

A Look Into the Outlands: The Cultural Landscape of the Dougherty Plain of Georgia

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PREFACE

The Georgia Department of Transportation (GDOT) proposes to purchase a 1,685-acre parcel in Miller County as a wetland mitigation site to offset wetland impacts attributed to GDOT projects. The Plum Creek Wetland Mitigation Site is geographically located in the Dougherty Plain of Southwest Georgia and as with all wetland mitigation sites associated with federal monies was subjected to a survey and evaluation of impacts to cultural resources in compliance with the National Historic Preservation Act in 1966, as amended. In conjuncture with the archaeological survey report an additional volume was developed that exceeded the scope of a typical survey and evaluation to address questions of regional significance.

A research design was developed to extrapolate the use of landscape by prehistoric and historic peoples as observed within the Plum Creek Wetland Mitigation Site to the entire Dougherty Plain. New South Associates, Inc. undertook the monumental task of synthesizing archaeological site types identified in the Dougherty Plain to address questions of landscape utilization framed by environmental archaeology. The study makes use of the available records in creating a synthesis of landscape utilization in the Dougherty Plain based upon environmental and geographical factors such as elevation zones and drainage catchment density zones. Statistical tests were chosen to answer the research questions about landscape utilization based upon the available quality and vast quantity of archaeological site data. Future research in southwest Georgia will be able to make use of this foundational and expansive look into site distribution and landscape utilization.

GDOT is pleased to publish *A Look into the Outlands: The Cultural Landscape of the Dougherty Plain of Georgia* as the fifteenth installment in its *Occasional Papers in Cultural Resource Management* series. It serves as an example of state and federal transportation efforts employed to enhance the future by serving as good stewards of the past.

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ABSTRACT

This research study was prepared as an element of the archaeological survey of the Plum Creek Wetland Mitigation Site and focuses on the Dougherty Plain physiographic province, the lime sink region of southwest Georgia, as a cultural unit. An environmental approach was utilized to explore various environmental variables, including elevation, drainage density, and soil drainage within the study area and relate these environmental factors to prehistoric cultural timeframes and historic site types. Investigation of these environmental and cultural parameters was performed through GIS and statistical analyses. Results revealed cultural trends for both prehistory and history that are discussed within this volume. These results are placed within the context of previously defined cultural frameworks within the southeastern United States, which illustrate how the Dougherty Plain study area compares as a region. Implications of this study provide a broad-spectrum platform for future studies within the region, and specific research questions worthy of more in-depth examination.

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I. INTRODUCTION AND ENVIRONMENTAL APPROACH

This research report is an outgrowth of the Georgia Department of Transportation's (GDOT) interest in the establishment of the Plum Creek Wetland Mitigation Site (PCWMS). This wetland mitigation site comprises three tracts in Miller County, located in southwestern Georgia, totaling approximately 1,685 acres. Natural landscapes identified within the survey area consist of wetlands, floodplain, and slope divided among the three tracts that are generally described as inter-riverine uplands. GDOT contracted with New South Associates to perform an archaeological survey of the PCWMS and the results of that survey are discussed in the report *Archaeological Survey of the Plum Creek Wetland Mitigation Site, Miller County, Georgia* (Windham et al. 2007). The archaeology study observed differential landscape use during prehistory, with specific landforms and resources exploited more heavily than others. This observation led to further research on the interaction of cultures and environmental variables in the Dougherty Plain physiographic province of southwest Georgia (Figure 1), an environmental region that is unique in the state.

The Dougherty Plain of southwest Georgia is a flat to gently rolling karst-like physiographic province that slopes northeast to southwest. It is bordered to the northwest by the Fall Line Hills and to east by the Tifton Uplands (Wharton 1978). It is a unique Coastal Plain region that is distinguished by limestone geology interlaced with extensive subsurface aquifers and surface wetlands characterized by sinks, ponds, and marshes (Jones 2003, Clarke and Zisa 1976).

The aim of this research report is to present cultural trends in landscape utilization observed within the Dougherty Plain study area using existing data through an environmental approach. The research goal of this study is attained through literature review, Georgia Site File research analyzed through a Geographic Information System (GIS), and analysis of human-environmental relationships.

ENVIRONMENTAL APPROACH

In this study, an environmental approach is utilized to explore Native American and Historic cultural resource distributions. This multivariate approach, as developed since the 1970s during the revolution of ecological studies, is based fundamentally in environmental archaeology (i.e. integration of ecology with archaeology) and the premise that there are long-standing associations between humans and the environment (Dincauze 2000). It follows that these relationships will be represented archaeologically and they will potentially differ through time based on the changing dynamics of human ecology. With a defined cultural dataset (such as the identified cultural resources of the Dougherty Plain) and environmental variables (i.e. elevation, hydrology, soils, etc.), one should be able to define frequency of specific variable relationships and statistically test their significance, if an adequate sample size exists. Through these tests, one can define trends seen in the cultural landscape utilization.

Figure 1.
Dougherty Plain Study Area



Of interest is the integration of the human and environmental variables with recognition that these independent variables are interrelated. Researchers must have, “the awareness that data complexity and interrelated variables invalidate models of linear causation chains” (Dincauze 2000:509). In other words, in an environmental approach, there are no direct cause and effect relationships. It is an approach that calls for the application of models and hypotheses and their elimination thereof based on the evidence if and when possible. Therefore, “[u]ncertainties [in human-environment relationships] do not represent failures; they should not be suppressed in the final reports” (Dincauze 2000:513). O’Conner (1991:1) stated it best as, “Absolute certainty is not an offer.”

Within this analytical framework, Native American occupations are analyzed by cultural period while historic occupations are analyzed by site type. Literature review of the region places the Dougherty Plain study area within a cultural context of the Coastal Plain Southeast. Research of the Georgia Site File database resulted in a dataset of 2,112 discovered archaeological sites within the study area that encompasses approximately 13.7 billion square meters. It is important to note that an overall lack of archaeological coverage marks the study area, and as a result, much of the region has not been surveyed and no cultural resources have been recorded. This limited coverage creates an irresolvable bias within our analysis. In short, the archaeologically surveyed area represents a small immeasurable percent of the total study areas. Therefore, identified cultural resources are far fewer and within specific constricted areas (i.e. transportation corridors, park service compartments, specific research areas) within the greater study area of the Dougherty Plain. However, available data does illustrate potential trends that are valuable for the interpretation of landscape utilization within the Dougherty Plain as the constricted survey areas do represent somewhat random placements in regards to environmental variables.

RESEARCH QUESTIONS

Specific research questions (premises) were developed in review of the relevant literature and environmental variables to guide this study. These include the following:

- Potential Pre-Paleoindian sites have been discovered in the interior Coastal Plain similar to the study area.
 - Is there evidence for these sites in the Dougherty Plain and in what setting(s) are these sites located?
- It is hypothesized that Paleoindian populations were highly mobile foragers in the oak-hickory-pine Coastal Plain, but may have been somewhat logistically organized in regards to riparian and lithic resources at least in the boreal forests north of the Fall Line.
 - Within the study area, are Paleoindian sites distributed across the landscape in a potentially highly mobile and dispersed (using both lowland and upland areas) settlement pattern reminiscent of foraging patterns of site distribution?
 - Do Paleoindian sites cluster along drainage ways, indicating cultural utilization of riparian environments, which potentially acted as migration corridors?
 - Are Paleoindian sites tied to chert outcrops, such as observed at the Muckafoonee site?

- The Archaic period was a time of increased population and changing group mobility tied, at least in part, to environmental changes.
 - Are Early Archaic site distributions similar to Late Paleoindian occupations in regards to settlement strategy?
 - Is a lower population and/or restricted group mobility during the Middle Archaic reflected by site clustering? Or is there a trend of dispersed site distribution?
 - Are Middle Archaic sites concentrated in specific water related niches, potentially in response to warmer and drier conditions?
 - During the Late Archaic, are sites dispersed, suggesting high mobility, or concentrated in specific environmental settings suggesting (semi-) permanent occupations focused on specific niche(s) such as smaller upland streams?
- Increased social complexity and more sedentary occupations in the bottomlands of large drainage ways is a settlement strategy recognized for the broader Southeast.
 - Is there cultural continuity in regards to settlement strategy for the Late Archaic and Early Woodland?
 - Is there a trend for dispersed sites on fertile soils, suggestive of small farmsteads?
 - During the Late Woodland, are sites in the bottomlands and/or dispersed along upper tributaries?
- Mound centers and large sites on floodplains characterize the Mississippian period in the much of the Southeast; however, recent research suggests that the settlement strategy was more diverse and that traditionally undesirable locations were utilized, including the Dougherty Plain.
 - During the Early Mississippian, is there a continued settlement pattern from the Late Woodland sub-period?
 - Is a more dispersed population and a diverse settlement strategy reflected in the Dougherty Plain?
 - Are increases in population during the Middle and Late Mississippian sub-periods seen by increased site frequency?
 - Are Mississippian sites located in less desirable locations for agriculture?
- Native Americans minimally inhabited the Dougherty Plain during the Proto-historic and Historic period. It is hypothesized that Native Americans became acculturated with time and adopted a settlement strategy of small dispersed farmsteads.
 - Does site frequency illustrate a relatively vacant landscape?
 - Does the environmental setting of sites suggest a settlement strategy of dispersed farmsteads?

- The first Euro-American historic occupations were forts (military) along the rivers, which were later followed by an increase in population and railroads, tying river ports to the interior Dougherty Plain. The first settlers focused on agricultural plantations followed by timbering and turpentine industries after the Civil War.
 - Are Military sites focused in the bottomlands of major drainage ways?
 - Is there a trend in transportation routes suggestive of particular industry or urban needs?
 - Are Agrarian and Domestic sites concentrated in the floodplain(s)?
 - Do other historic site types show any pattern in environmental variables?

RESEARCH VOLUME ORGANIZATION

Within this report, the relationship of Prehistoric sites and lithic resources is briefly addressed for the study region. In addition, the sites were analyzed by cultural periods and site types as reported by site file information. The environmental approach outlined within this research emphasizes three variables: elevation range data, ordered drainage catchments density area, and soil drainage class that structured the GIS categorization and analysis of site distributions and human-environment trends.

The investigation of cultural trends within the Dougherty Plain is presented within the following chapters. The “Environmental Variables and Methodological Approach” chapter presents a detailed discussion of the study area and the variables utilized for the study of occupations, along with methods of GIS and statistical analysis and specific environmental datasets. The “Cultural Setting and Dataset” chapter provides an overview of known cultural manifestations and trends previously documented within the Coastal Plain of the Southeast and surrounding regions. This chapter serves to provide background information used to formulate the research questions. Additional information defines the cultural dataset of discovered cultural resources within the Dougherty Plain study area and collected from current Georgia Site File information. Analyses of the cultural data using the variables defined by the environmental approach are presented within the “Results of Analyses” chapter. The final chapter of this report, “Cultural Implications”, discusses the interpretations of the results in the context of the research questions. All archaeological sites and related cultural and environmental attributes are provided in Appendix A. This information, the GIS illustrations, and digital copy of this research volume are provided on an enclosed CD for future researchers.

II. ENVIRONMENTAL VARIABLES AND METHODOLOGICAL APPROACH

STUDY AREA

The Dougherty Plain is a flat to gently rolling karst-like physiographic province that slopes northeast to southwest. It is bordered to the northwest by the Fall Line Hills and to east by the Tifton Uplands (Wharton 1978). This discussion focuses on the Dougherty Plain as a specific study area; however, analyses of the hydrologic units of the region necessarily expanded the geographic scope of the study to encompass total drainage catchment areas discussed within a later section. Therefore, the total study area measures 13,689,439 square kilometers and includes small portions of bordering regions. Table 1 outlines the distribution of area encompassed within this study as represented by physiographic provinces and districts. Figure 2 illustrates this same area.

Table 1. Physiographic Distribution of Study Area.

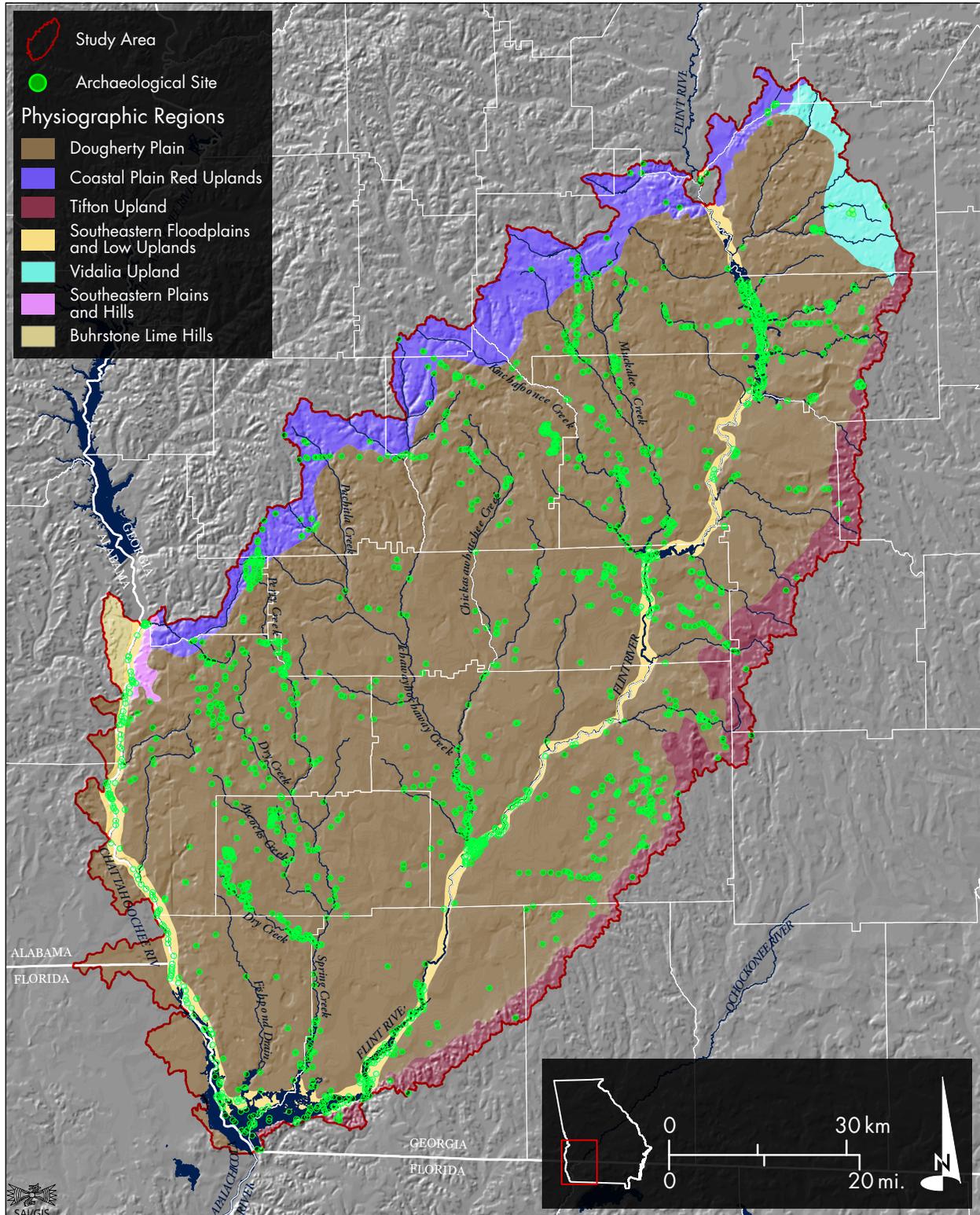
Physiographic Region	Total Area (sq. meters)	Percent of Total Area
Buhrstone/Lime Hills	50,168,512.78	0.37
Coastal Plain Red Uplands	1,002,436,543.10	7.32
Dougherty Plain	11,016,539,659.70	80.47
Southeastern Floodplains and Low Terraces	655,104,031.29	4.79
Southeastern Plains and Hills	33,318,681.51	0.24
Tifton Upland	720,074,332.15	5.26
Vidalia Upland	211,797,833.35	1.55
Totals	13,689,439,593.87	100.00

