in their respective survey areas. Keith and Keith (2002) recorded one site per 18.1 acres, Pluckhahn (2001) recorded one site per 13.6 acres and Benson (2002b) recorded one site per 13.8 acres. The enhanced cruciform shovel test method for recording archeological sites may have improved site definitions spatially, but did not necessarily translate into higher diagnostic artifact discovery and temporal definition.

Table IX.3. Comparison of Prehistoric Diagnostic Artifact Discovery Success Rate between Pre-2000 and Post-2000 Phase I Cultural Resources Surveys on the Enoree and Long Cane Ranger Districts.

Post-2000 Surveys			Pre-2000 Surveys		
Survey	**No. of Prehistoric Sites**	**Diagnostic Success Rate**	**Survey**	**No. of Prehistoric Sites**	**Diagnostic Success Rate**
Benson (2002b)	60	11.7%	Benson (1992a)	44	12.7%
Fletcher and Philips (2004)	6	0.0%	Benson (1994b)	34	34.8%
Green et al. (2003)	30	23.3%	Benson (1995a)	29	31.4%
Keith and Keith (2002)	103	2.9%	Benson (1995d)	38	25.6%
Puckhahn (2002)	149	10.1%	Benson (1995b)	28	15.6%
Total	**348**	**8.9%**	Price (1991a)	41	7.3%
			Price (1991b)	41	14.6%
			Total	**255**	**19.2%**

Two post-2002, Phase I archeological surveys, where full shovel test grids were implemented on all archeological sites, returned mixed results. Green et al. (2003) had a relatively high diagnostic artifact discovery success rate of 23.3 percent (Table IX.3). This rate is higher than the average pre-2000 survey sample (ca. 19%) provided in Table IX.3 and it is higher than the sample of surveys conducted between 2000 and 2002, but it does not exceed the diagnostic artifact recovery success rate of every individual cultural resources survey conducted prior to 2000. In contrast, the Fletcher and Philips (2004) survey, which is a much smaller sample of sites, found no prehistoric diagnostic artifacts.

In spite of the mixed results, it stands to reason that more digging should increase the chance for recovering diagnostic artifacts. On a recent testing phase investigation in the North Carolina Sandhills (Benson 2000a), more digging clearly produced more diagnostic artifacts on 50 excavated sites that were initially delineated with a cruciform pattern of shovel tests. All sites received 10-meter or a combination of 5- and 10-meter shovel test grids. About 4,900 shovel tests were excavated among the 50 sites and approximately 30 percent produced artifacts. However, the increase in the number of prehistoric components identified when compared to the survey-phase data was only marginal. A more substantial increase in diagnostic artifact recovery occurred with excavation of 1-x-2-m units. The number of 1-x-2-meter units excavated on each site ranged from two to ten, with an average of about five. The combined close-order shovel test grid and excavation of 1-x-2 meter units, while separately excavating, screening and documenting artifacts from each 1-x-1-meter half of the 1-x-2-meter test units, also produced specific intrasite patterns relating to distinct occupations through time (Benson 2000a).

Use of shovel test grids of 15 meters or less during Phase I survey investigations across sites dramatically increases the total number of shovel tests excavated on each site. Understandably, nearly every site that is greater than 50 meters in length is covered with the maximum interval of 15 meters. The consequence is significantly more shovel tests excavated for each site but a marginally lower proportion of shovel tests producing artifacts, since many more negative shovel tests are excavated. Nevertheless, the average number of positive shovel tests excavated on each site also increases significantly. Comparing the Green et al. (2003) survey, which employed shovel test grids on 15-meter intervals across sites, with the Benson (2002b) survey, which employed an enhanced cruciform shovel test method, more than twice as many positive shovel tests were excavated on sites on average with shovel test grids (8.1 positive tests/site versus 3.7 positive tests/site). Green et al. (2003) had a diagnostic artifact recovery rate almost exactly twice that of Benson (2002b) (compare diagnostic artifact recovery success rates in Table IX.3).

Surface exposure is the single most effective variable for identifying prehistoric cultural components in the Piedmont and Blue Ridge Provinces. On two recent fireline cultural resources surveys, diagnostic artifact recovery rate was far greater than on traditional timber stand surveys with limited surface exposure. Fireline surveys use only surface exposure for site discovery, as long as the fireline is exposed more than 30 percent, rather than relying upon a combination of prospecting shovel tests and occasionally exposed surfaces. Firelines on average are about 2 to 3 meters in width, offering only minimal exposure across landforms. On a 41.25- mile fireline survey on the Enoree and Long Cane Ranger Districts, 55 archeological sites and 62 archeological occurrences were recorded (Benson 2002a). The proportion of sites with prehistoric diagnostic artifacts was 28 percent, doubling the Sumter National Forest-wide diagnostic artifact recovery rate. Significantly, on this particular survey two locations with Late Paleoindian components were discovered, one in each ranger district. One of the two was an isolated artifact. An additional eight diagnostic artifacts (Early and Middle Archaic and Early Woodland) were collected and recorded as occurrences. On a 11.7-mile fireline survey on the Enoree Ranger District (Benson 2003), 25 sites and nine occurrences were recorded. Nineteen prehistoric components were recorded among 24 sites with prehistoric artifacts. Several of these were multicomponent, so the actual number of sites with diagnostic prehistoric artifacts was 14, yielding a diagnostic artifact recovery success rate of 58.3 percent. Only four sites were classified as "Unidentified Lithic." Additional Early, Middle and Late Archaic components were recorded as archeological occurrences.

Unfortunately, not all fireline surveys on the Sumter National Forest return the same kind of success rate in regard to both numbers of sites recorded and the number of diagnostic artifacts collected. Scott Keith's (2004) recent 20.4-mile fireline survey recorded eleven archeological sites, resulting in 0.5 sites per mile (Table IX.1). Diagnostic artifact recovery was still high, however. Among eight sites with prehistoric artifacts, two were identified to a particular prehistoric period (Middle and Late Archaic), which returns a 25 percent diagnostic artifact success rate. The fewer sites recorded was perhaps largely due to the timing of the survey. The survey was conducted in November when all of the leaves had already fallen, which obscured much of the fireline course and essentially negated the advantage of conducting a surface inspection survey. In such circumstances a leaf blower might be more advantageous than a shovel.

In another recent fireline survey where surface exposure was described as "usually good" (Smith 2001:4), a total of eleven sites (six previously recorded) were recorded in 34.47 miles of fireline, resulting in 0.3 archeological sites per mile (Table IX.1). Five of the eleven sites had prehistoric artifacts and three of these had diagnostic artifacts, returning a 60 percent diagnostic artifact success rate. Among nine isolated artifacts (occurrences), all were prehistoric and three (33%) were identified to a specific archeological period. Thus, even though overall site discovery was low (0.3 sites per mile), the success of finding a diagnostic artifact was high.

Excavation of more shovel tests on sites during Phase I intensive surveys will produce more diagnostic artifacts as long as shovel test grids are consistently employed and the total number of positive shovel tests are relatively high. The fireline surveys reveal that inspection of even minimally exposed surfaces across archeological sites increase the likelihood of encountering a diagnostic artifact even more. Close inspection of exposed surfaces in the South Carolina Piedmont, and by extension, the Blue Ridge, is the most advantageous method for diagnostic artifact recovery.

Site Information

Two initial goals after site discovery are determining the spatial extent of the site and identifying archeological component(s). Two other essential goals are evaluating site preservation integrity and determining site function. Information for achieving the latter two goals, preservation integrity and site function, is gathered while executing the first two immediate goals, artifact spatial extent and archeological component(s) identification. The first two immediate goals will be dealt with here and the latter two goals in Chapter X.

In most cases, ascertaining the spatial extent of an artifact scatter can be reliably determined by topographic features for at least one dimension largely because the vast majority of sites that are recorded on the Sumter National Forest occur on bounded landforms, e.g., ridge noses, saddles, knolls and toe slopes. Approximately 86 percent of all sites recorded through 2000 on the Andrew Pickens Ranger District, 84 percent of a 600-site sample on the Enoree Ranger District, and 85 percent of a 773-site sample on the Long Cane Ranger District occurred on one of these four landform types. Site width is very often determined by landform width, either by steep side slopes of the landform or by drainages that bound the landform. The longitudinal axis of the artifact distribution typically is the unknown dimension to be addressed.

Though shovel test grids across sites are an effective means of increasing the likelihood of encountering diagnostic artifacts, close inspection of exposed surfaces is even better (see above). Given that on typical timber stand surveys surface exposure is negligible, shovel test grids are the most effective means of addressing the "unidentified" problem on the Sumter National Forest. The only drawback is efficiency. The amount of area that is able to be inspected per amount of money expended decreases significantly if more intensive shovel testing on sites is employed. Furthermore, employment of a shovel test grid across sites on cultural resources surveys redefines Phase I investigation intensity to somewhere between Phase I and II investigations. From the perspective of the Forest Service, this may actually be the most effective long-term means of delineating sites and acquiring information from these sites. Funds rarely have been available for conducting additional archeological investigation beyond Phase I surveys.