PHYSIOGRAPHY

The Dougherty Plain of southwest Georgia is a unique Coastal Plain region that is distinguished by limestone geology interlaced with extensive subsurface aquifers and surface wetlands (Jones 2003). The porous limestone also favors the formation of sinks, ponds, and marshes (Clarke and Zisa 1976, Clarke 2004). Most of the shallow circular or oval-shaped ponds are likely sinkholes formed within the underlying bedrock. Considering the ubiquity of these hydrological features, the Dougherty Plain is also known as the Lime Sink region of the Coastal Plain province. This region represents the majority of the study area and is the focus of this research.

The lesser-represented physiographic regions (Table 1 and Figure 2) encompass a small percentage of the study area. These regions border the Dougherty Plain or are floodplain settings. All border regions are identified as various Coastal Plain uplands marked by a comparably more dissected topography with higher elevations reaching approximately 600 feet above mean sea level (AMSL). The Southeastern Floodplains and Low Uplands are characterized by sluggish rivers including the Flint and Chattahoochee and associated backwater swamps (Griffith et al. 2001).

Figure 2.
Physiography of the Dougherty Plain Study Area



ELEVATION

Elevation was chosen as a study variable as it relates to major ecozones (i.e. upland and bottomland) that were important to Native American settlement, subsistence, and resource procurement patterns. According to regional digital elevation models (DEM), the topography of the study area slopes from 577 feet above mean sea level (AMSL) in the north along the Fall Line Hills to a minimum elevation of 60 feet AMSL around Lake Seminole in the far southwest corner of the Dougherty Plain. For the purposes of this study, the elevation dataset was grouped using natural breaks created within a GIS. This assisted in environmental analyses of Native American and Historic cultural manifestations.

The natural breaks are defined within Table 2, and represent a fairly well distributed spectrum of bottomland to upland elevation zones. The lowest range of elevation from 60-158 feet AMSL represents the bottomlands. This encompasses 22 percent of the study area and includes topographic depressions (wetlands and sinks), and river valleys (large drainages). The lowland zone includes 28 percent of the study area and is characterized by low-lying relatively level floodplains and slightly sloped wetland edges. Elevation within the lowland zone ranges from 158-230 feet AMSL. The zones designated as midlands are subdivided into low and high designations that are characterized by rolling hills and associated slope representing a spectrum of elevations. The low midland range from 230-302 feet AMSL and encompasses 24 percent of the study area. The high midland zone is from 302-384 feet AMSL and includes 17 percent of the study area. Uplands represent a much smaller percent of the study area including only nine percent of the total area. The upland zone ranges from 384-577 feet above mean sea level and are characterized by ridges, knolls, and steeper slopes.

Table 2. Elevation Zones Represented within the Dougherty Plain.

Elevation Zone	Total Area (sq. meters)	Percent of Total Area	Minimum Elevation (ft/m)	Maximum Elevation (ft/m)
1. Bottomlands	2,962,106,065.82	21.64	60/18.47	158/48.63
2. Lowland	3,847,538,662.64	28.11	158/48.63	230/70.16
3. Low Midlands	3,300,792,043.20	24.11	230/70.16	302/92.93
4. High Midlands	2,355,780,891.02	17.21	302/92.93	384/117.55
5. Uplands	1,223,221,984.45	8.94	384/117.55	577/176.01
All	13,689,439,647.13	100	60/18.47	577/176.01

GEOLOGY

The geologic setting of the Dougherty Plain represents a minor variable investigated in this study. This was performed through comparison of known chert resource locations/areas due to the need for this material prehistorically.

The Georgia Coastal Plain region was formed through sea level fluctuation during the Upper Cretaceous and Cenozoic geologic timeframes (Cooke 1943). The region as a whole has been repeatedly covered by the sea as illustrated by the numerous and distinct strata of seashells and erosion. Therefore, strata of gravels and clays from wave erosion intervals and sandier deposits during inundation were observed; all of which are mingled with calcium carbonate rock such as limestone.

Within this large Coastal Plain region is the Dougherty Plain that is underlain by the Eocene aged Ocala limestone that formed in the Cenozoic era (Figure 3). Goad (1979:21) recognized the Ocala limestone as a portion of the Jackson stage deposits of the Eocene. According to Cooke (1943:68), the Ocala limestone, "lies near the surface in a belt... that extends from the Chattahoochee River to Twiggs County. Outcrops of unaltered limestone are the most abundant along the streams and rivers." It should be noted that Cooke (1943) defined, but did not offer an explanation, a larger geographic area for the occurrence of the Ocala Limestone Formation than the Dougherty Plain physiographic province defined by Clarke and Zisa (1976). It is the authors' opinion that the geologic reference may be more consistent with patterns revealed through hydrologic analysis during this study as the karst topography and related hydrologic features are the primary characteristic of the physiographic region. Therefore, it is worth considering the geology of the study area as a whole, although this crosscuts physiographic units to a small extent.

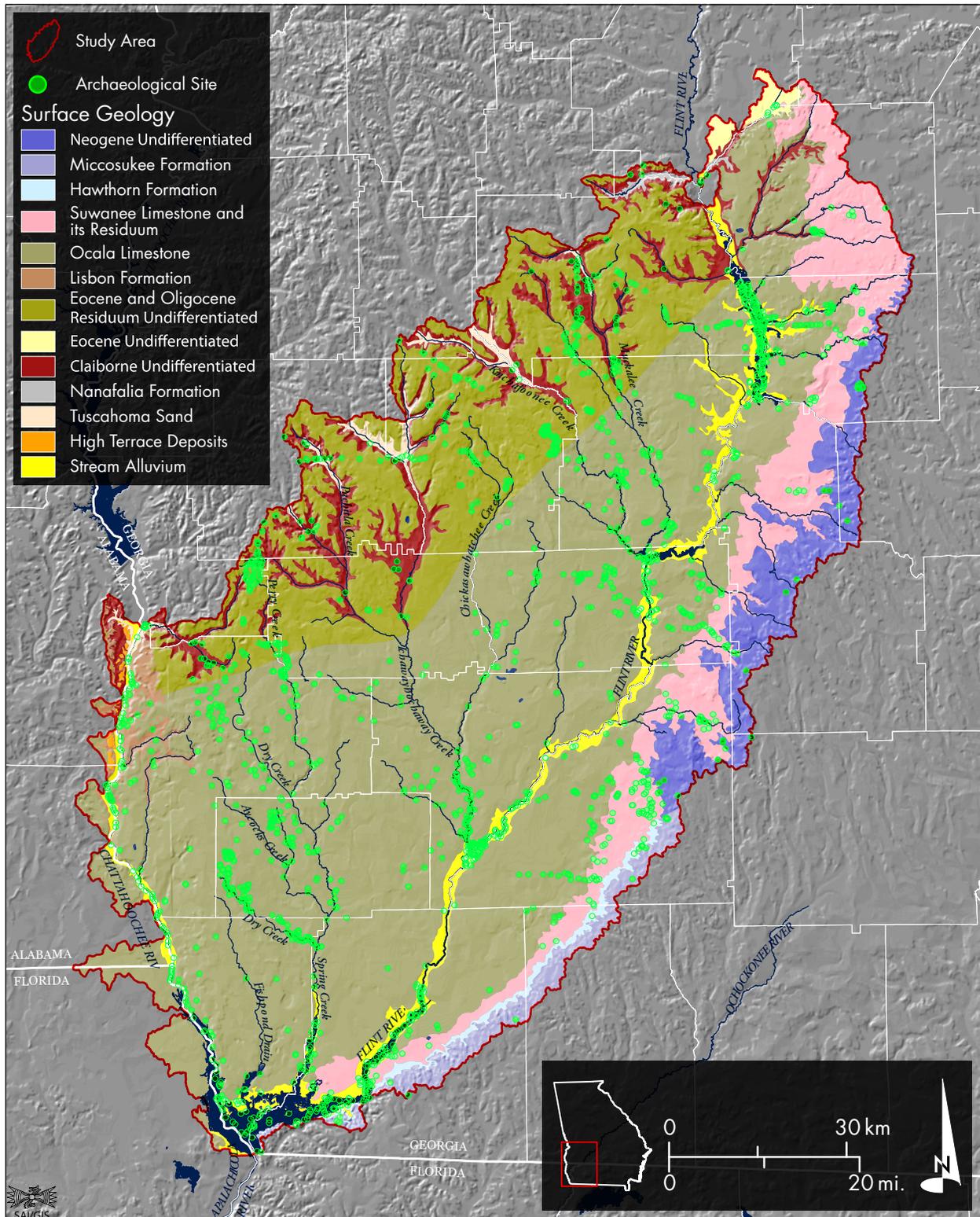
Silicified limestone outcrops within the broad undulating Dougherty Plain between the Flint and Chattahoochee rivers. The friable limestone formations are characterized by white or cream colored pure limestone. Clayey soil deposits mark the northeastern portion of the formation while more sandy deposits characterize the southeastern portion where pure limestone is not exposed.

Of particular interest is the chert that has formed in this region and became exposed at the surface. Cooke (1943:71) stated that, "at many natural exposures... all the lime originally in it [the formation] has been replaced by silica, and the rock at the surface is flint." Silicified limestone outcrops are recorded along Spring Creek, near the original PCWMS, at Colquitt. In addition, great masses of chert are found along Aycock Creek just south of Colquitt and numerous other locations that are outlined by Goad (1979), who compiled an extensive list of outcrops documented geologically.

The Fall Line Hills represent an intermediary geologic unit between the Piedmont and younger coastal deposits that were formed during the Oligocene epoch. The Flint River Formation (formerly known as the Vicksburg Formation (Veatch and Stephenson 1911:307)) overlays the Ocala limestone and the Suwannee Limestone Formation can be found in this region. The Flint River Formation is significant to this discussion due to evidence of cherty outcrops and geographic expanse. On the other hand, the Suwannee limestone is not discussed in detail as Cooke (1943) placed this formation south and east of the study area and stated that the formations had few outcrops within Georgia.

The Flint River Formation can be found in the northeastern and southwestern portions of the study area where it overlies the Ocala Limestone Formation (Cooke 1943). There are breaks or inconsistencies in the Flint River Formation that were caused by either erosion or differential formation. Limestone, sand, and gravel characterize the formation; however, "at most of the outcrops the limy part has been either dissolved out, leaving a crumpled mass of variegated residual clay, sand, and gravel, or completely silicified into chert" (Cooke 1943:78). It is noted that these outcrops occur at sinks that penetrate overlying formations where, "chert lumps of varying sizes and abundance are widely distributed" (Cooke 1943:79). Countless chert outcrops from this formation can be found in the southern portion of study area. An extensive list of these outcrops was provided by Goad (1979) and is exhaustive of the geologic references for the region.

Figure 3.
Geology of the Dougherty Plain Study Area



In reference to cultural utilization of the study region, three primary geologic features are recognized as culturally significant including the chert outcrops, karst limestone, and alluvial deposits found along lowland drainages. Chert resources were attractive to prehistoric and Proto-historic groups for the production of stone tools. The karst limestone created sinkholes and backwater features that resulted in greater plant and animal diversity for a broad-spectrum subsistence economy. The alluvial deposits were favorable for small and large-scale agriculture throughout all timeframes.

HYDROLOGY

Hydrology was important to Native American and Historic cultural groups for water, transportation/trade, agricultural fields, subsistence, and other means. Therefore, hydrology as measured through drainage catchment was a variable considered in this study as it influenced the location of sites.

The Dougherty Plain generally falls between two major river systems in Georgia, the Chattahoochee and Flint rivers, which form the Apalachicola River system (Figure 1, 2, and 3). The study area necessarily crosses the Chattahoochee River to incorporate related catchment areas. In addition, a portion of the Dougherty Plain is found to the east of the Flint River. Other major drainage ways within the study area include Spring Creek and Chickasawhatchee Creek with numerous other tributaries.

The Chattahoochee River is a large drainage way that flows north to south in the southern Coastal Plain portion of Georgia, while the headwaters are in the northeast portion of the Piedmont. This river is found on the western edge of the Dougherty Plain and creates the state border with Alabama. The Flint River is also a drainage that spans a large portion of central to western Georgia. This drainage represents the eastern edge of the Dougherty Plain physiographic province. These two rivers form lowland borders of the study area, which is best characterized as inter-riverine uplands. These uplands are marked by scattered tributaries and sinks that feed the Chattahoochee and Flint rivers through the Florida Aquifer artesian system created by carbonate bedrock that underlies the coastal regions of the Southeast.

Of primary interest to the current study is the use of a drainage catchment as a geomorphic unit for analytical purposes (Leopold et al. 1964), as the study area is composed of countless tributaries and related sinks. The associated water features form unique networks of water bodies within catchment basins (drainage catchments) of the study region that may have been spatially exploited by past inhabitants versus specific drainage ways (i.e. river, tributary). The interrelated nature of drainage basins with geology, elevation, relief, and soils is an environmental reality that must be observed during any study of one or all these variables.

During the current study, the drainage catchment as a geomorphic unit was found to be a more accurate portrayal of the true nature of the aquifer system as it encompassed the catchment area versus relying solely on drainage ways for identification. The termination of numerous streams and creeks into sinks and/or wetlands rendered the commonly utilized stream order (Horton 1945) irrelevant in the study area. In addition, the use of stream order is biased by the variable of scale and changes based on what map is used for calculation. However, drainage catchments can be ordered empirically by measure of density and utilized to define the overall water availability in a given location with no interrelationship with map scale.

Designation of drainage catchments was performed using a GIS and based on analysis of 24,000 digital elevation models and the National Hydrology dataset (2005). After computation of individual drainage catchments, the order of a given catchment was defined based on the following formula that computes drainage density:

$$\text{Drainage Density} = \Sigma L / Ad = \text{Sum of drainage length(s)} / \text{Total drainage area}$$

The vast variation in drainage densities across the Dougherty Plain study area was further grouped by five natural breaks for analysis. This data is summarized within Table 3 and illustrates the range in available water within a given catchment area. Drainage catchment density is conversely related to elevation zones. Generally speaking, low-density drainage catchments (Density Order 5) relate to bottomlands (Elevation Zone 1) such that the Flint and Chattahoochee floodplains are designated by the lowest subset and inversely related to the traditionally utilized stream order. However, one must keep in mind that floodplains (normally considered bottomlands) also occur in the upper reaches of drainage catchments that would have a high drainage density. This is particularly true in areas of relatively low relief, such as the study area. It is worth noting that drainage catchments representing the highest flow are represented by lower order and opposite of conventional stream ordering. Therefore, the Chattahoochee and Flint rivers are marked by a basin density order of one while five marks upland tributaries. The percent of the study area covered by a given drainage density order is fairly well distributed with the exception of the most dense catchments. This distribution indicates that the data is not skewed by the larger drainages and analysis of this variable is viable.

Table 3. Drainage Catchment Density Represented within the Dougherty Plain Study Area.

Basin Density Order	Area (sq. meters)	Percent of Total	Average	Minimum	Maximum
1. Highest Density	1,588,383,825.21	11.60	0.0015	0.0014	0.0018
2. High Density	2,647,605,373.59	19.34	0.0013	0.0011	0.0014
3.: Medium Density	3,090,081,458.03	22.57	0.0010	0.0008	0.0011
4. Low Density	3,209,276,192.84	23.44	0.0007	0.0005	0.0008
5. Lowest Density	3,154,092,739.41	23.04	0.0003	0.0001	0.0004

SOILS

A detailed list and discussion of all soil types found within the Dougherty Plain study area is outside the scope of this research due to the complexity of the numerous counties included within the study area. However, specific variables related to the soil drainage and permeability crosscut these biases within individual county soil information. Within this study, soil drainage was used as an environmental variable because Native American (particularly from the Woodland period and forward) and Historic cultural groups often chose these setting for settlement and horticultural/agricultural fields.

Soil drainage class is a dataset available from the Natural Resources Conservation Service (2006a through 2006p). Because there was no soil information available for Webster County, which makes up four percent of the study area, it was not investigated in this study. Soil drainage is a result of numerous interrelated variables including elevation, geology, and hydrology and is defined by how well a particular soil holds water on a defined scale.

The “water” designation refers to those soils that are presently or intermittently inundated along floodplains or wetlands, “very poorly drained” soils may retain water (i.e. sinks, ponds), and the classification “excessively drained” refers to soils that filter surface water quickly and do not hold moisture such as in the uplands. These extremes encompass a small percentage of the total study area (Table 4). Well-drained soils are the most highly represented designation totalling 62 percent of the study area. This soil classification encompasses areas that are likely favorable for crop production, large-sized settlements (not likely inundated), pine plantations, road development, and various other long-term cultural manifestations. The skewed area distribution of soil drainage class must be recognized during interpretation of this variable.

Table 4. Soil Drainage Represented within the Dougherty Plain.

Soil Drainage Class	Area (sq. meters)	Percent of Total
Excessively drained	205,817,021.76	1.50
Somewhat excessively drained	641,642,159.05	4.69
Moderately well drained	865,035,162.47	6.32
Well drained	8,542,669,478.35	62.40
Somewhat poorly drained	510,427,486.71	3.73
Poorly drained	2,120,364,915.22	15.49
Very poorly drained	20,643,308.31	0.15
Water	277,565,129.14	2.03
Unavailable (Webster Co.)	505,274,986.11	3.69
All	13,689,439,647.13	100.00

BIOTIC COMMUNITY

Before the severe disturbances caused by silviculture, a quilt-work of plant communities accentuated the different landforms in the area. Long-leaf pines and wiregrass occur on the higher-lying areas, dense hardwood forests, including tupelo and water oak, occurred along streambeds, and cypress and gum trees grew within lime sinks. May hawthorn trees, known as mayhaw among inhabitants of the research area, grow within the better-drained loamy sand portions of ponds, swamps, and stream banks. Adjacent to the ponds and wetlands are some big live oaks, most of which have little resistance to fire, but thrive in the disturbance created by irregular flooding (Wharton 1978).

White-tailed deer, varieties of smaller mammals, birds, reptiles, and amphibians are attracted to the densely vegetated wetland areas. The diversity of plant species encouraged by frequent flooding includes fruit and mast producing species and grasses. Seasonal plants make up a large portion of the herbivore and omnivore diet, and such animals are attracted to these wetlands such areas in the Dougherty Plain, which occur along the large floodplains and at sinks, and other regions of the Eastern Woodlands.

Presently, much of the higher terrain of the study area is in cropland and pasture, with some small areas of mixed forest. Peanuts, pecans, and cotton are common crops grown in the region. Remnant natural forests consist of pines, including long-leaf pine, and hardwoods such as red oaks and hickories (Griffith et al. 2001). Today, much of the wooded portions of the study area are planted in pines of varying ages. The numerous sinks and low lying areas scattered throughout the region are wetter and poorly drained with vegetation consisting of black gum, sweet gum, water

oak, and a few pines and cypress. It is perhaps not surprising then that many of these tree-covered lime sink ponds and marshes continue to be biological oases in a mostly agricultural landscape (Griffith et al. 2001). Ecologically speaking, these shallow sinkholes are productive hubs, reminiscent of Carolina Bays in the Coastal Plain of the Carolinas and southeastern Georgia.

TESTING ENVIRONMENTAL VARIABLES

Once GIS analysis of the environmental and cultural variables was performed, frequency distribution described, and a null hypothesis formed, statistical testing was conducted. Statistical testing was utilized for observed frequency variation to determine if results represented random or nonrandom distribution in regards to the variables.

Pearson's chi-squared goodness of fit test was utilized within a statistical package to accomplish this goal. Briefly, this test compares the observed frequency distribution and expected (theoretical) frequency through cross-tabulation (contingency table) of, in this instance, a cultural variable by an environmental variable. The formula for this test is as follows:

$$\chi_{n-1}^2 = \sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i}$$

O_i = an observed frequency;

E_i = an expected (theoretical) frequency, asserted by the null hypothesis;

n = the number of possible outcomes of each event.

Given a set degrees of freedom ((df= (1 - the number of rows)(1 - the number of columns)), this test calculates probability (p-value). The p-value is used with a standard chi-square table to find the level of significance of the results (df and p-value). A significance level of 0.05 or less is considered high, and shows that observed values are not the result of a random sample but of a noteworthy association in the data. High significance level results in rejection of the null hypothesis and indicates a likely association of the human-environment relationship. Observation of high variance between observed and expected values within the contingency table suggests that the particular association (i.e. Late Woodland-Bottomland Elevation) is outside the realm of normal distribution and significant as a pattern.

The most apparent bias in using the chi-square test is sample size. According to Drennan (1996:197), statisticians differ in the definition of a reliable sample. He defined a middle course approach, which is adopted here as, "no expected values be less than 1 and no more than 20% of the expected values be less than 5" (Drennan 1996:197). If the sample was statistically unreliable, then observed frequency variation and statistical variation are discussed.

III. THE CULTURAL SETTING AND DATASET

INTRODUCTION

The following chapter outlines the Native American (prehistoric) and Historic cultural contexts of Georgia, and more specifically, research pertaining to the Interior Coastal Plain region and Dougherty Plain region of southwestern Georgia. Each prehistoric cultural period is described with specific variables in mind: 1) environmental factors and change; 2) diagnostic tools associated with each period, and 3) cultural shifts and continuities in settlement and landscape utilization. The background research guided development of specific research questions outlined in Chapters 1 and 5.

This discussion is presented chronologically by cultural period with specific historical information following the prehistoric discussion. There is a body of limited prehistoric research about the study area. Recent research provided by Elliott (2004), Chamblee (2004, 2005), and Waggoner (2003) is extensively utilized to discuss specific cultural manifestations in the region between the lower Flint and Chattahoochee Rivers. This recent and ongoing research within the Dougherty Plain physiographic province provides a glimpse of shifts and continuities in settlement location through prehistory.

PRE-PALEOINDIAN PERIOD (>11,500 B.P.)

Prehistoric occupations predating diagnostic Clovis occupations in the Southeast (Pre-Clovis) have been highly debated for decades (see Anderson 2005). The climate during this period was characterized by full glacial Pleistocene conditions, with the Southeast much colder and drier than present. Traditionally, it was thought that no prehistoric peoples occupied the Southeast during this time span. Yet, deeply buried sites along the Atlantic littoral have revealed evidence for these early occupations. These sites include Page-Ladson (8JE591), Topper (38AL23), Cactus Hill (44SX202), Little Salt Spring (8SO18), and Saltville (44SM37) (Anderson 2005). Ongoing research suggests that there was one or more occupation(s) that predated the Paleoindian period in the Southeast. Greater accuracy and variety of absolute dating methods, along with sampling of deeper deposits, have advanced indications of this occupation.

Currently, there is no defined artifact type that is diagnostic of the Pre-Clovis occupation. This ostensible absence of diagnostic artifacts implies that pre-Clovis materials can be easily overlooked. Nonetheless, in the absence of readily recognizable artifacts, other sources of evidence seem to suggest pre-Clovis occupation. For example, the Page-Ladson site, located to the south of the current project area in the Florida panhandle, shows stratified deposits of late Pleistocene and early Holocene animal bones associated with artifacts. Dates of these deposits range from 14,500-12,500 years before present (B.P.). Judging from this evidence, the earliest dates for artifacts recovered from Page-Ladson are roughly 1,500 years before the beginning of the Clovis culture (Brown 1994).

The Topper site, which also consists of apparently pre-Clovis material, is located in the Coastal Plain of South Carolina, not far below the Fall Line. Both this site and the current study area are located within the interior Coastal Plain region, which was much closer to the Atlantic coastline during the Pleistocene than present. Excavations at the Topper site extended below a Clovis layer, through a red paleosol zone, and exposed white Pleistocene alluvial sands (Pleistocene terrace), which are believed to be the normal pre-Clovis zone for the site. Within this Pleistocene layer, small flakes, some with bend break fractures, were recovered. These items are believed to be pre-Clovis chert processing piles. In one area of the site, six chert artifacts (small blades, end scrapers, and side scrapers) were found around a large boulder that had been used as an anvil. Of considerable interest was the recovery of charcoal from the pre-Clovis layer. There was an area of abundant charcoal in a shallow depression, from which a chert flake was recovered, and this location is believed to represent a hearth. Two radiocarbon samples were submitted, which resulted in dates of 50,300 B.P. and 51,700 B.P. (Goodyear 2005). On-going work at Topper could have great implications for understanding the origin and migration of the humans in the North America continent and for defining the archaeological attributes of pre-Clovis cultures. In reference to the current study area, evidence for a deeply buried, potentially Pre-clovis occupation within the interior Coastal Plain suggests that similar sites may be preserved in similar contexts such as the Dougherty Plain.

PALEOINDIAN PERIOD (11,500–10,000 B.P.)

In spite of increasing research on the Paleoindian period, there are few systematically excavated sites in the Southeast that have produced diagnostic Paleoindian artifacts (particularly Clovis types) and even fewer such sites that contain more than surface materials. Therefore, interpretation of the early Georgia inhabitants has been highly debated over the decades. There is consensus that the Paleoindian period is a time of great environmental and cultural change in the Southeast as climate shifts were reflected by cultural change. Anderson (2005) suggested that it now appears likely that at least some people were in the region before the widespread occurrence of Clovis technology. Therefore, what may be represented by Paleoindian tool assemblages is the radiation of a pre-existing reproductively viable culture.

Increasing knowledge of climate change during the Late Pleistocene/Early Holocene transition has provided greater comprehension of the related sub-regional cultural developments in the Southeast. During this cultural period, the drier, colder conditions of the Late Pleistocene gave way to the warmer, wetter conditions of the Early Holocene. These climate changes shaped the biotic resource structure and influenced prehistoric group size, technological organization, and mobility patterns (Anderson et al. 1990:5, Anderson and Hanson 1988). Within the Coastal Plain province, a homogeneous forest cover of oak, hickory, and southern pines became dominant during the Paleoindian period and spread northward with time.

The Paleoindian period is characterized by occurrences of fluted and unfluted lanceolate points. The Clovis type, many of which are fashioned from Coastal Plain chert (Ledbetter et al. 1996), represented the Early Paleoindian. The Folsom, Cumberland, Suwannee, Beaver Lake, Simpson, and Quad types mark the Middle Paleoindian sub-period and are often manufactured from Coastal Plain chert. During the Middle Paleoindian sub-period, an increased concentration on specific environmental zones and resources accounted for a greater variety of lithic point types. Dalton bifaces characterize the end of this period from secure contexts in Alabama (Soday 1954). During

the Late Paleoindian, the extensive re-sharpening of lithic tools such as Dalton bifaces and the use of more localized lithic resources suggest a cultural shift. Researchers have suggested that this shift reflects highly mobile groups favoring a foraging strategy (Ledbetter et al. 1996:284, Anderson 2005). This trend could have been a precursor of a more regional lithic procurement focus as evidenced during subsequent Early Archaic occupation.