Site Component Recommendations

One potential method for acquiring cultural period information would be site revisits after timber removal. This is most effective on clear cut areas where the amount of soil disturbance and ground surface visibility is greatest. Selective cutting, or thinning of timber stands is the more common timber harvest method now used on the Forest. Selectively cutting timber stands still disturbs the surface to some degree and revisits to archeological sites might be an effective means for acquiring component information. We contend that the labor required would be a great deal less than implementing full 15-meter or less interval grids across sites during Phase I investigations, thus providing a method of component identification that would be more efficient. Less efficient, but also a productive means for acquiring component information, is test unit excavation on sites with relatively high artifact density during Phase I investigations. Of course, these three methods used together, close-order shovel test grids, post timber harvest surface inspection and test unit excavation, would be optimal given sufficient amount of resources.

An untapped database that would provide additional archeological component identification is inclusion of archeological occurrences or isolated finds in the site records. Though the majority of occurrences are non-diagnostic, there is a substantial (but unknown) number of occurrences that record component information at specific geographic locations. Occurrences can provide significant information and have been used successfully for not only documenting land use, but also have been subsumed under proposed settlement-subsistence models as specific settlement types (e.g., O'Steen 1983). Occurrences invariably contain useful information in regard to use of space through time. Unfortunately, acquiring (or rather, re-acquiring) this information from past cultural resources surveys will be a tedious and time-consuming endeavor. It will require "re-visiting" every cultural resources management report that recorded occurrences and then transferring their geographic and archeological component information to a comprehensive Forest Service database.

Documentation of occurrences in the future, in addition to placing their locations on 7.5' USGS topographic maps, may take the form of something similar to North Carolina. The North Carolina system assigns official state site numbers to all occurrences, and their locations are documented on the master cultural resources maps located at the Office of State Archaeology. Information concerning context and cultural affiliation is recorded on an abbreviated, one-page version of the official archeological state site form. South Carolina could implement a similar system. Of course, a proposal of this sort would require cooperation with the South Carolina Institute

of Archaeology and Anthropology and the South Carolina State Historic Preservation Officer and changing a state-wide system of site recording that has been in place for a number of decades. In lieu of an improbable state-wide change, the Forest Service can implement its own system, especially with the recent addition of an ArcGIS. Cultural resources surveys in the future can simply use a single GPS reading as point data for plotting archeological occurrences or isolated finds.

Chapter X
Recommendations for Future Cultural Resource Management

Future goals of the Sumter National Forest, both immediate and long-term, that can help address research issues outlined in Chapter VI for the prehistoric, Historic Native American and Euro/African American Historic periods can be summarized in two complementary research directions: 1) increased detail and reliability of the existing database and 2) greater emphasis placed upon archeological research in relatively unknown (geographic and thematic) areas. This section provides suggestions for the Forest Service to consider as they plan future cultural resource management strategies. These will incorporate some of the primary objectives that were already presented, mostly along the lines of archeological data management.

There are a number of tasks that could greatly improve research potential with existing, mostly Phase I-level information. Some of these also will improve administrative/management issues presented by the several thousand known sites on the Sumter National Forest. Furthermore, the improved research potential immediately can be realized with the use of the Sumter National Forest's existing ArcGIS system. Specific tasks are as follows:

1) Add artifact data to the I-Web/INFRA database and link it to ArcGIS. Minimally, diagnostic artifacts should be listed with each site. All diagnostic lithic artifacts should include lithic raw material and all ceramics should include decorative style relating to archeological phase. Optimally, all artifact classes and materials along with intrasite proveniences should be added to the database.

2) Include archeological occurrences and isolated finds in the I-Web/INFRA database. A substantial amount of archeological component information is missing in the archeological database, but this information can be retrieved in Forest Service cultural resource management reports. New Phase I surveys should also include electronic global positioning systems (GPS) records of archeological occurrences and isolated finds to be submitted to the Forest Service along with archeological site data.

3) Digitally reproduce historic period maps and georeference these maps as data layers in the ArcGIS system. Doing so will greatly increase the ability to locate structures during Phase I surveys and research particular historic period themes, such as communities and transportation networks. Accuracy will be limited by both detail and accuracy of original maps. The most detailed and accurate archival maps for locating structures, roads and other features are the early twentieth century county soil survey maps.

4) Streamline the incorporation of new Phase I inventory into the ArcGIS database so that the most recent survey information is readily available to Forest Service personnel, consultants, and researchers.

5) Establish an ArcGIS link with South Carolina Institute of Archaeology and Anthropology so that the archeological site database can be dynamically updated on both ends of this link.

Implementation of these five recommendations will require cooperation with the South Carolina Institute of Archaeology and Anthropology. In so doing, the quality of the existing database will greatly increase. Inevitably, inconsistencies and errors in the database will be discovered. Determinations of archeological periods and phases for sites can be reevaluated. Implementing the proposed improvements to the Sumter National Forest site database in cooperation with South Carolina Institute of Archaeology and Anthropology will allow an opportunity to reevaluate component designations and make any necessary changes to existing archeological site information. Certainly this task will be a long-term and ongoing cooperative process between the two administrative agencies.

Redirected emphases focused upon specific geographic areas and particular research themes will enrich the archeological information content on the Sumter National Forest. Recommendations below have already been addressed under a number of different research objectives and themes in the previous chapter, but they will be summarized here. They are as follows:

1) Archeological inventories should be directed toward total coverage of larger, contiguous areas to gain a more comprehensive view of archeological resource distribution. Phase I archeological surveys on the Sumter National Forest typically consist of a number of spatially discrete timber stands scattered throughout Forest Service land that have been designated for timber harvests. Timber stands scheduled for harvests usually do not include larger stream and river bottomlands, which are areas known to contain archeological resources. This "patchwork" approach to archeological survey typically excludes large stream and river bottomlands and has produced a site database which contains mostly inter-riverine upland archeological sites.

a) Because large drainage and river bottomlands typically have a thick mantle of late nineteenth-early twentieth century alluvium and colluvium, conventional shovel tests are usually inadequate for penetrating buried surfaces. Geomorphological studies will be necessary to record depths of buried surfaces and to reconstruct drainage histories.

b) If a geomorphological study determines potential for buried archeological deposits, then methods for inventorying and recording these deposits for archeological investigation need to be developed.

2) Archeological investigations on the Sumter National Forest need to incorporate a plan for post-Phase I investigation. Numerous sites from all archeological periods, including unidentified prehistoric lithic sites, have been recommended possibly eligible to the National Register of Historic Places (see Chapter IV). Phase II investigations of at least a sample of sites from all archeological periods and geographic areas will greatly add to our understanding of changing land use patterns through time, as well as provide new information concerning site structure. Additionally, Phase II investigations of a sample of National Register ineligible sites (Class III sites) from different archeological periods would serve as a monitor for how sites are evaluated for research potential during Phase I surveys.

3) Implement, at the minimum, a reconnaissance-level lithic raw material quarry survey on the Sumter National Forest. Establish a quartz type identification scheme, such as the one developed by Scott Jones (Benson 2000a:47-49), to classify quartz raw materials to specific types. The same can be done with rhyolite quarries on the Sumter National Forest. Adapting a classification scheme similar to the one developed for southern Uwharrie rhyolite in North Carolina (Benson 1999:25-33; Daniel and Butler 1996) will be particularly helpful. The potential for soapstone quarries should be explored on both the Enoree and Long Cane Ranger Districts, and more intensive research should focus on existing soapstone quarries on the Andrew Pickens Ranger District.

4) Revisit archeological sites within recently harvested timber stands. Optimally, revisits should be conducted after maximum land disturbance occurs, after two rains, and before significant regrowth. Artifacts exposed at the surface typically are most visible after the second rain. Revisits specifically should focus upon identifying diagnostic artifacts. This task will require good communication between Forest Service timber and heritage resources programs on the Sumter National Forest. Updating site information with additional component information can be facilitated easily with the ArcGIS and I-Web/INFRA database.

5) Shift research focus from Phase I-level survey site data collection toward thematic research on the Sumter National Forest.

Several of these recommendations obviously require a substantial amount of time, money and human resources that the Forest Service ordinarily does not possess. While applying presently available resources toward some of these goals may be possible within the Forest Service, it is unlikely that all of these goals can be met completely within the agency. Agencies outside of the Forest Service, such as archeological foundations, societies and universities, need to view National Forest lands as an archeological laboratory that holds the potential for profitable research–that research on the Sumter National Forest is not only important within its confines but also beyond its boundaries. The Sumter National Forest has much to contribute toward intra- and interregional studies in archeology and history. Sites like Chattooga Town, Mims Point and De la Howe have already attracted outside attention, but many more opportunities beyond single-site studies can be immensely profitable and certainly merit research project opportunities. Heritage resources data from the Sumter National Forest exists. It simply needs to be recognized and applied.

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Appendix C
Past Environments

Over the past 18,000 years, since the last glacial maximum, the world in general and the Southeast in particular experienced a change from cold and dry conditions to warm and wet conditions. Vegetation mosaics changed in response, and thus prompted modifications in people's subsistence choices and manner of exploitation. Tables C.1 and C.2 summarize changes in precipitation, temperature and vegetation for the Southeast over the past 12,000 years based on data from the many sources cited in the table. The perceived climate and vegetation changes are presented along with cultural time frames for each of the three ranger districts on the Sumter National Forest. Cultural time frames are expressed in "A.D." and "B.C." dates in the first column. Dividing the cultural periods/phases from columns representing perceived paleoenvironments, climatic trends and events is a time scale. For the Paleoindian through Late Archaic periods (Table C.1) the time scale is set for every 600 years and is expressed in radiocarbon years before present (rcbp). For the later Woodland, Mississippian and Historic periods (Table C.2) the time scale is set for every 300 years, since both paleoenvironmental and archeological data achieve greater temporal (and spatial) resolution. This section focuses on environmental change apart from cultural change.