A number of fluted bifaces have been found in the Ridge and Valley province of northwestern Georgia (Williams and Stoltman 1965) and along the Oconee River in the central Piedmont of Georgia (O'Steen et al. 1983). Within the Coastal Plain, Ledbetter et al. (1996:281) stated, "...concentration of Early and Middle Paleoindian sites in southwest Georgia, in an area of extensive chert deposits, suggests that the area was more intensively utilized." This is in agreement with the numerous Coastal Plain chert artifacts throughout the state, which are diagnostic of these earlier timeframes.

The Muckafoonee site (9DU37) and the Lee County chert outcrop, a large quarry site located near Albany consisted of Paleoindian and later artifacts indicative of lithic procurement and tool manufacture (Anderson et al. 1990:27-28, Ledbetter et al. 1996). This evidence supports that Paleoindian groups occupied the region despite the paucity of widespread subsurface findings.

Conventional interpretations of the Paleoindian period portrayed the people exclusively as hunters of Pleistocene mega-fauna. Researchers in the Southeast have suggested that high mobility, low population density, and hunting characterized Paleoindian occupations in the region (Anderson and Joseph 1988). Yet, research beginning in the mid to late 1980s indicates that while reliance on mega-fauna may have been common place in the western part of North America, southeastern Indians appear to have relied on a more varied diet including plants and small game (Sassaman et al. 1990; Walker 2000; Hollenbach 2005). Consequently, new interpretations have argued against the traditional view of settlement patterns caused by the nomadic searching and following of large game herds. Recent models suggest a less mobile population that selected choice areas to colonize and expand into sub-regional settlements and that may have been tied to lithic resources. In addition, the widespread occurrence and uniform nature of Paleoindian assemblages (unrelated to regional density), plus the reproductive viability of low-density populations during this time period, indicate that sophisticated information exchange networks must have been in place (Anderson et al. 1990).

According to Anderson et al. (1990), the first Georgia inhabitants of the Early and Middle Paleoindian period preferred the spruce/pine boreal forests found north of the Fall Line as this provided a known resource base utilized during the full-glacial Pleistocene as opposed to the oak-hickory-pine forests to the south. The boreal forest environment was suited for a logistical strategy (after Binford 1980) using a highly developed toolkit. Evidence of this landscape utilization includes numerous Paleoindian sites in northern Georgia having similar assemblages (Anderson et al. 1990:11) with significantly less evidence for Paleoindian settlements below the Fall Line. The selection of good quality raw material, often from extra-local sources, for the production of Early Paleoindian tools is circumstantial evidence for a high degree of mobility during this sub-period.

Overall, it appears that Paleoindians within the northern boreal forests adopted a logistical strategy (after Binford 1980), using specialized toolkits. Probable aggregation sites have been identified even among the earliest Paleoindian groups in the southeastern United States (e.g., Anderson

1995). It is indeed plausible to assume that the large Paleoindian sites in the Southeast were permanent or semi-permanent base camps from which resources within specific territorial ranges were exploited (possibly 150+ km, Ledbetter et al. 1996). In addition to the few intensively or repeatedly occupied sites, small and low density camps and quarries seem to have been used during the Paleoindian period in the Georgia Piedmont (e.g. Ledbetter 1995), and have been found at most landscape types including levees, terraces, upland boundaries, and in the uplands primarily above the Fall Line (Anderson et al. 1990, Anderson 2005).

The oak-hickory-pine forest environment that was forming in the Coastal Plain region was more suited for a foraging strategy of highly mobile groups using expedient tools (Anderson et al. 1990:5). A foraging strategy may have been more productive given seasonal resources (fruits, masts, and grasses) and associated animal exploitation of the same harvests. Accordingly, the lesser number of Paleoindian sites discovered in the Coastal Plain may be the result of a lower population density using ephemeral camps to a greater extent than long-term base camps as seen north of the Fall Line. This evidence suggests that the region was "geographically peripheral" to major concentrations of Paleoindian populations (Stoltman 1983).

It remains to be determined whether this apparent peripheral occupation is factual, or whether it is an illusion based on the lack of diagnostic Paleoindian artifacts present at sites recorded as "non-diagnostic lithic scatters" or as possible "base camps" that produced no diagnostic artifacts. Further, the lack of discovered sites could be due to the dramatic drop in sea level between 18,000 and 10,000 B.P., after which Paleoindians very likely occupied sites along what was then the shoreline but is now submerged due to the rise in sea level during the Holocene (Smith 1986). Elliott (1989) supported this assertion, as little evidence for intensive Paleoindian occupation has been documented in the Flint River watershed (Anderson et al. 1990). The region of Albany, Georgia, where high-grade chert outcrops occur, showed, "somewhat greater use, although there is little evidence... for intensive occupation during the period" (Anderson et al. 1990:23). Only smaller camps and quarries might have occurred in the interior Coastal Plain before sea level rise. This preference may reflect migratory routes from the Fall Line and northern regions to the coast or potentially between major river drainages such as the Chattahoochee and Flint.

In contrast, more recent research has shown a high Paleoindian frequency in southwest Georgia and could illustrate settlement strategies highly associated with chert resources (see Anderson and Sassaman 1996, Ledbetter et al. 1996). In addition, Elliott (2004) redefined this geographical evidence when he recorded several Paleoindian contexts in southwest Georgia. Communication with local artifact collectors led Elliott to several locations where lanceolate chipped stone tools and fossilized elements of extinct Pleistocene mega-fauna have been found. Findings during Elliott's (2004:17) investigations showed that "Paleoindian hunters may have preferred to make their settlements near non-linear water sources, such as limestone sinks, Carolina bays, and springs." These findings suggest that the lack of Paleoindian sites in the Coastal Plain of Georgia may be due to the lack of intensive investigations, deeply buried deposits, and/or underwater deposits versus a realistic geographical gap. Additionally, Anderson (2005) suggested that Clovis people preferred high quality chert and other knappable raw materials for their toolkits, which typically contained a wide range of well made, highly specialized forms, such as scrapers, graters, and perforators. This in combination with the plethora of Coastal Plain chert Early and Middle Paleoindian bifaces in the state suggests that further evidence for Paleoindian occupations may be within the vicinity of the study area where high-grade chert, such as that specifically available from the Ocala Limestone and Flint River Formations is found.

By the Early Holocene, climate change resulted in the expansion of the oak, hickory, and southern pine forests north into the Piedmont and Ridge and Valley provinces. This shift favored a foraging strategy in the upper latitudes, as Paleoindians found modern flora and fauna replacing larger extinct species. The Terminal Pleistocene and Early Holocene transition was marked by stabilization of generally warmer climatic conditions. Increased population densities in the Southeast parallel this climate shift. In addition, the growing population density embraced a more diversified subsistence strategy as the biotic community adapted to the warmer conditions and megafauna became extinct.

ARCHAIC PERIOD (10,000–3,000 B.P.)

Compared to Paleoindian remains, material dating to the Archaic period is generally better represented within the Georgia Coastal Plain as it is across the Southeast. The Archaic period represents a timeframe of ongoing shifts and expansion from the economic and social patterns of the earlier Paleoindian period. Most researchers believe that the Archaic period marks a pronounced adaptation to climatic stabilization.

The early Holocene shift to a warmer and wetter climate resulted in a change from a sub-boreal vegetation to a more culturally productive deciduous one. Watts (1980), for example, has suggested that the Early Archaic period corresponds with the time that closed-canopy hardwood forests became established in the southeastern United States. These warm and wet weather patterns gave way to drier and warmer conditions during the Mid-Holocene/Hyposithermal Interval (Styles and Klippel 1996). North of the Fall Line, this climate change distinction is supported by the recovery of Early Holocene artifacts from “medium to coarse-grained sediments indicative of vigorous channel activity” (Elliott and Sassaman 1995:15), while later Mid-Holocene artifacts are recovered from finer grained sediments. Unfortunately, the fine distinctions in sediments seen in the Piedmont and Ridge and Valley provinces of the Southeast are not easily recognizable in the sands of the Coastal Plain. However, research indicates that Holocene conditions in the Coastal Plain may have fluctuated from wet to wetter with varying sedimentation rates and water table depth. The cause of these fluctuations is yet to be determined as numerous variables contribute to sedimentation rates, and these variables could be different for various sub-regions.

Jones (2006) has found that Georgia Piedmont sites having Early Archaic lithics show a bias towards biface production instead of an expedient toolkit as observed during the Late Paleoindian. The onset of the Archaic period is characterized by typical Early Archaic period (10,000-8,000 B.P.) notched bifaces such as Palmer, Big Sandy, and Kirk (Ledbetter et al. 1996). Later manifestations of the Archaic include distinctive bifurcate based bifaces of the MacCorkle-St. Albans-LeCroy-Kanawha series.

Although bifurcate based bifaces identified for the Early and early Middle Archaic period have a geographic spread over much of eastern North America, they are rare in Georgia and are limited to the hilly areas above the Fall Line (Chapman 1985). Some archaeologists, such as Fitting (1964), have suggested that the bifurcate “tradition” might provide a horizon marker between the Early and Middle Archaic, especially in areas thought to be associated with oak-hickory forests.

Extensive environmental changes and the extinction of the large herbivores caused greater emphasis to be placed on hunting smaller animals, particularly white-tailed deer (Anderson and Hanson 1988). Dietary patterns were expanded to include an even wider variety of mammals and reptiles. Birds, fish, white-tailed deer, and shellfish constituted the bulk of the population's dietary needs. In addition, evidence to the north indicated that nutmeat comprised at least a portion of the Early Archaic diet (Chapman 1985). Plant utilization during the earlier Paleoindian period has been documented (Hollenbach 2005) and undoubtedly was continued into the Archaic timeframe.

Archaeologists continue to argue over the extent and kind of mobility experienced by Early Archaic peoples. The scattered distribution of fairly small Early Archaic campsites suggests that the people were highly mobile, utilizing both uplands and lowlands for resources. Anderson (2005) has suggested that the Early Archaic peoples used most of the landscape, continuing the strategy of land use that began with Dalton during the Late Paleoindian period. This includes the Anderson and Hanson (1988) hypothesis that seasonal movements occurred up and down major river valleys, crossing the Fall Line at least twice a year adjusting the frequency and distance of their movements to seasonal changes in economic and social demands and opportunities (Elliott and Sassaman 1995:138). Also, based on the recovery of extralocal lithic raw materials, Daniel (1994) showed that movement also occurred between major drainages, across inter-riverine upland divides such as the current study area. This theory is supported by the appearance of a variety of notched bifaces across the Southeast at the beginning of this period, suggesting that not only were populations distributed throughout the region by 9,800 B.P., but that regional traditions had already developed (Sassaman et al. 1990).

O'Steen's (1983) work in the Georgia Piedmont suggested that productive shoal habitats could have supported Early Archaic bands for extended periods. Instead of implying seasonal rounds, her research indicated that the occurrence of extra-local raw material at these semi-permanent camps implies long-distance exchange. The predominance of locally available raw material in lithic assemblages from the Piedmont, together with signs of tool re-use and the small amount of non-local lithics, supports O'Steen's notion of local populations with limited territorial ranges occasionally interacting with people from distant regions (Pluckhahn 1993).

A few larger Early Archaic sites along the more prominent creeks could represent periodic aggregation camps, perhaps re-occupied on a seasonal basis. Numerous small sites, containing only a few artifacts, have been found near larger creeks (opposed to small streams) and in the uplands. Anderson and Hanson's (1988) model suggested that highly mobile groups that inhabited the Middle Coastal Plain region left little evidence of sustained occupation. The comparatively low density of sites and high proportions of formal tools of the Early Archaic period resemble a mixed forager and logistic strategy as observed in certain ethnographic instances (e.g., Binford 1980). Recent research (i.e., Elliott 2004, Waggoner 2003) and the recovery of a single Early Archaic diagnostic specimen during the PCWMS survey (Windham et al. 2007) support a scenario of high mobility.

Alternatively, people visiting the shoals from afar on rare occasions could have brought the extra-local materials with them for reasons not directly linked to subsistence strategies. Considering the relative abundance of plant and animal species within and around the rapids and still pools associated with shoals (Shapiro 1990), it is perhaps not surprising that such niche points in resistant bedrock acted as magnets for Archaic peoples. However, apart from the attraction that varied plant

and animal life around shoals provided to hunters and collectors, Indians across the Americas viewed such places as spiritually significant. North American groups as far apart as the Cherokee (e.g., Mooney 1900) and Nez Perce (e.g., Philip Cash-Cash, personal communication to J. H. N. Loubser 2006) viewed certain rapids as portals between the Upper and Lower worlds. Native Americans would often travel great distances to obtain favors from the spirit world and to pay homage to particularly powerful spirit beings believed to reside at productive rapids. Artifacts made from extra-local materials left as reciprocal gifts to the spirits over a prolonged period of repeated visits can still be seen at various rapids in the American West (e.g., Loubser 2005). Considering this widespread, and probably ancient, practice, it is indeed possible that extra-local tools found at Early Archaic sites on productive shoals could be physical testimony of long-distance pilgrimages.

Archaeologists have generally accepted the possibility that warmer and drier mid-Holocene conditions, the Hypsithermal period, in part caused subsistence and settlement shifts during the Middle Archaic period (6,000-3,000 B.P.). According to Elliott and Sassaman (1995:15), "Middle Archaic assemblages were found at varying depths in progressively finer sediments indicative of gentler stream flow (and increasing stability)" from the early to Mid-Holocene. This supports the theory of a climatic shift. Research in South Carolina suggests that Carolina Bays in the southeastern United States, and by implication limestone sinks in southwestern Georgia, were some of the few locales that might have contained water throughout the drier Hypsithermal period (Brooks et al. n.d.). This is supported by evidence from the upland Dry Creek drainage within the study area where Fish and Fish (1977) found that Archaic sites (in general) concentrated on upland ponds. However, the average limestone sink may be more prone to dry up than a Carolina Bay due to porous bedrock and subsurface drainage. The micro-regional effects of the Hypsithermal in southwest Georgia are an area in need of further research to decipher smaller scaled differences. Recently, Waggoner (personal communication to R. J. Windham 2007) obtained core samples from the southwest Georgia in order to investigate botanical evidence for past environmental conditions within the study area. These samples did not prove helpful in this regard, as the organic preservation was low. The environmental implications of the Hypsithermal period on the Dougherty Plain are not well understood.