Much of this paleoenvironmental reconstruction relies on pollen records in the southeastern U.S. and climate models generated from pollen data. Later in time, historical documents and tree ring data play a much larger role. Changes in river flow rates, channel configurations and deposition are used to complement the pollen record, as well as observable global changes that include sea level fluctuations, climatic events and solar emissions. All pollen data by default is a measure of the local environment or hydrological catchment area. Thus, pollen data acquired from local conditions require extrapolation based upon complex climate models. Because of this, numerous pollen cores over a large geographic region, from southern Virginia to central Alabama, are included in the following tables and map. Additionally, paleoenvironmental data from pollen cores in the northeastern part of the U.S. are incorporated in the following text to compare and contrast conditions in the two regions in order discern distinct patterns in the southeastern region.

A significant problem for reconstructing paleoenvironments in the southeastern Piedmont and Blue Ridge Provinces is a general lack of study areas for conducting pollen studies (Watts et al. 1996:29). Pollen studies rely on swamps, creek and river meander channels and bogs typically located in Coastal Plain settings. Coastal Plain environments are, and likely have been in the past, significantly different in their vegetation mosaics compared to the Piedmont and Mountain Provinces. Very few pollen studies have been conducted in the Piedmont and Blue Ridge Provinces to date, and even these pollen studies tend not to have the temporal resolution that many of the Coastal Plain pollen studies offer. While having very little direct evidence for these provinces is somewhat disconcerting, paleoenviromental data from the adjacent Coastal Plain still have much to offer. Environmental changes in the Coastal Plain no doubt affected human populations living there, and similar changes are likely to have affected populations in the adjacent Piedmont and Blue Ridge. As archeologists have learned, changes in human land use and subsistence patterns often have environmental components. Parenthetically, concerning the lack of pollen study areas in the southeastern Piedmont, an upland bog was discovered on a recent survey in the Uwharrie National Forest in the Piedmont

of North Carolina that could yield significant information about the environmental sequence in the southeastern Piedmont (Benson 1999:317, 408, 412, 416). Archaic period sites surround this bog.

Terminal Pleistocene (pre-12,000 B.P.)

Prior to and contemporaneous with the first settling of North American, much atmospheric moisture was trapped in continental glaciers (Wisconsin ice sheet), producing sea levels as much as 100 m lower than present. Alaska and the rest of Beringia were part of eastern Asia, producing a biological connection between Asia and North America. A significant amount of debate exists concerning the initial arrival of people in North America via the Bering Strait. Proponents for an earlier arrival suggest that pre-Clovis (pre-12,000 B.P.) sites likely exist on the submerged eastern continental shelf (Martin et al. 1985:15-16). Furthermore, recent work by Al Goodyear at the Topper site in South Carolina has provided compelling evidence in support of a pre-Clovis population in the southeastern U.S. Whether or not people had already populated North America prior to 12,000 years ago, the fossil record suggests that much of the megafauna associated with Pleistocene climates immigrated to North America during the Wisconsin glaciation.

During the later Pleistocene, the North American eastern continental shelf likely resembled the present west coast, where the continental shelf is relatively narrow. The presently submerged eastern shelf would have been a poorly drained, featureless plain with monotonous topography, spatially homogeneous soils and ecological uniformity (Martin et al. 1985:16-17). Gradients of streams cutting through the Piedmont and Coastal Plain were more pronounced, the climate was cooler and drier and vegetation would have been a deciduous forest dominated by oaks, hickory, hemlock, northern pine, elm, and to a lesser extent, beech and southern pine (Sassaman et al. 1990; Prentice et al. 1991). Tundra-like conditions would lie northwest and north of the southeastern region in the Appalachian Mountains. Southeastern Coastal Plain and Piedmont rivers were braided (Leigh et al. in press; Schuldenrein 1996) and dramatic precipitation fluctuations between seasons prompted the last of significant riverine dune formations in the past 14,000 years (Ivester and Leigh 2003; Ivester et al. 2001). Notable fauna consisted of giant ground sloth, giant armadillo, small tropical cat and Florida cave bear. The southeastern Piedmont was also likely inhabited by stag moose, muskox and giant beaver (Martin et al. 1985). Notable megafauna such as the mastadon are not present in abundance in the Southeast, as they appear to be more common to the north and west.

Early Holocene (12,000-8000 B.P.)

Warmer temperatures began melting the Wisconsin ice sheet, producing more atmospheric moisture and a gradual rise in sea level. By 12,000 B.P. northern retreats of glaciers and a significant increase in precipitation mark the end of the Pleistocene and the beginning of the Holocene. The southeastern Piedmont was populated with mostly hickory, elm, southern pine, beech and northern pine. Though a change toward a warmer and wetter climate was continuous for at least 7000 years (since ca. 14,000 B. P.), there were short periods of reversals (Anderson 2001; Kneller and Peteet 1999; Moore and Hillman 1992). Kneller and Peteet (1999) document cold reversals at 12,000 B.P. and at 7500 B.P. in their pollen core at Browns Pond in the central Appalachians of Virginia (Figure C.1, Table C.1). World-wide, the Younger Dryas is a short period of cooler and dryer conditions during the early Holocene, ca. 11,000 B.P. (Moore and Hillman 1992). C. V. Haynes (1991), indicating that the appearance of the Younger Dryas is not evident in New York until around 10,900

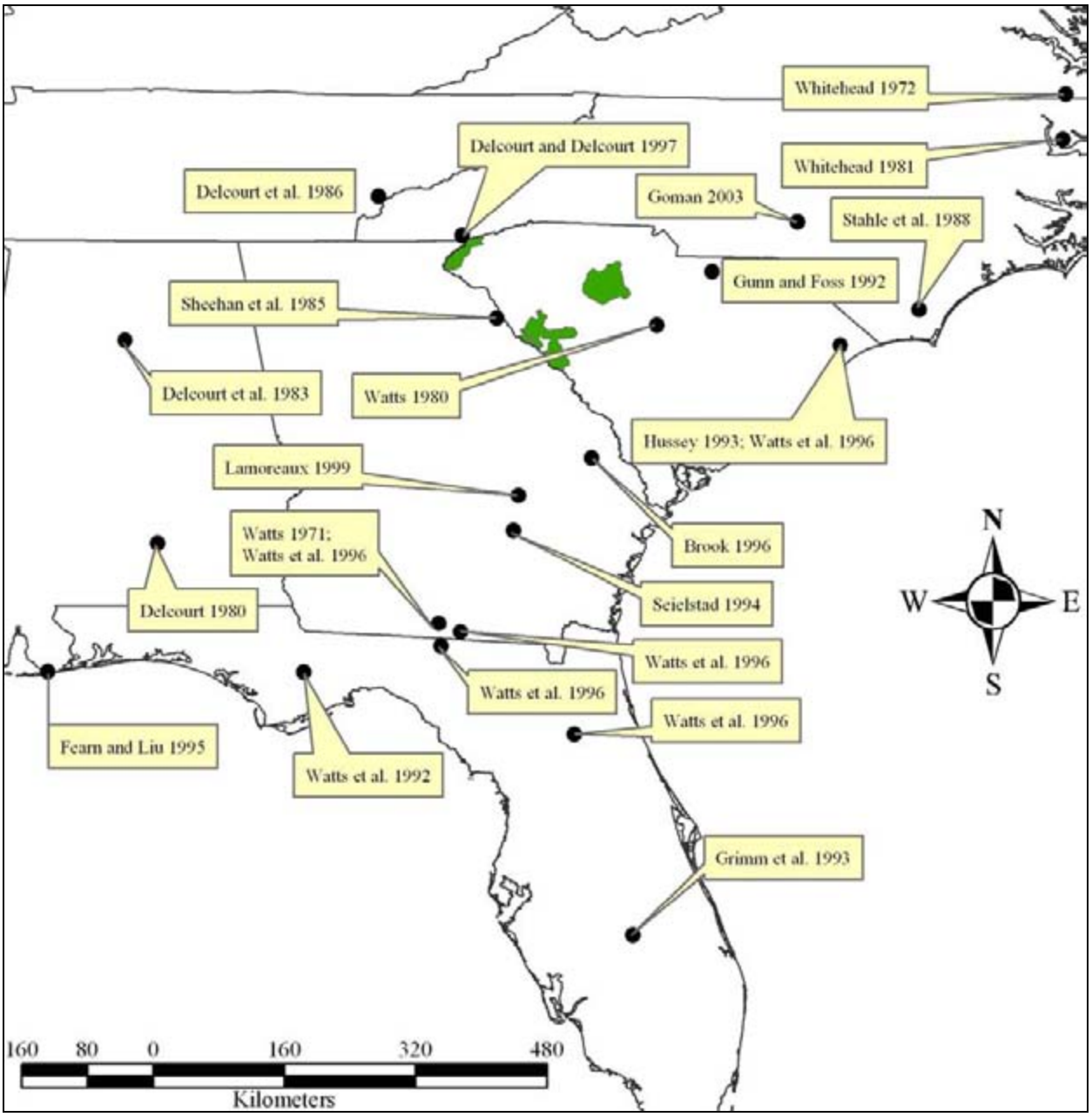

Figure C.1. Locations of Referenced Pollen Cores Used in the Text.

to 10,300 B.P., and Haynes (1985) suggest that this dry period, in concert with Clovis period hunters taking advantage of drought conditions, spelled the demise of the North American megafauna.