Middle Archaic people focused on locally available resources. People living in the Piedmont focused on locally available quartz, whereas those in the Coastal Plain relied on chert outcrops in the region. Notched, stemmed, and lanceolate bifaces seem to be associated with the upper Coastal Plain of South Carolina (Sassaman et al. 1990). Farther south in the Coastal Plain, Middle Archaic assemblages seem to include expedient flake tools and debitage, crude bifaces, bifacial cores, and relatively few curated tools. During the Middle Archaic, stemmed bifaces replaced earlier notched bifaces, with Morrow Mountain (5,500 - 4,000 B.P.) and Guilford (4,000 - 3,000 B.P.) being the most common in the eastern-lying Savannah River region (Sassaman et al. 1990). Other diagnostic Middle Archaic bifaces include Stanly, Halifax, and Benton.

Middle Archaic lithics from the southeastern Georgia Piedmont show a marked increase in non-bifacial reduction techniques (Jones 2006) suggesting adoption of new technologies. The Middle Archaic sub-period also has increased evidence of bone and ground stone tools, including atlatl weights, axes, and grinding implements (Coe 1964). Abundant Middle Archaic sites in the Georgia Piedmont include a broad range of quartz material types and numerous expedient tools. The substantial proportion of informal flake tools and almost exclusive reliance on local lithic

sources within Middle Archaic assemblages is reminiscent of a forager strategy as documented by Binford (1980). Echoing what has been found to be generally the case in the Coastal Plain, Elliott (2004:21) indicated that there is a paucity of known Middle Archaic diagnostic items in the study area, with only a few sites recorded. He suggested that this lack of evidence may be the result, at least in part, of limited knowledge of Middle Archaic hafted bifaces in the sub-region. This is potentially reflected by many broad-bladed stemmed bifaces collected by amateurs, which correspond to Bullen's (1975) Middle to Late Archaic period projectile point types for Florida.

The preference of Middle Archaic people living in the Georgia Piedmont to make their tools from quartz (Caldwell 1951) is lacking in the Coastal Plain with its paucity of naturally occurring quartz. Nonetheless, within the PCWMS (Windham et al. 2007) and surrounding area (Waggoner 2003) some bifaces have a translucent appearance resembling quartz. Quartz Morrow Mountain bifaces occurring in locales with abundant chert in the Piedmont suggests that this was a preferred material (e.g., Pluckhahn 1993). For this and other reasons in the Upper Savannah River valley, Anderson and Joseph (1988) suggested that the high incidence of quartz probably reflects a deliberate cultural choice; the durability and bright appearance of the material might have been appealing to people living during the Middle Archaic. The piezoelectrical property, the ability to emit an internal flash of light when flaked or submitted to any form of pressure or friction, of quartz (Wolfram Research 2004) has been found to be of particular importance in a variety of cultures around the world (e.g., Vitebsky 1995). This includes a number of historic period Southeastern Indian groups (e.g., Adair 1930, Mooney 1900, Swanton 2000). It is unknown if similar specimens within the Coastal Plain have this quality.

The onset of the Middle Archaic period appears to mark a constriction of group mobility range and cultural divergence between the Piedmont and the Coastal Plain. Smaller mobility range is inferred from the occurrence of clusters of sites in a particular region/waterway, as well as cultural barrens between clusters where Middle Archaic sites are uncommon or unknown. Sassaman (1994) ascribes the limited number of Middle Archaic sites in the Coastal Plain to groups that choose to avoid the restricted mobility imposed by limited surface water. Indeed, Braley and Price (1991) suggest that increased aridity in the Coastal Plain may have made the then almost uniformly pine-covered area (Delcourt and Delcourt 1985) less attractive for human habitation. This is supported by large-scale tool production, intensive occupation, and the manufacture of certain tool types not found in the Piedmont. Sassaman et al. (1990) suggested these changes result from decreasing mobility and a less homogeneous resource environment in the Coastal Plain.

There are several models of Middle Archaic Coastal Plain occupation (see Elliott and Sassaman 1995). However, due to the paucity of Middle Archaic sites in the Coastal Plain, no apparent settlement pattern can be discerned in southwestern Georgia to date. Nonetheless, Waggoner (2003) suggested that the few Middle Archaic bands that might have occupied the area probably continued the strategy of high mobility seen in the previous Early Archaic sub-period, as evidenced by dispersed ephemeral sites occurring in varied topographic settings. Basically, Early and Middle Archaic sites probably reflect residential mobility, even if restricted to certain territorial ranges. The expedient lithic technology and lack of formalized tools during the early Middle Archaic period are suggestive of a foraging strategy.

Within certain areas of the Piedmont, Middle Archaic components outnumber those of any other period (Pluckhahn 1993); the reverse is true for the Coastal Plain. For example, Elliott and Sassaman (1995:3) cited Georgia site file information that sites with diagnostic Early Archaic material (n=243) outnumber those with diagnostic Middle Archaic artifacts (n=206). Sassaman (1995) ascribed the limited number of Middle Archaic sites in the Coastal Plain to groups choosing to avoid the restricted mobility that was imposed by limited water points on the landscape. Research in South Carolina suggests that Carolina Bays in the southeastern United States, and by implication limestone sinks in southwestern Georgia, were some of the few points that contained water throughout the drier Hypsithermal period (Brooks et al. n.d.). However, these site file results could reflect other unknown variables or archaeological survey bias.

Scattered across much of the Georgia Piedmont are generally small Middle Archaic sites with fairly homogenous assemblages (Ledbetter 1995) with few examples in southwest Georgia. There are, as yet, hardly any examples of base camps, or aggregation sites in Georgia, with the possible exception of a few sites with abundant lithics (e.g., O'Steen 1983), at places such as Pen Point in the Savannah River valley. In stark contrast to the small-scale and fairly uniform sites in the southeastern United States are the Middle Archaic mound sites west and north of the Appalachian Mountains. These mound complexes are most likely remnants of aggregation sites with suggestive traces of feasting and ritual (Anderson 2004). This difference could be related, at least in part, to the generalized foraging strategy in Georgia (Blanton and Sassaman 1989) which contrasts with the specialized focus on riparian resources in Tennessee (Conaty and Leach 1987).

By roughly 6,000 years B.P., exotic items and mounds start to appear at several Middle Archaic sites in the central Tennessee-upper Tombigbee River valleys (Bense 1987) and the central Mississippi-lower Ohio River valleys (Jefferies 1997). It was roughly during this time that groups abandoned their predominantly residential-mobility strategy in favor of a logistically organized one (Binford 1980). This shift included the appearance of ostensibly smaller home ranges and multi-seasonal occupation base camps. The latter part of the Middle Archaic period is marked by settlements close to water sources north and west of the Appalachian Mountains. This pattern was established to procure shellfish and a variety of large game and plant foods (e.g., Brookes 2004). The shallow-water pond burials in Florida that characterized the Early and Middle Archaic sub-periods were replaced with burials on dry ground by terminal Middle Archaic and Late Archaic times (e.g., Doran and Dickel 1988). Burials in mounds ranging from Tennessee to Louisiana as well as widespread similarities in certain stone tool types and even mound complex layouts during the terminal Middle Archaic, suggest a certain amount of contact between distant peoples within certain regions, particularly those who lived north and west of the Appalachians (e.g., Clark 2004). The lack of Middle Archaic sites in the interior Coastal Plain of Georgia creates a void in the timeline of the region that cannot be reconciled at present.

Smith (1994) argued that increased sedentism in prime riverine habitats would have resulted in clearing the woods and disturbing the ground in and around settlements thereby causing an increase in the habitats suitable for sun-loving weeds. Some of the seed-carrying weeds, such as the starchy-seeded chenopod and the oily-seeded sumpweed, later became domesticated. Gardner (1997) proposed that although prime riverine habitats supported the largest populations and so received the most anthropogenic disturbance, weedy habitats were very likely also created around smaller sites dispersed throughout the uplands. This may help explain why small upland rockshelters, such as in Arkansas (Fritz 1997), have yielded some of the earliest known cultigens that could date

back to terminal Middle Archaic/initial Late Archaic times. Excavated evidence also suggests that people living around 7,000 years ago harvested wild forms of these plants in small quantities. Fragments of domesticated squash gourds have been found from archaeological contexts that date to 7,000 years B.P. though not within the current study area (Smith 1994).

During the terminal Middle Archaic and initial Late Archaic, from approximately 5,400 to 4,600 years ago, there was a general amelioration of global climate, which marked the end of the Hypsithermal. Precipitation and water levels rose over the preceding period (Webb et al. 1993), and flooding increased, as did shifting drainage channels. Compared to the generally drier Hypsithermal, these wetter conditions probably meant that the ponds and creeks within the study area could support increasing numbers of plants and animals. Nonetheless, droughts probably punctuated the generally wetter period; substantial inland dunes in the Georgia Coastal Plain mark intermittent periods of severe drought, occurring every 200 years or so up until 3,000 years ago (Markewich and Markewich 1994).

Climatic conditions of the Late Archaic were probably slightly wetter than those associated with the Middle Archaic; it is during this sub-period that a modern vegetation matrix emerged (Delcourt and Delcourt 1987). For example, "Cambic paleosols correlated with Late Archaic occupation... signifies the onset of uniformly moister conditions conducive to advanced soil development" (Elliott and Sassaman 1995:15) such that the B horizon is of finer sediments having a redder hue (from iron liberation). The onset of the Late Archaic period is also marked by a general increase of site density in the southeastern United States including southwest Georgia. According to Georgia site file information collected by Elliott and Sassaman (1995:3), diagnostic site frequency more than doubled from the Middle Archaic (n=21) to the Late Archaic period (n=53). Therefore, the wetter conditions and emergence of modern vegetation encouraged greater occupation density and/or mobility during the Late Archaic.

Diagnostic lithic bifaces include an assortment of large bifaces with straight, contracting, or expanding stems, as well as smaller stemmed and side-notched types, including characteristic Savannah River Stemmed, Flint Creek, and Wade bifaces (Cambron and Hulse 1975). Smaller bifaces, notably Gypsy and Swannanoa, appear to become more prevalent in the Late and terminal Late Archaic. It also is roughly at this time that grinding tools become more ubiquitous, suggesting increased processing of plants. In southwest Georgia, Elliott (2004) and Waggoner (2003) discovered that the Late Archaic was heavily represented by diagnostic hafted bifaces.

Soapstone vessels (ca. 3600 B.P.) make their initial appearance in the Piedmont towards the latter half of the Late Archaic, while coastal areas did not adopt this technology until some 500 years later (ca. 3100 B.P.) (Sassaman 1997). The appearance of non-local raw materials, such as soapstone, indicates the development of long-distance trade during this sub-period. Elliott (2004:22) states that in regards to soapstone, "Georgian societies were participants in a large trading network whose center of influence was in Mississippi and Louisiana." The terminal Late Archaic sub-period is marked by the appearance of fiber tempered ceramics. The very earliest ceramics in the Southeast are fiber tempered Stallings Island pots on the Georgia and South Carolina border. Slightly later fiber tempered wares include Orange and St. Johns from the Gulf Coast and Wheeler from the Tennessee River valley. Roughly contemporary fiber and sand tempered types include Norwood from the Gulf Coast, while sand tempered Thoms Creek wares come from the South Carolina coast (Sassaman 1993).

Diagnostic fiber tempered pottery in the eastern Georgia Coastal Plain includes St. Simons wares from Late Archaic sites along the Atlantic coast of Georgia (Milanich 1971). The difference in technology between populations in the Coastal Plain, as contrasted with the Fall Line zone and Piedmont, could be the result of numerous variables such as sociopolitical factors. A differentiation in point types between the two physiographic regions supports this suggestion, as does the development and use of fiber tempered pottery on the Coastal Plain and its delayed introduction in the Piedmont. The widespread use of soapstone in cooking on sites in the Piedmont contrasts sharply with the limited soapstone cooking artifacts recovered from Coastal Plain sites (Sassaman et al. 1990).

However, the appearance of soapstone from quarries in Georgia and Alabama on distant sites in south Florida and Louisiana does indicate long-distance trade and communication. It is conceivable that the Chattahoochee and Flint Rivers were convenient arteries through the Coastal Plain for the transport of goods, such as soapstone. Elliott (2004:22) agreed with this scenario adding that, "the Chattahoochee and Flint Rivers probably served as a significant transportation artery" during the terminal Late Archaic with little evidence of long-term occupation found, except Piedmont soapstone recovered from some contexts.

Overland routes would also have been followed, most likely trails along upland ridges, similar to those that have been documented in early historic times (e.g., Myer 1928). Collectors in southwest Georgia, in the vicinity of the PCWMS, have found a few soapstone as well as fiber tempered sherds (Waggoner 2003), suggesting that the region occurred on or near a terminal Late Archaic trade route (Elliott 2004). However, no soapstone or fiber tempered artifacts were recovered during the PCWMS survey.

Compared to the Middle Archaic, the Late Archaic period marks a shift to aquatic resources and a more entrenched logistical mobility strategy, at least above the Fall Line. Previously underutilized areas, such as upland rock shelters and ponds, also seem to be used more intensively during the Late Archaic (Sassaman et al. 1990). Overall, archaeologists agree that during the Late Archaic seasonal dispersion into inter-riverine upland areas augmented band aggregation in base camps next to higher order streams in the bottomlands.

In regards to landscape utilization, Waggoner (2006) proposed that prehistoric peoples of at least the Late Archaic sub-period practiced a form of land-management that exploited biodiversity through burning within the upland pine forests. A higher density of Late Archaic sites in southwest Georgia supports this reconstruction. Late Archaic sites studied by Waggoner (2006) have not been tested through subsurface excavation but collections of a local landowner and surface inspection indicated that these, "upland and inter-riverine sites [were] located adjacent to Gum Ponds and Cypress Creeks" (Waggoner 2003:2). Waggoner (2003) related this pattern to the well-documented occupations of Carolina Bays and suggested that Late Archaic peoples of the Interior Coastal Plain Swamps of southwest Georgia diversified their resource base and exploited previously underutilized areas due to territorial restrictions of the Middle Archaic. Further, Waggoner (2003:7) suggested that the dispersed nature of Late Archaic sites does not indicate a lack of occupation, but reflects an "abundance of resources allowing for decreased social dependence and increased mobility [within the region]."

The terminal Late Archaic represents a period of cultural innovation and diffusion in the Southeast. The intensive use of resources along major rivers might have eventually resulted in depletion and a shift in settlement locations to smaller, upland streams during the terminal Late Archaic and Early Woodland at least in the Savannah River Valley (Sassaman et al. 1990). This settlement shift and/or diffusion of cultural traits stopped in the vicinity of the Piedmont and the Coastal Plain of southwestern Georgia. This is supported by the lack of fiber-tempered Late Archaic ceramics found in these areas before 3,500 years B.P.

Waggoner (2003) found a similar settlement pattern in Early County near the current project area. The Late Archaic sub-period was heavily represented through formalized stone tools, but the terminal Late Archaic soapstone vessels and fiber-tempered pottery were not well represented. Waggoner (2003) stated that this is indicative of a terminal Late Archaic logistical strategy that was relatively less mobile than the foraging strategies of prior Archaic sub-periods and resulted from a constriction of territorial ranges as evidenced in other parts of the Southeast. Sassaman and Brooks (1988) asserted that Late Archaic populations were concentrated along the Fall Line and in the Central Piedmont, which may have represented discrete cultures or seasonal activities. Further, data along the upper Savannah River indicates greater reliance on a logistical strategy based on riverine settlements. These riverine settings are located along the east and west boundaries of the current study area. The inter-riverine zone may have become decreasingly utilized during the terminal Late Archaic given the cultural trends outlined above. It is feasible that this area of the Georgia Coastal Plain, including the Dougherty Plain, reflects an outback hunting territory between more densely occupied riverine settings.

Also during this period, prominent shell ring sites appeared along the Atlantic Coast of South Carolina, Georgia, and Florida (Russo 1994). It could be that the earlier inland tradition of terminal Middle Archaic mounds finally manifested itself on the Georgia coast during the terminal Late Archaic as a significant cultural shift is seen to the north and south of the study area.

The Late Archaic/Early Woodland transition is marked by increased reliance on a logistical strategy that allowed for more sedentary occupations. This pattern was either prompted and/or promoted by development of horticulture and agriculture of an increasing number of species in many areas of the Southeast. These developments in settlement strategy resulted in the subsequent Woodland period and are characterized by increased cultural complexity at larger more sedentary sites.

WOODLAND PERIOD (3,000–1,000 B.P.)

By the Woodland period, the climatic fluctuations evidenced in the earlier cultural periods had stabilized to modern conditions, eventually allowing for greater sedentism. However, a continued reliance on a logistical strategy consisting of aggregation and dispersal camps, coupled with hunting and intensive gathering strategies, characterizes much of the Woodland period. The Late Woodland cultural manifestations best summarized this cultural shift. Steinen (1995:1) summarizes these manifestations as an, "an uneven growth toward complex societies that were encountered by de Soto in 1540."

One feature of the Woodland period is the regionalization of cultures, particularly as expressed by the appearance of multiple ceramic styles. In southwest Georgia, ceramic styles show interaction between multiple geographic regions (Florida Gulf Coast, Georgia Coast, and Georgia Piedmont).

Evidence of this cultural interaction is seen through a minority of these types and a majority of the local cord marked variety. The cord marked variety is found in assemblages around the Middle Flint River and eastward, indicating that the Chattahoochee and Lower Flint River were closely tied to the Gulf Coast (Steinen 1995). This evidence suggests that the region continued to be an artery of transport and diffusion from the Archaic period.

Terminal Late Archaic/Early Woodland ceramics in southwest Georgia are fiber-tempered and give way to Deptford types early in the Early Woodland with a minority of Cartersville Check Stamped (Steinen 1995) and Dunlap Fabric Impressed found in the Chattahoochee Valley. The sand/grit tempered Deptford specimens show evidence of the following: coiling versus molding of fiber tempered types; simple and check stamped surfaces; conoidal jar shape; tetrapodal supports; and straight or slightly flaring rims (Griffin and Sears 1950). In contrast to the Chattahoochee River, cord marked varieties are more common in the Middle Flint River and Ocmulgee Rivers versus further south and west where the current project area lies.

The stylistic continuity between terminal Late Archaic/Early Woodland fiber-tempered ceramics and initial Early Woodland sand-tempered wares suggests some form of cultural continuity. Moreover, the distinction between Coastal Plain Deptford Check Stamped and Piedmont Cartersville Check Stamped, albeit minor, could designate a continuation of cultural differences between these two physiographic regions, apparent at least since the Middle Archaic. Some earlier Dunlap Fabric Impressed ceramics occur in the Chattahoochee Valley (Steinen 1995), while cord marked vessels are more common along the Middle Flint and Ocmulgee rivers to the northeast of the project area.

A secure lithic tool typology has not been established for the terminal Late Archaic/Early Woodland period in this region; therefore, most temporal associations are based on ceramic evidence. Lithic artifacts representative of the Early Woodland period in the Coastal Plain, such as the Woodland Spike and Swan Lake hafted bifaces, are manufactured from locally variable raw materials, with hafted bifaces being generally small and stemmed. In addition, Coastal Plain sites of this period often contain shell and remnants of bone and antler tools.

Increasing reliance on horticulture, particularly starchy and oily seeded domesticates, appeared as a key parameter for the Woodland period (Fritz 1993). During the Early Woodland, a shift from the coastal shoreline areas to upland riverine settings continued. This shift allowed for a larger and more diversified plant subsistence base than what was available near the coast. Less dependence was placed on shellfish resources, probably reflecting decreasing availability. The diversified subsistence provided through horticulture and upland hunting and gathering encouraged more sedentary base camps in the floodplains for large parts of the year.

Evidence of Middle Woodland occupation in the vicinity of the study area is scant (Pluckhahn 2003, Steinen 1998). The Middle Woodland in the Southeast is characterized by the distinctive Swift Creek culture. The earliest Swift Creek-like Complicated Stamped sherds in the Southeastern United States date to approximately 2,000 years ago, at the Pirate's Bay site in the Florida Panhandle (Thomas and Campbell 1993). In Florida, as well as southwest Georgia, the fairly crude Swift Creek-like sherds co-occur with Deptford and Santa Rosa pottery as they do in southwest Georgia. Fully-fledged Swift Creek ceramics first appeared in southwestern Georgia by 1,850 B.P. (Snow 1998) and are used to define the Middle Woodland in the Chattahoochee and Lower Flint drainages. This ceramic type occurs progressively later in central and northern Georgia (Cantley et al. 1996).

Lithic artifact types and much of the fine-tuned serration of ceramic types for the Middle Woodland are derived from excavations conducted at Kolomoki (Pluckhahn 2003) as few other Middle Woodland occupations have been found in the study area. According to Pluckhahn (2003:23), the Bakers Creek, Swan Lake, and Bradford hafted biface types represented the Middle Woodland contexts but showed temporal spans extending into the Early and Late Woodland timeframes.

Intensive plant gathering and hunting dependence, from seasonal and permanent base camps, was common during the middle part of the Woodland period. However, botanical evidence of domesticates and cultigens, suggests an increase in horticultural activities during Middle Woodland times in the greater Southeast. For instance, a large pit feature from 9TP62 on the Middle Chattahoochee River yielded a cucurbit seed and 96 seeds from three starchy-seeded annuals, including goosefoot, knotweed, and maygrass (Cantley and Joseph 1991). Such sites contained large populations, supported in part by food cultivation, preservation, and storage on a grand scale (Sassaman et al. 1990). Indeed, the intensification of cultivation, which later included squash and gourds, is one of the prime characteristics of the Middle Woodland period. This is a reasonable interpretation considering that starchy and oily seeded domesticates that make up the so-called Southeastern Agricultural Complex continued to be grown and consumed throughout much of the region (Johannessen 1993).

However, ubiquitous cultivation may not have been viable within the patchy and resilient environmental setting of the Coastal Plain uplands where anthropogenic disturbance could not be maintained (John Chamblee, personal communication to Jeannine Windham 2006). Sites in the Coastal Plain have yet to present evidence of such cultivation. Nonetheless, Steinen (1998) proposed that at least some of the scattered Woodland sites in the area surrounding the Kolomoki Mounds represent long-term but low-intensity agricultural plots on pockets of fertile soil. This is supported by evidence from Alabama and Georgia. The seventeenth- and eighteenth-century Creeks and Cherokees continued the agricultural practices of their Mississippian predecessors, practicing a labor-intensive, mixed-habitat strategy that combined communal field cultivation in floodplain bottomlands with smaller household gardening on terrace soils, occasionally some distance from their floodplain villages (Waselkov 1997). This is evidenced at the Red Bluff site within the study area (John Chamblee, personal communication to Jeannine Windham 2006).

Kolomoki is a prominent mound site located within an otherwise sparsely populated region of southwest Georgia, halfway between distant concentrations of contemporary Swift Creek sites in Alabama and Georgia (Pluckhahn 2003). It is conceivable that Kolomoki could have been a more permanently occupied version of a so-called "vacant center". Numerous people from distant areas typically occupy vacant centers only during certain times of the year. Some mound sites occupied by early Historic Indians (Swanton 1911) were not primarily residential units, even though a small group of high status religious caretakers and their extended families permanently resided on or close to the mounds. At least once a year, people from outlying settlements would aggregate at the principal town for renewal ceremonies and cleansings in the nearby river (e.g., Adair 1930). This occupational pattern is supported by many principal towns during the Mississippian period, such as Ocmulgee (meaning, "where the water boils up" (Swanton 1946)), Etowah, and Little Egypt. All of these towns occurred near shoals at the transition between geological zones. These were naturally productive locales that could support many people since they occurred on floodplains with nutrient rich alluvial soils immediately below upland settings (e.g., Hally and Williams 1994).

Considering the high carrying capacity of such floodplain settings, it is conceivable that vacant centers grew in size and became more permanent depending on the success of religious functionaries to attract people from surrounding areas. Williams and Brain (1983) identified possible vacant centers that date to the Woodland and Mississippian periods. Almost all of these sites contain mounds, many with burials. The arrangement of mounds around a central plaza is a pattern that can be traced back to the late Middle Archaic mound complexes of the lower Mississippi River valley (e.g., Gibson and Carr 2004). The selection of shoals for aggregation sites is a practice that can be traced back at least to the Early Archaic along the Georgia Fall Line.

The transition between the Middle and Late Woodland periods in Georgia is not very noticeable. During the early Late Woodland, Weeden Island ceramics (plain and zone punctated ware with red surface finish) were present in the Florida Panhandle and southwestern Georgia and were then replaced by Wakulla types during the course of the Late Woodland period (Steinen 1995).

In other regions, Late Woodland hafted bifaces are small and triangular representing the adoption of the bow and arrow. However, this is not the case in southwestern Georgia where the large triangular forms of the Middle Woodland persist into this later timeframe and are found with Late Woodland ceramic types. This evidence tentatively suggests that bow and arrow technology did not diffuse to this area until later (Pluckhahn 2003:27-29).

People continued to rely heavily on hunting, gathering, fishing, and gardening in most regions (e.g., Steinen 1998). The starchy and oily seeded domesticates that encompassed the so-called Southeastern Agricultural Complex continued to be grown and consumed throughout much of the Southeast during the Late Woodland (Johannessen 1993). While the beginnings of slash-and-burn agriculture is evident at this time in dispersed upland settlements, there may not have been a viable strategy in the wetlands of southwest Georgia (John Chamblee, personal communication to Jeannine Windham 2006). However, these developments eventually gave way to corn agriculture, larger villages in floodplains, and a broader sociopolitical hierarchy observed along large drainages (Sassaman et al. 1990).

As during the Late Archaic, small settlements appeared along creeks in the upper reaches of river catchments during the Late Woodland. These settlements contain only a few structures or none at all, and probably represent population expansion or the "filling up" of much of the Southeastern landscape (Smith 1986). This is supported by later evidence for many small, ephemeral Mississippian period sites in Tennessee occurring on soils with marginal agricultural potential (Schroedl 1998). The ethnographic record also has some insightful information concerning small sites in the inter-riverine areas. Pertaining to such sites among the Chickasaw Indians, Beverley (1968:156) reported in 1705 that:

"...when they go a Hunting into the Outlands, they commonly go out for the whole Season with their Wives and Family: At the Place where they find the most Game they build up a convenient Number of small Cabins, wherein they live during that Season. These Cabins are both begun, and finished in Two or Three Days, and after the Season is over they make no further Account of them."

These small camps may have been a part of a Coastal Plain residential mobility pattern documented historically by Bartram. Traveling through Alachua Creek land of northern Florida in the mid-1770s, Bartram witnessed a similar summer-time camp with Indian women and children living in temporary tents while the men were out hunting (extract from Bartram 1791:209 in Waselkov and Braund 1995:56). Meanwhile the main village with more substantial houses was left abandoned near a major wetland, complete with corn-filled cribs. According to Bartram (extract from Bartram 1791:1932 in Waselkov and Braund 1995:54), these Native Americans temporarily abandoned their low-lying main village to avoid mosquitoes and putrid fish in the late summer and fall. Bartram estimated that the dispersed temporary camps were some nine miles away from the abandoned main village; the Indians had to pass through grassy savannah and pine uplands to reach the temporary sites. Considering that such seasonally occupied sites only had temporary tent-like abodes with no significant post-holes, the structures would most likely leave few archaeological traces.

To date, Late Woodland and Mississippian aggregation sites near the PCWMS, such as 9Mi91, 9Mi99, and those documented by Chamblee (2006) and Fish and Fish (1977), all occurred along the bottomlands, and show a growing material expression of ceremonies, as reflected in burial practices. During the Middle and Late Woodland periods, prominent mound sites in the lower Chattahoochee River Valley were indicative of increasing public ceremonialism. Mound sites, such as Mandeville and Kolomoki, typically contained long-distance trade items. The monumental mounds and the associated scarce prestige items are strongly suggestive of the accumulation of prestige by certain sections within Middle and Late Woodland communities (Steinen 1998).

Within the Dougherty Plain of southwest Georgia, Chamblee (2005) and Elliott (2004) found evidence of mound sites. Elliott's findings are based largely on interviews with local artifact collectors and require further field investigations to identify their validity. Chamblee (2004, 2005) conducted research that indicated that Woodland period peoples chose settlement locations in the area that are not within the normally accepted "floodplain" pattern. Overall evidence from Chamblee's (2004:4) survey showed many plain ceramic scatters that were generally small-sized and dispersed, with ceramic evidence accounting for less than two percent of a given site assemblage (including excavated assemblages). Ceramics that could be classified were typically Late Woodland including Wakulla Check Stamped and Weeden Island varieties.