Evidence of the effects of the Younger Dryas upon southeastern U.S. climates is mixed. Kneller and Peteet (1999:145) suggest that the Virginia Appalachians may have been just beyond the southeastern extent of the colder and drier effects of the Younger Dryas, since at that time they record warmer and wetter conditions compared to the previous millennium. They contend that their recorded increase in warmth and moisture at 11,300 B.P. can be consistent with a cold reversal in the northern Atlantic region, where storm-track-associated moisture would run along a steep temperature gradient between the cold subpolar water to the north and the warmer subtropical waters to the south

(Kneller and Peteet 1999:145). Associated effects of the Younger Dryas in the South Carolina Piedmont is not clear. Goman (2003), reporting on pollen cores taken at Fort Bragg in the Sandhills of North Carolina, records a cold/dry climate (ca. 29,000 to 12,000 B.P.) changing to a cool/moist climate during the Younger Dryas period. While the relatively cool climate does not agree with Kneller and Peteet's (1999) study, the wetter climate during the Younger Dryas is consistent with Kneller and Peteet (1999). Other pollen studies and climate model simulations for the Southeast all indicate a wetter climate during the course of the Younger Dryas (Hussey 1993; Lamoreaux 1999; Watts et al. 1992; Watts et al. 1996; Whitehead 1981) (Table C.1), but vary between a cool and a warm climate. The only climate pollen model for the southeastern Coastal Plain that differs from those above, indicating a drier and cooler climate than present for the Younger Dryas, is Webb and colleagues (1987) (Table C.1).

Beyond the Younger Dryas interval (post ca. 10,500 B.P. to around 8000 B.P., the end of the Early Holocene) the climate generally continues to experience increases in both effective precipitation and temperature, resulting in thicker vegetation cover (less surface exposure) and a shift from a boreal toward an oak-hickory mesic environment by the end of this 2,500-year phase. Megafauna associated with the Terminal Pleistocene/initial Holocene have disappeared and the faunal mosaic that is present today ensued. Rising sea levels reduced the stream gradient across the Piedmont and Coastal Plain and braided streams evident during the Pleistocene and initial Holocene (for the Piedmont) reduce to single channels meandering laterally across floodplains (Leigh, in press; Schuldenrein 1996). Dune formations along the braided river channels in the Coastal Plain cease (Ivester and Leigh 2003; Ivester et al. 2001). Sedimentation rates in the lower Savannah River are high at the beginning of this 2,500-year period but have decreased significantly by the end (Brooks and Colquoun 1991). An oak-pine xeric upland environment in the southeastern Coastal Plain gives way to an oak-hickory (and gum) mesic forest, which, at varying spatial and temporal degrees, persists into the Middle Holocene. Northern pine pollen decreases from Coastal Plain pollen cores but persists in the Piedmont (Delcourt and Delcourt 1987) and probably the Blue Ridge.

Evidence for periodic fires, a common occurrence in the southeastern Coastal Plain in the presently xeric upland environment, is sporadic for much of the southeastern Coastal Plain during the Early-to-Middle Holocene transition and throughout most of the Middle Holocene. At three locations in the Atlantic Coastal Plain (Goman 2003; Lamoreaux 1999; Seielstad 1994), charcoal was present in pollen cores whenever pine pollen dominated and blackgum pollen was low or absent, presumably reflecting fire frequency that was high enough to select for longleaf pine regeneration and deter blackgum survival. Longleaf pine seeds prefer mineral soils lacking a humus layer (Wells 1928), while blackgum requires a relatively wet environment that represses the incidence of fires. Blackgum is typically killed or severely damaged by fire (Goman 2003:51).

Table C.1. Paleoenvironmental Sequence from Paleoindian through Late Archaic Periods.

Time Frame	Period	Cultural Complex or Phase: Pickens	Cultural Complex or Phase: Enoree	Cultural Complex or Phase: Long Cane	Time Scale (rcbp)	Pollen-Inferred Temperature (C) (Prentice et al. 1991): Mean Winter	Pollen-Inferred Temperature (C) (Prentice et al. 1991): Mean Summer	Pollen-Inferred Precipitation (mm) (Prentice et al. 1991)	Chatterton Springs Pollen Zones (Seielstadt 1994)	Camel Lake Pollen Trends (Watts et al. 1992)	Lake Louise Pollen Trends (Watts 1971; Watts et al. 1996)	Langdale Pond Pollen Trends (Watts et al. 1996)
1000-700 B.C.	Late Archaic	Otarre		Stallings II	-3000-	15	28	1200	pine/oak (gradual cooling)	pine >50%, cypress well represented	pine (cypress increases)	pine
3000-1000 B.C.		Savannah River		Stallings I	-3600-	6.5	26	1350	oak; spores of mosses and ferns at their highest level (warm/ moist)			
				Sav. River	-4200-							
4000-3000 B.C.	Middle Archaic	Guilford		Guilford/ MALA	-4800-							
					-5400-							
5500-3500 B.C.		Morrow Mountain			-6000-						(upland herbs declining)	
					-6600-	2	26	1200				
					-7200-						oak/hickory (grasses)	oak/pine
6000-5400 B.C.		Stanly			-7800-							
6900-5800 B.C.	Early Archaic	LeCroy/St. Albans			-8400-				pine-dry? (increased charcoal)	hiatus		
7500-6900 B.C.		Kirk/Palmer			-9000-							
8000-7500 B.C.		Taylor			-9600-	0	24	1100	gum/oak (warm/ moist)			
8500-7500 B.C.	Paleoindian	Dalton			-10,200-					increase in prairie species		
9000-8500 B.C.		Simpson/Suwannee			-10,800-					hickory, beech, spruce; wet climate		
10,000-9000 B.C.		Clovis			-11,400-							
					-12,000-							

Table II.1. Continued.

Time Frame	Period	Cultural Complex or Phase: Pickens	Cultural Complex or Phase: Enoree	Cultural Complex or Phase: Long Cane	Time Scale (rcbp)	Tombigbee River Pollen Trends (Whitehead and Sheehan 1985)	Cahaba Pollen Zones (Ridge and Valley) (Delcourt et al. 1983)	Goshen Springs Pollen Trends (Delcourt 1980)	Lake Shelby Pollen Trends (Fearn and Liu 1995)	Lake Tulane Pollen Trends (Grimm et al. 1993)	Mud Lake Pollen Trends (Watts et al. 1996)
1000-700 B.C.	Late Archaic	Otarre		Stallings II	-3000-	oak/hickory dominant, mesic species uncommon	gum/pine	pine	pine >60% (maize) oak <20%	(grasses declining) pine >50%	cypress inc.
3000-1000 B.C.		Savannah River		Stallings I	-3600-						herbs dec. pine
				Sav. River	-4200-						
4000-3000 B.C.	Middle Archaic	Guilford		Guilford/ MALA	-4800-			oak/hickory		oak/pine (grasses)	(grasses decline) oak/pine
					-5400-						
5500-3500 B.C.		Morrow Mountain			-6000-						
					-6600-						
					-7200-						
6000-5400 B.C.		Stanly			-7800-	oak/hickory, mesic species present					
6900-5800 B.C.	Early Archaic	LeCroy/St. Albans			-8400-						
7500-6900 B.C.		Kirk/Palmer			-9000-		oak/ hickory				
8000-7500 B.C.		Taylor			-9600-						
8500-7500 B.C.	Paleoindian	Dalton			-10,200-		pine/mag.				
9000-8500 B.C.		Simpson/Suwannee			-10,800-		beech/ hornbeam				
10,000-9000 B.C.		Clovis			-11,400-						
					-12,000-						

Table C.1. Continued.

Time Frame	Period	Cultural Complex or Phase: Pickens	Cultural Complex or Phase: Enoree	Cultural Complex or Phase: Long Cane	Time Scale (rcbp)	Barchampe Lake Pollen Trends (Watts et al. 1996)	Clear Pond Pollen Trends (Watts et al. 1996), Hussey (1993)	Southern Coastal Plain GCM/Pollen Model (Webb et al. 1987)	Northeast Georgia Piedmont Pollen Zones (Sheehan et al. 1985)	Dismal Swamp Pollen Trends (Whitehead 1972)	White Pond South Carolina Sandhills (Watts 1980)
1000-700 B.C.	Late Archaic	Otarre		Stallings II	-3000-	pine	pine	pine	oak/ hickory/ pine	cypress/ sweetgum	surge in southern pine at 7000 BP; modern vegetational regime
3000-1000 B.C.		Savannah River		Stallings I	-3600-			oak receding, more pine; wetter/ warmer than present		oak/hickory	
				Sav. River	-4200-				oak/gum		
4000-3000 B.C.	Middle Archaic	Guilford		Guilford/ MALA	-4800-						
					-5400-						
5500-3500 B.C.		Morrow Mountain			-6000-	(upland herbs declining)					
					-6600-			pine strongly represented; oak also well represented; wetter/ warmer than present			
					-7200-	oak/pine					oak/ hickory/ southern pine w/blackgum and sweetgum
6000-5400 B.C.		Stanly			-7800-		(grasses declining)				
6900-5800 B.C.	Early Archaic	LeCroy/St. Albans			-8400-		oak dominant w/grasses			beech/ hemlock/ birch	
7500-6900 B.C.		Kirk/Palmer			-9000-						
8000-7500 B.C.		Taylor			-9600-			wetter than present	pine/ hemlock		
8500-7500 B.C.	Paleoindian	Dalton			-10,200-		moist/warm; diverse hardwood species; warmer than present winter temps.				Mesic oak/ hickory/ beech forest through 9550 BP
9000-8500 B.C.		Simpson/Suwannee			-10,800-			drier/cooler than present		boreal taxa dominate	
10,000-9000 B.C.		Clovis			-11,400-						
					-12,000-						

Table C.1. Continued.