John Chamblee (personal communication to Jeannine Windham 2006) observed numerous Late Woodland Weeden Island ceramics in personal collections from Miller County residents. Most sites that could be attributed to the Woodland period were found concentrated at creek confluences and along small floodplains within the study area (Chamblee 2004:5). On the other hand, a single mound Woodland site, Windmill Plantation previously recorded by Don Smith in 1962, "is located in the exact center of a large concentration of ground-water fed ponds" (Chamblee 2004:6). This site is unusual as it is not surrounded by smaller sites nor is a large site near by. Chamblee (2004:6) stated that, "it is likely that the site was often inaccessible, except by boat." Artifacts from Chamblee's (2004) excavations indicated Early and Middle Woodland occupations at the Windmill Plantation. Evidence included, "check stamped pottery, Deptford Linear Check Stamped, tetrapods, Alligator Bayou Rocker Stamped, Swift Creek Complicated Stamped, Woodland Spikes, triangular bifaces, and Tallahassee points" (Chamblee 2004:7). Late Woodland occupants were reported for Tallassee Plantation, which had Weeden Island ceramics and a small platform mound (John Chamblee, personal communication to Jeannine Windham 2006). In addition, the

Hayfever, Red Bluff, and Chickasawhatchee Knoll sites have Late Woodland components. These sites are located along the floodplains of the Chickasawhatchee Creek a low and generally wetland area.

Even though the mound center populations in the lower Chattahoochee River valley show signs of decline during the Weeden Island period after A.D. 800, it is conceivable that the stratified Late Woodland societies in the Southeast set the stage for the establishment of more fully fledged Mississippian period chiefdoms. Further advances in agricultural subsistence throughout the Woodland period fed, in many areas of the Southeast, an increasingly hierarchical social system. Increased population density placed greater stress on the natural resources available, and furthered the development of territorial ranges and distinct cultures of greater complexity within a political network.

MISSISSIPPIAN PERIOD (1,000–400 B.P. (1540 A.D.))

Continued stability of climatic conditions allowed for the development of greater cultural complexity during the Mississippian period across much of the Southeast. Conventionally, this period of significant population growth was defined by the presence of flat-topped mounds, open plazas, permanent occupation, agriculture based subsistence, and new ceramic types. These characteristics marked the expansion of chiefdoms and the broad reach of social, political, and religious cultural manifestations across the Southeast. The extension and enforcement of these cultural norms occurred through a complicated network of villages and mound centers. Mississippian period mound centers are particularly noticeable north of the Fall Line, such as at Etowah in northwestern Georgia and at Tugaloo in northeast Georgia. Accordingly, evidence concerning Mississippian period occupation appeared more fine-tuned for the Piedmont than for the Fall Line or Coastal Plain. However, as discussion of Woodland occupations illustrated, greater diversity in settlement pattern is increasingly evident with greater archaeological coverage. Therefore, the current school of Mississippian thought has archaeologists leaning away from defining the period with mandatory architectural and cultural categories, and toward new levels of cultural development in the “pan-southeastern interaction sphere” (Schnell and Wright 1993).

Previous research shows a lack of defined ceramic typologies in southwest Georgia. This present study utilizes the accepted serration of Coastal Plain ceramics to generalize the area, but acknowledges that this does not adequately reflect sub-regional differences. However, specific knowledge of the ceramic types in the project area is lacking and supports Elliott’s (2004:24) assertion that this area was not significantly occupied.

The Wakulla series ceramics represent the Late Woodland and Early Mississippian periods (800-900 A.D.). Evidence of shell-tempered specimens, traditional of Mississippian wares in other regions, is seemingly sparse in the early sub-period of southwest Georgia. Rood/Bristol phase ceramics are indicative of the Middle (or Mature) Mississippian Phase in the Middle Lower Chattahoochee valley and south to the Florida Panhandle (Schnell and Wright 1993). Specific to the Lower Chattahoochee/Upper Apalachicola, located to the south of the current project area, the Clayton, Sneads, and Yon phases are characterized by a greater percentage of grit than sand temper pottery. The earlier series predominately have plain and incised surface decorations, while the Yon phase ceramics are complicated stamped and incised/punctuated decorated (Schnell and Wright 1993, Scarry 1980).

Except for the middle Flint River valley, available evidence suggests that the Middle Mississippian marked the height of economic centralization, political control, and public ceremonies in the study area. Ledbetter et al. (1996) supported this centralization stating that toward the end of the Middle Mississippian period, a general decline in mound building and elaborate public ceremonies occurred. Conversely, the Late Mississippian period of the region is defined by the Lamar culture that spanned much of the Southeast from 950-1800 A.D., though evidence of these manifestations in the current research area is vague.

Subsistence in Mississippian sites throughout most of Georgia was based on cultivated maize and starchy-seeded cultigens, hunted deer, raccoon, turkey, waterfowl, and harvested fish (e.g., Bense 1994). Research of resource procurement and exploitation has recently been conducted in the study area. In an assessment of the relationship between soils, vegetation, and settlement in the vicinity of the Chickasawatchee Swamp, Chamblee (2005) found that hardwoods correlate with red clays and longleaf pines tend to occur on red sandy clayey loams. Given the close relationship between soil, tree cover, and site location, Chamblee proposed that landscape patches are most likely the direct or indirect result of anthropogenic fire management. Wagner (2003) noted that frequent burning favor the spread of long-leaf pines and increased biodiversity. Periodic natural fires that occur during dry periods and low water levels were known to regenerate lime sink ponds and promote plant growth (Wharton 1978). Ample evidence also exists that Native Americans purposefully set the woodlands on fire to achieve the same results as natural wild fires. Bartram (1791:151-152 in Waselkov and Braund 1995:49) observed southeastern Indians deliberately setting the country on fire "which happens almost every day throughout the year" even in the wetlands where birds were attracted to "roasted serpents, frogs and lizards". Through routine burning, Native Americans modified their hunting and gathering habitats to maintain high levels of biotic diversity (Waselkov and Braund 1995:241). Habitats would have reverted back to forest except for intentional burning to encourage young and weedy vegetation, including herbaceous plants and small fruit-bearing shrubs (Robertson 1962). Such plants were the favored browse of deer and also had seeds and other edible parts for human consumption.

In southwestern Georgia, platform mounds associated with Mississippian period sites are less common but present nevertheless (e.g., Snow 1998). Generally, these Mississippian sites are smaller and do not represent the traditional view of a stratified society within a chiefdom complex. On the other hand, these southern manifestations may have been less structured, middle range components of the Mississippian network.

As Schnell and Wright (1993:16) stated for southwest Georgia, "there are examples of a relatively "pure" Woodland tradition extending well into the [temporal] Mississippian Period." It is difficult to specifically define the ceramic series associated with this temporal span as present research has focused on associated sites to the north and south of the current project area. Accordingly, there is little evidence of Mississippian manifestations in the project area, with the exception of Chamblee's (2004) findings discussed below. It is worth noting that Elliott (2004:24) and Chamblee (2004) identified two "chiefly societies" within southwestern Georgia from document research. These included the Capachique (possibly located near the study area) (Braley 1995:Figure 2) and the Toa that were encountered by de Soto in 1540. To date, location of these polities remains a debatable topic among historians and archaeologists. Further information concerning these two polities was not found during Elliot's investigation, and this negative evidence suggested to Elliott that "Mississippian settlement was not homogenously distributed across the landscape" (Elliott 2004:24).

Recently, Chamblee's (2004) research and survey of the Chickasawhatchee Wildlife Management Area resulted in the investigation of several Mississippian sites. Many are small ceramic scatters similar to the small Woodland sites discussed previously and do not represent civic-ceremonial centers. This evidence supports the dispersed nature of settlement in this region. However, Chamblee (2004) also investigated several consolidated Mississippian settlements represented by mounds and/or associated artifacts. Sites investigated by Chamblee (2004) through subsurface testing and document research include Magnolia Plantation (also known as the Three Mound site), Red Bluff, and Hayfever. The Magnolia Plantation investigation revealed Middle through Late Mississippian components. Evidence included Rood, Fort Walton, and Lamar ceramic types (John Chamblee, personal communication to Jeannine Windham 2006). The Magnolia Plantation was located at the confluence of two relatively large channels of the Chickasawhatchee Creek with mounds on either side.

Two sites, Red Bluff and Chickasawahatchee Knoll, were located to the north and south of Magnolia Plantation and represent long-term occupations from the Woodland through the Mississippian periods but lacked man-made architecture. These sites possibly represent the Toa and/or Capachequi polities discussed above (Chamblee 2004). Both sites are located at a confluence of an unnamed drainage and the lower Chickasawhatchee Creek north of its confluence with the Ichawaynochaway Creek. The Hayfever site, which also lacks architecture, is located at the northern headwaters of the Chickasawhatchee Creek. It was occupied during the Middle to Late Mississippian sub-periods, but shows little evidence (one Etowah sherd) of an Early Mississippian occupation.

If the concentrations of non-mound sites in the Chickasawatchee Swamp area are contemporary with the few mound centers in the same area, then the mound centers can be said to fall on the periphery of the settlement concentrations. According to Chamblee (2004), this suggests behavior not explicable in terms of ecological constraints, as intermittently inundated areas would not be advantageous to long-term occupation. Again, as in the case of Kolomoki, there appears to be empty space between sites and mound centers in southwest Georgia suggesting dispersed settlements having surrounding outlands that may have served a political, social, and/or subsistence function. Evidence of outlands (also known as borderlands) in the Dougherty Plain deserves further investigation as greater archaeological survey coverage is attained in the region.

The Mississippian period marks a peak in the prehistoric Southeast both in population and socio-political complexity. Hypotheses related to the catalyst(s) for the decline of Mississippian cultures are numerous in the literature. Despite the reason(s), many of the Mississippian cultures encountered during the subsequent Proto-historic period were shadows of what is represented in the archaeological record and accounts from initial European contact.

PROTO-HISTORIC AND HISTORIC INDIAN PERIODS (A.D. 1540–1815)

The Spanish first began to explore this area a few decades after their discovery of the New World. By the early 1500s, the Spanish were well established in Cuba and in Mexico, and it was from these centers that the first conquistadors made incursions into what is now the American Southeast, known to the Spanish as "La Florida." As early as 1528, the Narvaez expedition visited the heavily populated Apalache area, around what is now Tallahassee. This area was revisited by de Soto in 1539-40. De Soto then marched through the eastern half of the study area on his epic trek

through the Southeast. However, he did not visit any of the large Native American settlements along the Chattahoochee River. Another attempt to explore and settle this general area was made by Tristan de Luna y Arellano between 1559 and 1561, also ending in failure. In 1565, the Spanish established a small settlement in St. Augustine located along the upper Atlantic coast of Florida, while the Florida Panhandle and its interior were ignored for a number of decades.

The Indian province of Toa visited by de Soto in the mid-sixteenth century was probably located along the middle Flint River (north of the current study area), an area in which Worth (1988) identified various Late Lamar sites. Capachique, another polity recorded by the de Soto expedition, also was plotted in the vicinity of the current study area (Braley 1995, Elliott 2004). Chamblee (2004) suggested that the Chickasawhatchee Knoll might be the polity of Capachique, based on the geographical description of the site.

Late Lamar sites containing European artifacts dating to the sixteenth and early seventeenth centuries have been located in the Pine Barrens of the southeastern Georgia Coastal Plain (Snow 1998). However, little evidence of these sites has been recovered in southwest Georgia. According to Snow (1998), the major Lamar occupation of this area occurred during the late 1500s and early 1600s by Hitchiti people who made what he calls Square Ground ceramics. Sites with square ground motifs often are found near known Indian trails marked on original land lot survey maps of the upper Satilla River drainage (Snow et al. 1990). During this period, Hitchiti- and Muscogean-speaking Creek groups occupied the lower Piedmont, Fall Line, and Coastal Plain. Hitchiti people probably made Lamar type ceramics; while the Timucuan ceramic inventory was more likely a mixture of St. Johns and Savannah Series wares (Russo 1992) and occurred to the east of the Dougherty Plain. Unfortunately, specific cultural manifestations of the Proto-historic timeframe are not available within the Dougherty Plain as it is thought (Elliott 2004:24) that most Native Americans were incorporated into the Spanish Mission System and that Capachqui collapsed soon after contact.

In the century, following de Soto, Spain concentrated on establishing a presence in northeast Florida and along the Atlantic coast to the north. This led to the settlement of St. Augustine in 1565 and the Juan Pardo expeditions through what is now the Carolinas. It was not until the 1630s, after the English established colonies along the Atlantic and began a slow inexorable push down the coast, that Spanish mission work shifted from the Guale area of coastal Georgia, to the Apalachee area of north Florida, west of St. Augustine. Even though the Spanish largely abandoned the coast of the Florida Panhandle in the late 1500s and early 1600s, a chain of missions was expanded into the interior during this same period. From a base in St. Augustine, Franciscan missionaries established outposts along the Atlantic coast and westward to the Apalache region. By the mid-seventeenth century, there were at least seven individual missions within the Apalache area, with another 15 or so along the "Mission Path" connecting St. Augustine to the Apalache region (Fretwell 1980:79-81).

By 1675, the Mission Path was extended westward to the junction of the Chattahoochee and Flint rivers, where the last two missions were established: San Carlos and Santa Cruz de Sabacola (Fretwell 1980:80-84). This was beyond the borders of the Spanish province of Apalache, and this new province, located along the Apalachicola/Chattahoochee River, was called "Apalachicoli."

Spanish missionary efforts in Apalachicola did not meet with the success encountered in Apalache. The local Creek Indians were centered in the populous communities around the Fall Line of the Chattahoochee River and were not as interested in what the Spanish had to offer (Fretwell 1980:84-85). By this time, the new English colony at Charles Town s already began to establish trading routes to the Creek communities, and the Creeks themselves were relatively successful in playing the Spanish and English against each other.