Time Frame	Period	Cultural Complex or Phase: Pickens	Cultural Complex or Phase: Enoree	Cultural Complex or Phase: Long Cane	Time Scale (rcbp)	Ogeechee River, Georgia Coastal Plain Pollen Trends (Brook 1996)	Three Peat Deposits from Georgia Coastal Plain, Pollen Trends (Lamoreaux 1999)	Rockyhock Bay Pollen Trends (Whitehead 1981)	Fort Bragg; North Carolina Sandhills Pollen Trends (Goman 2003)	Central Appalachian Pollen Trends (Kneller and Peteet 1999): Short term	Central Appalachian Pollen Trends (Kneller and Peteet 1999): Long term
1000-700 B.C.	Late Archaic	Otarre		Stallings II	-3000-	modern forest swamp environment	pine; modern climatic conditions	development of swamp forests, oak receding	modern climate and forest types with local variation		
3000-1000 B.C.		Savannah River		Stallings I	-3600-						
				Sav. River	-4200-	sparse woody vegetation; dune formation (enhanced monsoonal activity)					
4000-3000 B.C.	Middle Archaic	Guilford		Guilford/ MALA	-4800-		wetter/ warmer; oak, blackgum, diverse pollen taxa				
					-5400-			gradual shift toward modern vegetational regime	apparent increase in southern pine		
5500-3500 B.C.		Morrow Mountain			-6000-						
					-6600-				abundant hardwoods; greater overall precipitation, possibly very wet springs and dry summers; warmer winters and summers; generally stable climate	cold reversal at 7500 BP	warming trend since 14,200 BP
					-7200-						
6000-5400 B.C.		Stanly			-7800-			oak/hemlock/ beech/ hornbeam			
6900-5800 B.C.	Early Archaic	LeCroy/St. Albans			-8400-						
7500-6900 B.C.		Kirk/Palmer			-9000-						
8000-7500 B.C.		Taylor			-9600-						
8500-7500 B.C.	Paleoindian	Dalton			-10,200-		oak/herb and grass (open oak woodland); cool/moist		cool/moist; pine/oak woodland	inc. temp. and moisture at 11,300 BP	
9000-8500 B.C.		Simpson/Suwannee			-10,800-						
10,000-9000 B.C.		Clovis			-11,400-						
					-12,000-	cool climate	cool/moist	boreal	cold/dry; herbaceous prairie species	cold reversal	

Table C.1. Continued.

Time Frame	Period	Cultural Complex or Phase: Pickens	Cultural Complex or Phase: Enoree	Cultural Complex or Phase: Long Cane	Time Scale (rcbp)	South Carolina Sea Level (Brooks et al. 1979)	Sea Level Fluctuations (+/- m of present sea level) (Gunn 1997)	Holocene Sea Level Curve, South Carolina (Colquhoun et al. 1980)	Solar Emissions (Gunn 2000) adapted from (Landscheidt 1987)	Copperhead Hollow Soils (Gunn and Foss 1992)
1000-700 B.C.	Late Archaic	Otarre		Stallings II	-3000-	high (3100-2850 B.P.)	consistent peaks and troughs from +0.8 to -2.1	transgression (3300-3000 BP)	moderate	
3000-1000 B.C.		Savannah River		Stallings I	-3600-			regression	low	
				Sav. River	-4200-	high ? (4200-3700 B.P.)	consistently below present sea level 4900-4100 BP; range: -0.1 to -1.8	transgression (4500-4000 BP)	high moderate	
4000-3000 B.C.	Middle Archaic	Guilford		Guilford/ MALA	-4800-				high moderate	dunes stabilize (cool/moist)
					-5400-		very erratic peaks and troughs from +1.1 to -1.2; 71% of levels above present sea level			
5500-3500 B.C.		Morrow Mountain			-6000-					
					-6600-					dune formation (hot/dry)
					-7200-					
6000-5400 B.C.		Stanly			-7800-		+0.7 to -0.5			
6900-5800 B.C.	Early Archaic	LeCroy/St. Albans			-8400-					
7500-6900 B.C.		Kirk/Palmer			-9000-					
8000-7500 B.C.		Taylor			-9600-					
8500-7500 B.C.	Paleoindian	Dalton			-10,200-					
9000-8500 B.C.		Simpson/Suwannee			-10,800-					
10,000-9000 B.C.		Clovis			-11,400-					
					-12,000-					

Table C.1. Continued.

Time Frame	Period	Cultural Complex or Phase: Pickens	Cultural Complex or Phase: Enoree	Cultural Complex or Phase: Long Cane	Time Scale (rcbp)	L. Savannah River Sediment Rates (cm) (Brooks and Colquoun 1991)	Southeast Piedmont River Valley History (Schuldenrein 1996:8)	Interior Appalachian Plateau River Valley History (Schuldenrein 1996:8)	Vegetation Maps of Eastern North America (Delcourt and Delcourt 1987)	Climatic Event (Anderson 2001)
1000-700 B.C.	Late Archaic	Otarre		Stallings	-3000-	30	stabilization of T-1 surfaces; sustained soil forming environments (Bw horizons)	soil formation, stabilization of alluvial surfaces (T-O)	mixed hardwood/ southern pine	Sub-Boreal
3000-1000 B.C.		Savannah River		Stallings I	-3600-					
				Sav.	-4200-			increased fluvial activity, high runoff; stormy conditions		
4000-3000 B.C.	Middle Archaic	Guilford		Guilford/ MALA	-4800-	50				
					-5400-		evolution of fragic soil profiles (Btx horizons); vertical accretion			(Atlantic) Hypsithermal
5500-3500 B.C.		Morrow Mountain			-6000-	48				
					-6600-	55		channel overbanking, humid microenvironments		
					-7200-		meandering streams trenching to overbanking, suspended load sedimentation, diff. aquatic settings	"aquatic pockets" w/ open deciduous forest; drying cycle		
6000-5400 B.C.		Stanly			-7800-			channel stabilization		
6900-5800 B.C.	Early Archaic	LeCroy/St. Albans			-8400-	64	diminished channel sinuosity, upward			Cold episode
7500-6900 B.C.		Kirk/Palmer			-9000-		braided stream network	"closed forest," lateral and vertical accretion regimes	mixed hardwood	Boreal
8000-7500 B.C.		Taylor			-9600-					
8500-7500 B.C.	Paleoindian	Dalton			-10,200-	73				
9000-8500 B.C.		Simpson/Suwannee			-10,800-				Mixed conifer/ northern hardwoods	Younger Dryas
10,000-9000 B.C.		Clovis			-11,400-					
					-12,000-					Allerød warm period

Lamoreaux's (1999) study shows low charcoal and low pine pollen from about 9000 to 4300 B.P., and Seielstad's (1994) study shows low pine pollen from about 8000 to 4500 B.P. Fire frequency was apparently relatively high during the early part of the Early Holocene but decreased significantly toward the end of the Early Holocene and through most of the Middle Holocene when oak, hickory (which also prefers wet environments) and sometimes blackgum pollen remains high. Another nearby pollen core (Brook 1996) in the Georgia Coastal Plain suggests dry conditions favorable for fires over the same period, indicating a xeric environment from ca. 11,500 to 4000 B.P. (Table C.1). This depiction contrasts sharply with Goman (2003), Lamoreaux (1999) and Seielstad (1994). However, since completion of Brook's (1996) thesis, the timing of this apparent dry period zone is in question, mostly because of the lack of sufficient radiocarbon dates to adequately bracket the specific zone. Presently, the "sparse woody vegetation,..." zone depicted for the Early and Middle Holocene in Table C.1 for Brook's (1996) Ogeechee River study is now thought to actually represent the Terminal Pleistocene record (George Brook personal communication, 2004).

Further evidence for a relatively cool and dry climate during the early part of this 2,500-year phase of the Early Holocene in the southeastern Coastal Plain is the presence of grass pollen, typically belonging to prairie species. The presence of these pollen types suggests a rather open woodland consisting of an overstory of pine and oak, possibly scrub oak, with a relatively thin understory consisting of herbaceous plants and grasses. In Florida, southern Georgia, Alabama and Louisiana grass pollen complements the mixed hardwood-pine mosaic. While this mosaic may be representative of the southern Coastal Plain, the southeastern Piedmont and Blue Ridge was likely to have been significantly different, as it is today. The few paleoenvironmental studies conducted in the Piedmont and Ridge and Valley Provinces of the Southeast indicate a northern pine-hemlock regime succeeded by a deciduous forest of oak-hickory-gum (Sheehan et al. 1985), with the addition of magnolia in the Ridge and Valley Province (Delcourt et al. 1983). Throughout this period and for the remaining middle Holocene period water tables continue to rise and xeric uplands in the southern Coastal Plain are replaced by southern pines (Delcourt and Delcourt 1985:20).

Middle Holocene (8000-4000 B.P.)

The Middle Holocene, which is roughly coeval with the Middle Archaic period in the Southeast, begins around 8000 B.P. and is invariably associated with the Hypsithermal or Altithermal climatic event. This event is characterized by increasing average temperatures through the entire period, which actually began around 9000 B.P. in the northeastern and mid Atlantic U.S. It has been described as either a warm and dry period (e.g., Anderson 2001:160) or a warm and wet period (McWeeney and Kellogg 2001:194-199 for discussion). The amount of effective precipitation associated with this event may have much to do with geographic location. Delcourt and Delcourt (1985:20) describe the Middle Holocene as a period of increasing water tables, climaxing around 5000 B.P., in the Ridge and Valley Province of northwest Georgia and northeast Alabama. South and east of the Appalachians and the northern Gulf Coastal Plain appear to have been warm and wet, but west of the Appalachians and along the northeastern U.S. coast the climate appears to have been warm and dry (Anderson 2001:160; McWeeney and Kellogg 2001), or at least periodically dry (Gunn and Foss 1992) (Table C.1). Seasonality remained pronounced, as it had been for the Early Holocene, due to polarized solar radiation extremes for each season (summer versus winter). Seasonal extremes were promoted by a one degree additional tilt of the earth's axis, which climaxed at 24.5˚ (compared to the last glacial maximum and Late Holocene tilt of 23.5˚) around 9300 B.P. (Kutzbach and Webb

1991:186-190) and by the eccentricity of the earth's orbit around the sun. Around 9000 B.P. the earth was closest to the sun during the summer, rather than during the winter as it is today (McWeeney and Kellogg 2001:190). The shift toward less pronounced seasonality began soon after this climax in seasonal extremes.

While in general, average yearly temperature appears to increase throughout the entire Middle Holocene period, fluctuations or reversals of the temperature vector have been recorded. As mentioned above, Kneller and Peteet (1999) found evidence for a cold reversal at 7500 B.P. in the Virginia Appalachians (Table C.1), which correlates with a noted world-wide cold event centering around 7800 B.P. (Barber et al. 1999). This cold event lasted several hundred years and appears to be a consequence of the final melting of the Laurentide Ice Sheet and the sudden drainage of massive glacial lakes (Hu et al. 1999) coming on the heals of a relatively warm period centering around 9000 B.P. Furthermore, Gunn (1997) records erratic peaks and troughs of sea level along the Atlantic Coast through the Middle Holocene period, but overall sea level was recorded as higher than the present level for nearly three-quarters of the time (Table C.1).

In the southeastern Coastal Plain there is no evidence of a dramatic change in the vegetational regime across the 8000 B.P. threshold, other than evidence for an increasingly wet and warm environment. Evidence of warmer summers and winters along with an increase in precipitation began before 8000 B.P. (ca. 10,000 B.P.) in the Sandhills of North Carolina. Where grasses were evident in some pollen cores at the end of the Early Holocene (Hussey 1993; Webb et al. 1996; Lamoreaux 1999), they essentially disappear by the beginning or near the middle of the Middle Holocene, suggesting a closed canopy vegetational regime (Table C.1). Seielstad (1994) and Lamoreaux (1999) record a decrease in charcoal and pine pollen, favoring oak and hickory pollen, indicating an apparent increase in precipitation/water availability in south Georgia (Table C.1). Grass pollen persists in mid-south Florida throughout the Middle Holocene (Grimm et al. 1993). Grass pollen generally tends to disappear from the pollen record later in extreme south Georgia and north Florida (Watts 1971; Watts et al. 1996), compared to pollen cores taken from middle south Georgia (Seielstad 1994; Lamoreaux 1999), the South Carolina coast (Hussey 1993; Watts et al. 1996) and the Sandhills of North Carolina (Goman 2003)(Table C.1). Thus, the sudden cold phase at the beginning of the Middle Holocene around 7500 B.P. that is recognized in many parts of the world might have been restricted more to the northerly latitudes, leaving the southerly latitudes warmer and wetter. Most recently Goman and Leigh (2004) report evidence indicating that the Southeast experienced increased precipitation due to more frequent Atlantic coast landfalls of hurricanes and more frequent tropical storms than we presently experience. The increased storminess is a consequence of the Bermuda High shifting north and east of its present position during the late Early Holocene and Middle Holocene. Because of the increase in storm activity, rivers overflowed their banks far more regularly during the 9000 to 6000 B.P. interval than in any other time during the Holocene.

While precipitation was on the increase and water tables were apparently rising, as were sea levels, albeit at a slower rate than during the Early Holocene, Coastal Plain swamps had yet to form. Not until 5000 B.P. do swamp-land deposition records begin in the Okefenokee Swamp and the Everglades (Watts et al. 1996:36, citing Cohen 1973; Gleason and Stone 1994), about the same time that southern pines begin to dominate formerly oak-dominated and possibly xeric uplands (Delcourt and Delcourt 1985:20) of the southern Coastal Plain. The transition from an oak-hickory-dominated

forest toward a southern pine-dominated forest was apparently gradual (Grimm and Jacobson 1992; Jacobson et al. 1987) and may have occurred in some places much earlier than in other places.

The timing at which pine began to dominate the Coastal Plain is important because, according to many researchers, the lack of mast producing trees such as oak and hickory had a dramatic negative impact on food resources, and therefore probably contributed to large scale abandonment of the southeastern Coastal Plain during the Middle Holocene.

Watts et al. (1996:37) noted that there are significant differences in the rate at which pines began to dominate the landscape of the southeastern Coastal Plain. They suggest a northeast-southwest trend, where pines dominated in South Carolina long before they did in southern Georgia and northern Florida. At White Pond in the upper Coastal Plain (Watts 1980) and at Clear Pond on the coastal rim (Hussey 1993), pine dominated the pollen record by 8000 B.P. In southern Georgia and northern Florida most pollen cores revealed that pine did not dominate the pollen record until 5-6000 B.P. (Watts et al. 1996:36). Further north from Watts and colleagues' (1996) southern Georgia-north Florida pollen cores, Seielstad (1994) recorded pine domination occurring around 4500 B.P., and Lamoreaux (1999) recorded pine domination around 3800 B.P.(Table C.1). These dates suggest a south-to-north transgression in the timing of oak-hickory replacement by southern pine. Similarly, in the North Carolina Sandhills, southern pine did not begin to increase until ca. 6300 B.P and did not dominate until ca. 4500 B.P. (Goman 2003) (Table C.1). The much later pine infiltration date found by Goman (2003) is significant since it is closer to the South Carolina Piedmont than the southern Georgia cores, and because it does not reflect the apparent northeast-southwest trend of pine forests replacing oak-hickory forests observed by Watts et al. (1996). The transition from oak-hickory to southern pine dominance may be more complex than previously thought or might be more closely associated with elevation, e.g., a possible transition that graduates from the lower Coastal Plain to the upper Coastal Plain.

Though gradual changes take place across the southeastern Coastal Plain during the Middle Holocene, what little evidence exists for the southeastern Piedmont seems to suggest a relatively long period of stasis. Sheehan et al. (1985) show a long period beginning in the later Early Holocene and ending in the early Late Holocene of an oak-gum regime. Delcourt et al. (1983) show a predominantly oak-hickory forest changing to a gum-pine forest by the Middle Holocene and continuing into the Late Holocene with no apparent climatic events or dramatic transitions. Lower Savannah River sediment rates continued to gradually decrease throughout the Middle Holocene with a slight upsurge at the end of the Middle Holocene (Brooks and Colquoun 1991) (Table C.1). Braided streams, noted by Shuldenrein (1996) in the southeastern Piedmont during the Early Holocene, gave way to single channel, meandering streams, indicating lower energy and stable floodplain and first terrace environments (Table C.1). Later in the Middle Holocene, Schuldenrein (1996:9) observes active downcutting of streams into first and second terraces of rivers and streams.

Late Holocene (4000 B.P. to present)

By the Late Holocene sea and water tables attained present-day levels (Table C.2). Both the Okefenokee swamp and the Everglades have formed by this time. Though higher water table levels were important for swamp development, their formation is largely due to the combination of a karst topography and sea level. Ground water in karst topographies is more directly regulated by sea level

through connections of underground rivers, solution caverns and caves (McWeeney and Kellogg 2001:189). Over the course of the Late Holocene, annual precipitation decreased and stabilized and streams reached their present flow rates as sea levels stabilized and major storm frequency decreased. The annual sedimentation rate of the Lower Savannah River decreased significantly, from 30 cm per year around 3500 B.P. to 16 cm per year around 3000 B.P. (Brooks and Colquoun 1991) (Tables C.1 and C.2). The more static hydrological environment promoted estuarine environments along the Atlantic Coast (Brooks et al. 1989), stabilized floodplain environments (Schuldenrein 1996) and produced channel bar and river island environments. Across the entire Piedmont vegetational diversity persisted, but given an apparent reduction in yearly precipitation along with stabilized floodplain environments, stream channels and valleys may have become locales of greater floral and faunal diversity compared to the surrounding uplands. Thus, the Piedmont likely changed from a homogeneous mosaic, where differences between upland and bottomland vegetation were minimal, to a more heterogeneous mosaic of greater ecological diversity, where differences between upland and bottomland vegetation was appreciable.

Owing in part to diverse research into paleoenvironmental reconstruction over the past two decades, resolution of shorter-term changes or events in environmental history has become better. Over the long-term, on the order of thousands of years, the Late Holocene represents a time of relative stasis. Shorter-term events documented by historical accounts (e.g., Gunn 2000:5), from tree-ring data (e.g., Stahle et al. 1988) and from archeology (e.g., Yarnell and Black 1985) greatly enhance reconstructions at finer temporal and spatial scales. Thus, Table C.2 requires a time scale on the order of 300 years (which at times is not fine enough) and includes studies not encompassed in Table C.1 to cover the Late Holocene. These studies either do not extend beyond the Late Holocene or simply do not focus on periods prior to the Late Holocene. The additional studies for Table C.2 include tree ring data from North Carolina (Stahle et al. 1988), seed:nutshell ratios from excavated archeological sites in the Southeast (Yarnell and Black 1985), a Late Holocene chronology from Little (2003:24) and world-wide recognized events and perspectives (Gunn 2000). Some of the pollen studies in Table C.1, due to repetition and lack of additional information, were dropped from Table C.2.

From about 3000 B.P. to 2300 B.P., correlating with the transition from the Late Archaic period to the Early Woodland period in the Southeast, a relatively warm and wet climate changed to a cool and dry climate (Little 2003:24). Little (2003:24) correlates a number of recorded events during this transitional period that include lower sea levels in France and glacial advances in Utah, Canada and Sweden. Colquoun et al. (1980) record a change from sea level transgression to sea level regression over the same period on the South Carolina coast, and Gunn's (1997) sea level record shows a sharp drop in sea level toward the latter half of this cold and dry period (ca. 2470 B.P.). Solar emissions were also low for the duration of the relatively cool and dry period (Gunn 1997:11). During this transition, Yarnell and Black (1985) record a significant increase in seed use as opposed to nut use from the Late Archaic to the Early Woodland period. Prior to the Late Archaic period there were only incremental increases recorded in seed remains on southeastern archeological sites from the Early Archaic period (8 seeds/100 g of nutshell) through the Late Archaic period (19 seeds/100 g of nutshell). Whether or not the sudden increase in seed collection with a concomitant decrease in nutshell is a response to a short-term change in the vegetational mosaic is an unresolved issue.

Table C.2. Paleoenvironmental Sequence for Terminal Late Archaic through Historic Periods.

Time Frame	Period	Cultural Complex or Phase			Time Scale (rcbp)	Pollen-Inferred Temperature (C) (Prentice et al.		Pollen-Inferred Precipitation (mm) (Prentice et al. 1991)	Chatterton Springs Pollen Zones (Seielstadt 1994)	Camel Lake Pollen Trends (Watts et al. 1992)	Lake Louise Pollen Trends (Watts 1971; Watts et al. 1996)	Langdale Pond Pollen Trends (Watts et al. 1996)
		Pickens	Enoree	Long Cane		Mean Winter	Mean Summer					
A.D. 1670-present	(Proto) Historic	Estatoe/Daniels; Frontier; Federal; Postbellum; Contemporary			-0-							
A.D. 1100-1670	Mississippian	Pacalo Rembert Beaverdam Jarrett	Mulberry McDowell Town Creek Adamson Belmont Neck	Abandoned Rembert Hollywood Jarrett/ Lawton	-300- -600-							
A.D. 700-1100	Late Woodland	Woodstock Connestee	Connestee? Connestee	Woodstock Cartersville	-900- -1200-				(maize) (maize)			
300 B.C-A.D. 600	Middle Woodland	Pigeon	Yadkin	Cartersville	-1500- -1800- -2100-	7	27	1100	pine/oak (maize)	pine >50%; cypress well represented	pine with increasing cypress	pine
700-300 B.C.	Early Woodland	Swannanoa	Badin/ Swannanoa	Dunlap	-2400- -2700-							
3000-700 B.C.	Late Archaic	Otarre	Otarre	Stallings II	-3000-	15	28	1200				

Table C.2. Continued.

Time Frame	Period	Cultural Complex or Phase			Time Scale (rcbp)	Tombigbee River Pollen Trends (Whitehead and Sheehan 1985)	Cahaba Pollen Zones (Ridge and Valley) (Delcourt et al. 1983)	Goshen Springs Pollen Trends (Delcourt 1980)	Lake Shelby Pollen Trends (Fearn and Liu 1995)	Lake Tulane Pollen Trends (Grimm et al. 1993)	Mud Lake Pollen Trends (Watts et al. 1996)
		Pickens	Enoree	Long Cane							
A.D. 1670-present	(Proto) Historic	Estatoe/Daniels; Frontier; Federal; Postbellum; Contemporary			-0-	gum common; pine increases; oak and hickory decline	gum/pine	pine	pine >60%, oak <20%	pine reaches >50%	pine; cypress increases and herbs decline
A.D. 1100-1670	Mississippian	Pangalo Rembert Beaverdam Jarrett	Mulberry McDowell Town Creek Adamson Belmont Neck	Abandoned Rembert Hollywood Jarrett/ Lawton	-300- -600-						
A.D. 700-1100	Late Woodland	Woodstock Connestee	Connestee? Connestee	Woodstock Cartersville	-900- -1200-						
300 B.C-A.D. 600	Middle Woodland	Pigeon	Yadkin	Cartersville	-1500- -1800- -2100-						
700-300 B.C.	Early Woodland	Swannanoa	Badin/ Swannanoa	Dunlap	-2400- -2700-	oak/hickory dominant; mesic species uncommon					
3000-700 B.C.	Late Archaic	Otarre	Otarre	Stallings II	-3000-						

Table C.2. Continued.

Time Frame	Period	Cultural Complex or Phase			Time Scale (rcbp)	Barchampe Lake Pollen Trends (Watts et al. 1996)	Clear Pond Pollen Trends (Watts et al. 1996)	Southern Coastal Plain GCM/Pollen Model (Webb et al. 1987)	Northeast Georgia Piedmont Pollen Zones (Sheehan et al. 1985)	Dismal Swamp (Whitehead 1972)
		Pickens	Enoree	Long Cane						
A.D. 1670-present	(Proto) Historic	Estatoe/Daniels; Frontier; Federal; Postbellum; Contemporary			-0-					
A.D. 1100-1670	Mississippian	Pangalo Rembert Beaverdam Jarrett	Mulberry McDowell Town Creek Adamson Belmont Neck	Abandoned Rembert Hollwood Jarrett/ Lawton	-300- -600-					
A.D. 700-1100	Late Woodland	Woodstock Connestee	Connestee? Connestee	Woodstock Cartersville	-900- -1200-					
300 B.C-A.D. 600	Middle Woodland	Pigeon	Yadkin	Cartersville	-1500- -1800- -2100-	pine	pine	pine	oak/pine	cypress/ sweetgum assemblage (peaks in grass, bayberry and hazel with occurrence of maize pollen at 2000 B.P.)
700-300 B.C.	Early Woodland	Swannanoa	Badin/ Swannanoa	Dunlap	-2400- -2700-					
3000-700 B.C.	Late Archaic	Otarre	Otarre	Stallings II	-3000-					

Table C.2. Continued.

Time Frame	Period	Cultural Complex or Phase			Time Scale (rcbp)	Ogeechee River, Georgia Coastal Plain (Brook 1996)	Three Peat Deposits from Georgia Coastal Plain (Lamoreaux 1999)	Rockyhock Bay (Whitehead 1981)	Fort Bragg; North Carolina Sandhills (Goman 2003)	Lower Savannah River Sediment Rates (cm) (Brooks and Colquoun 1991)
		Pickens	Enoree	Long Cane						
A.D. 1670-present	(Proto) Historic	Estatoe/Daniels; Frontier; Federal; Postbellum; Contemporary			-0-	modern flora and fauna since 3700 B.P.; development of forest swamp environment	modern flora and fauna since 4300 B.P.; several species of pine dominate	modern flora and fauna; northern hardwood taxa recede and development of swamp forests beginning by 5000 B.P.	persistently drier conditions since 6000 B.P. with a modern vegetational regime	
A.D. 1100-1670	Mississippian	Pangalo Rembert Beaverdam Jarrett	Mulberry McDowell Town Creek Adamson Belmont Neck	Abandoned Rembert Hollwood Jarrett/ Lawton	-300- -600-					14
A.D. 700-1100	Late Woodland	Woodstock Connestee	Connestee? Connestee	Woodstock Cartersville	-900- -1200-					
300 B.C-A.D. 600	Middle Woodland	Pigeon	Yadkin	Cartersville	-1500- -1800- -2100-					
700-300 B.C.	Early Woodland	Swannanoa	Badin/ Swannanoa	Dunlap	-2400- -2700-					
3000-700 B.C.	Late Archaic	Otarre	Otarre	Stallings II	-3000-					16

Table C.2. Continued.

Time Frame	Period	Cultural Complex or Phase: Pickens	Enoree	Long Cane	Time Scale (rcbp)	Seed:Nutshell Ratio from Plant Food Remains in the Southeast (Yarnell and Black 1985)	Late Holocene Chronology (Little 2003)	South Carolina Sea Level (Brooks et al. 1979)	Sea Level Fluctuations (+/- m of present sea level) (Gunn 1997)	Holocene Sea Level Curve, South Carolina (Colquoun et al. 1980)	Solar Emissions (Gunn 2000) adapted from (Landscheidt 1987)
A.D. 1670-present	(Proto) Historic	Estatoe/Daniels; Frontier; Federal; Postbellum; Contemporary			-0-				minor fluctuations between +0.2 and -0.2		high
A.D. 1100-1670	Mississippian	Pangalo Rembert Beaverdam Jarrett	Mulberry McDowell Town Creek Adamson Belmont Neck	Abandoned Rembert Hollwood Jarrett/ Lawton	-300- -600-				remains above current sea level until ca. A.D. 1400; brief drop to -0.3 at A.D. 1150		-low trough- -moderate peak- -low trough-
A.D. 700-1100	Late Woodland	Woodstock Connestee	Connestee? Connestee	Woodstock Cartersville	-900- -1200-	37	warm/wet cool/dry	high? (1600-1000 B.P.)	drops to -0.7 (A.D. 536 cline)		moderate-high low
300 B.C-A.D. 600	Middle Woodland	Pigeon	Yadkin	Cartersville	-1500- -1800- -2100-	171	warm/wet	high (2250-1750 B.P.)	above current sea level (ca. 0.5 m on average) throughout the period	transgression (2300-2000 B.P.)	moderate-low high-moderate moderate
700-300 B.C.	Early Woodland	Swannanoa	Badin/ Swannanoa	Dunlap	-2400- -2700-	85	cool/dry		Mostly above current sea level, peaks at +0.6 and +0.8; dramatic drop to -0.7 at 2470 B.P.	regression	low low
3000-700 B.C.	Late Archaic	Otarre	Otarre	Stallings II	-3000-	45	warm/wet	high (3100-2850 B.P.)	-2.2 to -1.6	transgression (3300-3000 B.P.)	moderate

Table C.2. Continued.

Time Frame	Period	Cultural Complex or Phase			Time Scale (rcbp)	North Carolina Coastal Plain Tree Ring Data (Stahle et al. 1988)	World (Gunn 2000)		Climatic Events (Anderson 2001; Bryson 1994; Gunn 2000; McWeeney and Kellogg 2001)
		Pickens	Enoree	Long Cane			Events	Perspective	
A.D. 1670-present	(Proto) Historic	Estatoe/Daniels; Frontier; Federal; Postbellum; Contemporary			-0-	30-year wet/dry cycles w/increased drought severity			Pronounced warming
A.D. 1100-1670	Mississippian	Pangalo Rembert Beaverdam Jarrett	Mulberry McDowell Town Creek Adamson Belmont Neck	Abandoned Rembert Hollwood Jarrett/ Lawton	-300- -600-	prolonged wet period A.D. 1455-1495 between prolonged droughts: A.D. 1370-1455 w/irregular wet/dry years; A.D. 1530-1575			Little Ice Age
A.D. 700-1100	Late Woodland	Woodstock	Connestee?	Woodstock	-900-	episodes of prolonged drought: A.D. 1040-1095, 1120-1170 and 1245-1285		atmospheric warming	Medieval Warm Period
		Connestee	Connestee	Cartersville	-1200-	prolonged wet period A.D. 565-625 followed by prolonged drought A.D. 625-725	A.D. 800	cold winter/ low sea level	
300 B.C-A.D. 600	Middle Woodland	Pigeon	Yadkin	Cartersville	-1500- -1800- -2100-	prolonged drought A.D. 385-425 followed by prolonged wet period A.D. 425-485	A.D. 536 Global volcanism	dry fog atmospheric cooling	Vandal Minimum
700-300 B.C.	Early Woodland	Swannanoa	Badin/ Swannanoa	Dunlap	-2400- -2700-				Sub-Boreal
3000-700 B.C.	Late Archaic	Otarre	Otarre	Stallings II	-3000-				

In addition to large, notable southeastern swamps like the Okefenokee and the Everglades, Coastal Plain river and creek floodplain swamps proliferate during the Late Holocene. Cypress and other swamp vegetation pollen increase significantly while upland herb and grass pollen decrease dramatically or become absent from southern Georgia and northern Florida to the upper Coastal Plain in North Carolina (Goman 2003; Lamoreaux 1999; Seielstad 1994; Watts 1980; Watts et al. 1996) (Tables C.1 and C.2). The trend toward less pronounced seasonality continues where, by 3000 B.P., winters are significantly warmer and summers are only slightly warmer than the previous Middle Holocene (Tables C.1 and C.2).

Following this relatively cold and dry period of ca. 700 years, beginning around 2,300 years ago, a period of a relatively warm and wet climate ensued, lasting for an equal amount of time (Table C.2). Solar emissions are moderate to high throughout this period (Gunn 2000:11). Colquoun et al. (1980) record a sea transgression between 2,300 and 2,000 years ago and Brooks et al. (1979) record high sea levels between 2,250 and 1,750 years ago. Similarly, Gunn (1997) indicates sea levels consistently above present levels for a duration of nearly 800 years beginning around 2250 B.P. Yarnell and Black's (1985) composite data on archeological sites in the Southeast reveal the highest seed-to-nutshell ratio (171 seeds/100 g of nutshell) recorded during the prehistoric period, not including the Mississippian period. Furthermore, maize pollen appears for the first time in southern Georgia (Seielstad 1994) and on the North Carolina coast, along with peaks in grass, bayberry and hazel pollen (cleared-area pollen) (Whitehead 1972). Parenthetically, the maize pollen discovery in Seielstad's (1994) pollen core is not the earliest evidence of maize in North America. Fearn and Liu (1985) discovered maize pollen in a southern Alabama pollen core dating to around 3200 B.P.

Abruptly terminating this ca. 700 year warm and wet period is an historically recorded cold event. The event occurred approximately 1,500 years ago (in A.D. 536), where for nearly ten years skies were persistently cloudy (see Gunn 2000). The consequences of this event had a lasting effect on cultures world-wide and can also be recognized in the paleoenvironmental record. Gunn (1997) attributes a significant drop in sea level that occurs soon after this event as the "A.D. 536 cline" (Table C.2), and solar emissions remain low for a 300-year period (Gunn 2000:11). During this same period, Little (2003:24) documents a cold and dry period lasting for a little more than 400 years (ca. 1480 to 1050 B.P.). Tree ring data from North Carolina does not indicate a prolonged period of drought immediately following the A.D. 536 event. There is a pair of negative spikes indicating low growth years for bald cypress at that time, which is followed immediately by 25 years of drought (Stahle et al. 1988:1518). Stahle et al. (1988) determined that cycles of wetness and drought typically occur at 30 year intervals between A.D. 372 and A.D.1985, so a 25-year period of drought is not unusual. Elsewhere in the New World, the aftermath of the A.D. 536 event is correlated with the "Mayan hiatus" in the Yucatan Peninsula and possibly the abandonment of Teotihuacan in central Mexico (Robichaux 2000:45).

Toward the end of this relatively cool and dry period initiated by the A.D. 536 event, around A.D. 800 was another event that produced a winter season cold enough to freeze the Nile River (Lamb 1977:427, cited in Gunn 2000:11). This winter extreme occurred within an 80-year frame (ca. A.D. 760-840) of unusually cold winters. During this time Stahle et al. (1988) record several episodes of prolonged droughts on the North Carolina coast (Table C.2), as does Scuderi (1990) for the U.S. and Baillie (1994) for Europe.

Warm and wet conditions returned around 1,000 years ago and generally lasted for 500 years (Little 2003:24). The period mostly coincides with the Medieval Optimum, a period of relatively

warm and wet conditions in Europe. The Medieval Optimum actually ends around A.D. 1350 and is immediately followed by the Little Ice Age (Table C.2). During this four- or five-hundred-year period, Gunn (1997) records sea levels remaining above present levels for most of the time. Brief drops of sea level below the present level occur around A.D. 1150 and A.D. 1400 (Table C.2). The A.D. 1400 drop in sea level occurs soon after the onset of the Little Ice Age. Hudson (1997:30) indicates that colder conditions were prevalent world-wide around A.D. 1400, where annual mean temperatures were lower by several degrees. The Little Ice Age ends about 150 years ago and since that time climatic fluctuations tend to follow ca. 30-year cycles between cold and dry and warm and wet phases, with severe droughts occurring more frequently than they had in the past (Stahle et al. 1988).

The evolution of the southeastern climate and vegetation over the past 10,000 years is a period of long-term, continuous change at a millennial scale from a relatively cool and dry climate at the very beginning of the Early Holocene to one of a relatively warm and dry climate over the past 2,000 years. During the gradual increase in temperature over the past 10,000 years, the climate became wetter, perhaps climaxing around 5000 B.P., before gradually drying over the past 5,000 years. From the late Early Holocene through the beginning of the Late Holocene, the vegetation landscape appeared to be relatively stable with only gradual and incremental changes in its structure. The Piedmont retained an oak-hickory-pine mosaic, while the Blue Ridge changed from a Boreal vegetation regime to a northern hardwood and pine regime. The gradual lessening of seasonal temperature extremes since ca. 9500 B.P. likely stimulated overall ecological diversity and abundance in both geographic provinces due to warmer winters, high precipitation and stabilized summer temperatures. With gradually diminishing annual precipitation by the middle of the Late Holocene, the climate and vegetational mosaic in the Piedmont had settled into the modern ecological structure, with greater diversity and abundance in bottomland zones compared to upland zones. Periodic world-wide events and shorter-term trends since the Terminal Pleistocene produced temporary changes in regional or localized environmental productivity throughout the Holocene.