The Spanish made a final push into the Chattahoochee River Valley in the early 1690s, spurred on by the presence of the English, and the new French claim to the Mississippi Valley, established by La Salle in the 1680s. This resulted in a Spanish fort on the west side of the Chattahoochee River near the Fall Line in what is now Russell County, Alabama. It was established to keep an eye on the two main Creek communities of Coweta and Cusseta, but it only lasted two years (Fretwell 1980:98-106). Soon, the French made their presence felt with the establishment of Mobile and New Orleans, causing the Spanish to settle nearby Pensacola. By the early 1700s, the French moved inland to Fort Toulouse, where the Coosa and Tallapoosa rivers form the Alabama. Even so, the Creek Confederation was still able to deal with the Spanish, English, and French in such a way as to preserve their independence from all three. By the mid- to late 1600s, Apalachee and Chacota missions in the St. Marks-Tallahassee area were the cornerstones of Spanish power in the Southeast. In addition, three missions were located in or near what is now extreme southwest Georgia, near the confluence of the Flint and Chattahoochee rivers (e.g., Swanton 1922). Evidence of more upland settlements at this time is not documented near the project area. However, the Apalachicola region to the west is considered the home of the Lower Creek (Worth 2000:267), and may have extended into the hinterlands to some degree. This is supported by Elliott (2004:24) who stated that during the Spanish Mission period multiple expeditions were made through southwest Georgia in order to, "establish control over the tribes living on the Chattahoochee River region near the Fall Line [near Columbus]."

The Spanish presence in Apalachicola was always marginal, but even that largely came to an end in 1704-05, when Governor James Moore and his South Carolina militia and Indian allies attacked Apalache and most of the other north Florida Spanish settlements. Moore devastated the local mission system and it never recovered (Fretwell 1980:117). This put an end to any direct Spanish ties with the upper Chattahoochee River Valley, even though Spain would still control Florida until 1763. It is known that during the early eighteenth century, James Moore came through the area and possibly had contact with Native Americans (Elliott 2004:25) though no evidence of contact is known in the study area.

Europeans arriving in Georgia during the seventeenth and eighteenth centuries found various Native American groups that basically represented remnants of earlier Mississippian chiefdoms. This is based on cultural continuities such as Lamar-related artifact assemblages (Worth 2000:266). Many of these groups were recorded as relocating frequently during the time of European incursion and settlement. As stated previously, according to archaeological and historical research, the upland Coastal Plain was largely abandoned by this time. It is not within the scope of this study to describe the varied groups, settlements, and migrations surrounding the project area. However, the area eventually became home to the Lower Creeks with the towns of Chehaw, located in Lee County, and destroyed by the Georgia militia in 1818, and Chiaha located along the central Chattahoochee River.

The establishment of Savannah and the Georgia colony in the 1730s brought the English closer to the upper Coastal Plain, the Piedmont, and the mountains. Meanwhile French encroached onto Creek land from the west. Caught between competing English and French factions, various Creek groups took advantage of this situation to strengthen their own position. Between 1730 and 1760, the Creek Confederation came into its own in the Piedmont region, while the coastal groups joined the Seminoles in northern Florida (Braley 1995:5). However, Braley (1995:5) stated that the region, including the study area, disintegrated shortly after de Soto's passage and remained abandoned for 150 years. Braley's (1995) research is supported by the overall lack of Mississippian and Proto-historic evidence in the study area. During the period of Euro-American encroachment into the interior, the Cherokees and Creeks increasingly adopted Euro-American settlement, technology, and subsistence practices from various traders and agents. For example, nucleated villages with palisades gave way to dispersed farmsteads and Indian farmers increasingly acquired metal farming equipment and domestic animals.

Between 1705 and 1763, the Creek inhabitants of the Chattahoochee Valley would remain largely neutral in the "trade wars" between the French to the west and the English to the east. Over time, the English presence slowly came to overshadow everything else. The colony of Georgia, based in Savannah in 1733, only increased the pressure on the Creek Confederation. After the French lost Canada and Louisiana in 1763 and the Spanish traded Florida, the British gained control of the entire region.

The Creek Confederation entered a pro-British period, largely out of necessity. It became a matter of choice with the outbreak of the American Revolution. Alexander McGillivray, leader of the Creeks until his death in 1793, did not favor the Patriot cause, but was wise enough to stay neutral during the war. After the war ended and the Spanish returned to Florida, he also maintained close ties with the Spanish, and through them, several prominent British merchants (Fretwell 1980:139-141). By this time, it was clear that the most pressing threat to the Creek Confederation would come from the American colonists advancing westward from the Atlantic seaboard.

No other Creek leader after McGillivray was able to do more than delay the inevitable, and the Creek Confederation began to split under the threat of American encroachment. The "Lower Creeks," located along the Flint and Chattahoochee rivers, were either more favorably inclined towards the Americans, or more resigned to the approaching flood. The "Upper Creeks" were more hostile and thus more receptive to the influence of the Spanish and British interests. The beginning of the nineteenth century saw the establishment of the so-called Creek Agency where the Lower Trading Path crossed the Flint River (Fretwell 1980:164). This was located near modern Georgia Highway 128 in Taylor County, just north of the project area. Created by the U.S. government, the Creek Agency was the home of the local agent for Indian Affairs and was designed to serve as a sort of clearinghouse between U.S. interests and those of the Creek Nation. As such, it was not terribly successful, as witnessed by the events of the War of 1812.

The War of 1812 between the United States and Britain was the first to draw the active engagement of the Creek Confederation leading to a virtual civil war between the Upper and Lower Creeks. The Upper Creek massacre of over 500 American settlers at Fort Mims in southern Alabama brought a heavy reaction from the Tennessee militia under Andrew Jackson. In 1814, Jackson defeated the Upper Creek at the battle of Horseshoe Bend. This ended most Creek resistance for the duration of the war. For the first time, the Americans set up permanent forts in the region: Fort Mitchell on the

Chattahoochee was established as early as 1813, and after Horseshoe Bend, Fort Jackson was set up on the site of the old French Fort Toulouse. It was here that Jackson forced the Creek to cede to the United States a broad strip of land immediately north of Spanish Florida to serve as an American buffer between the Creek and the Spanish (Fretwell 1980:175; Hemperley and Jackson 1993:66). This had a direct impact on the southern half of the study area, which now passed to American control and settlement. The north limit of this strip is still partially preserved as the southern boundary line of Randolph, Terrell, and Lee counties.

This land cession led to the establishment of American forts along the adjacent parts of the Chattahoochee River. Fort Gaines was founded in 1816 in what is now Clay County, about 100 miles south of Ft. Mitchell. That same year saw the establishment of Camp Crawford, later known as Fort Scott. Three years later, Spain ceded Florida to the United States, and the Creeks were left wholly at the mercy of their land-hungry American neighbors (Fretwell 1980:190-196). There were other land cessions, made in 1818 and 1821, that affected the extreme north and east of the study area, especially in those areas east of the Flint River.

Following disruptions caused by the fighting between American and British forces in the late eighteenth century, Cherokees from the Lower Towns in the upper Savannah River valley took refuge in the mountains of far northern Georgia and North Carolina (Bouwman 1992). Farther south, the Creek Confederation ceded the land between the Ocmulgee and the Flint rivers in 1821 (Coulter 1933). At this time, Euro-American settlers already had constructed a fairly extensive system of roads, forts, trading posts, and settlements in the area. By the early 1800s, there were enough traders and settlers to create a substantial proportion of so-called mixed-race Cherokees and Creeks. Soon, prominent Cherokees of "mixed" descent adopted a system of government patterned after the United States Constitution, with the capital at New Echota in northwestern Georgia. Similarly among the Creeks, Indians of "mixed" ancestry attained leadership positions within the Creek Confederation of the late 1700s (Swanton 1928). The Creeks were considered allies of the U.S. government during Andrew Jackson's campaign against the Cherokees, but hostilities between the Creeks and Euro-Americans of southwest Georgia increased over time as is evidenced by the Seminole Wars. These wars and related tensions between Indian groups and the United States lasted from 1817 to 1858.

After much bloodshed throughout the Southeast, Native American leaders reached agreements with the U.S. government that resulted in the movement of their subjects, voluntarily or against their will, to land west of the Mississippi River. The last Cherokees were removed from northwestern Georgia by 1838; whereas the last Creek land cession occurred after a treaty signed in 1827. The Seminole groups reached the same demise and were forced west in 1858.

EURO-AMERICAN HISTORIC PERIOD (1815–PRESENT)

ANTEBELLUM COTTON (1815-1865)

After the treaties of the early 1800s, there was soon a demand that all Indian groups be removed from the state of Georgia. As a result of this pressure, William McIntosh, one of the primary leaders of the Lower Creeks, signed over the last of the Creek lands within the bounds of the state of Georgia in 1821, a move that was bitterly opposed by the Upper Creeks in Alabama. They assassinated him later that same year. Even so, the first Creeks began to voluntarily relocate to the

newly designated "Indian Territory" west of the Mississippi (Fretwell 1980:205-209; Hemperley and Jackson 1993:67-72). Many more were forced to go. It was not until 1836 that almost all of the Creek in both Georgia and Alabama were relocated to the western territory (Fretwell 1980:244).

The ink was barely dry on these treaties before American settlers began to pour into the southwest corner of the state. Columbus, located at the Fall Line on the Chattahoochee, was established as early as 1828, and was visited by the river's first steamboat that same year. Other settlements quickly followed. Irwinton, later renamed Eufaula, was set up in 1831 on the Alabama side of the river. The first railroads tied the river ports to the local interior by the late 1840s (Fretwell 1980:212-220).

The phenomenon that spurred this flush of settlement and transportation development was the spectacular spread of cotton cultivation all across the fertile floodplains of the American South. The invention of the cotton gin in 1793 led to a huge demand for new lands, and this was the economic spur to the spread of the Southern plantation system, based on cotton and a work force of enslaved African Americans. It was a system that was already in practice along the Seaboard South and was ready to be imported whole cloth across the newly opened Indian lands, from Georgia to Mississippi and beyond. The growth of cotton led to the tremendous increase in the population of the river ports, foremost of which were West Point, Columbus, and Eufaula. The population of Columbus had grown to 10,000 by 1850. Not counted among these were another 8,000 slaves, many of who worked in the city's textile plants (Fretwell 1980:250-251).

Just as spectacular, although more dispersed, was the settlement of the entire study area, which was accomplished in just a few short decades. The first counties created in the project area date to 1818 (Early County) and the subsequent 1820s (Randolph, Lee, Dooly, Decatur, and Baker). These large counties were subdivided as the settlement thickened, beginning in the 1830s (Sumter and Macon), and leading to a wave of smaller counties created in the 1850s: Schley, Quitman, Mitchell, Miller, Dougherty, Clay, Calhoun, Webster, Worth, Terrell, and Colquitt (Nesbitt 1896: 400-416). Only a small handful of the counties in the project area were created after this period, and this was done no less than 50 years later: Crisp, Grady, and Turner, in 1905; and Seminole in 1920 (Georgia Historical Society 1981).

Certainly not everybody that lived in the project area was the owner of a plantation, but this was the model for many of those that moved into the area. It was a way of life predicated on cotton and a workforce of enslaved African Americans. This system was particularly strong along the major rivers, namely the Chattahoochee and the Flint. It was so rooted by 1860, that this entire region favored secession from the Union after Lincoln's election (Swanson 2004:8-9). It was this secession movement across the Deep South in the winter of 1860-61 that led directly to the Civil War in 1861.

Ironically, the Civil War almost completely skirted the study area. The major exception was the Confederate prison camp at Andersonville in Macon County, at the north end of the study area. This notorious camp, in operation during the last two years of the war (1864-65), was actually set up in this area because it was so distant from the main theaters of the war.

AGRICULTURE AND INDUSTRY (1865-1940)

The collapse of the Confederacy meant the end of slavery and the plantation way of life that slavery made possible. Cotton still remained the cash crop throughout most of this area, but now much of it was grown by tenant farmers, either African American or poor Euro-Americans. Land degradation caused by years of consecutive cotton cultivation depleted much of the local soils by the turn of the twentieth century. As if this were not enough of a problem, the Mexican boll weevil infestation began to sweep across the Southeast. By the mid 1910s, the weevils had decimated the local cotton crop. This led to experiments with new crops, foremost of which was the peanut, which quickly became popular throughout the area. Worth County has long claimed to be the peanut capital of the world, but most of the other counties in this region also found success with peanut cultivation.

The collapse of the plantation paradigm paved the way for other agricultural and industrial pursuits. Cotton mills thrived around the Fall Line at Columbus. Oil from the reduction of cottonseeds became a popular local industry in the years after 1880. In addition, the resources of the local pine forests were fully exploited during this period. The local long leaf pine was particularly favored for lumber, as well as for its tar and turpentine (Nesbitt 1896:205-208).

Another local development that reached its florescence in the late 1800s and early 1900s was the spread of railroads. Limited to just a few lines before the Civil War, railroads literally crisscrossed the state, by the end of the 1800s. Columbus, with its bridges across the Chattahoochee, certainly became a major rail hub, but so did Albany in Dougherty County (Nesbitt 1896:14-15).

Population continued to rise throughout the region during the 1900s. The more agricultural, rural counties had average populations of around 4000-6000 each, while counties with larger towns and cities usually had double that (Nesbitt 1896:411-416). The old plantation system was reflected in the local population; the percentage of African Americans ranged from 30 to 60 percent of the total population. The relatively rural and agricultural trend has dominated lifeways in southwest Georgia in to the present. With the exception of scattered urban areas, the region was characterized by low population density, broad open of croplands, and wetland forests.

MODERN ERA

The general trend toward a diversified agriculture and a nascent industrialization, continued into the modern era. In addition to peanuts, pecan cultivation has proven popular in recent decades, and in many areas cotton has made a comeback. Dooly County, the home of the Georgia State Cotton Museum, has a population that is almost evenly divided between Euro- and African American. The ratio of white to black in the local population ranges from 60/30 in Schley, Worth, Grady, Seminole, and Colquitt counties, to 30/60 in Macon, Clay, Randolph, Terrell, Calhoun, Dougherty, with every combination in between, depending on the county.

In some counties, population levels have increased greatly over what they were a hundred years ago. In other counties, the population is virtually the same as it was on the eve of the Civil War. An example of the former is Dougherty County, which contains Albany, by far the largest city in the study area. The county population, 96,065 (2000 census), is far and away greater than any other in this area. The second largest is Colquitt County, with 42,053, while the third largest is Sumter, with 32,912. Some examples of the latter are Webster County, with a population of only 2,390, Clay County, with 3,357, and Schley with 3,766.

Clearly, with a few exceptions like Albany and some larger towns, this region is still largely rural and agricultural, which was observed during survey of the PCWMS. The peanut and pecans were the main crops with pasture intermixed and forming a patchwork of rural landscape utilization.

CULTURAL DATASET OF STUDY AREA

Archaeological sites identified within the study area were researched and compiled through the use of the Georgia State Site Files geo-referenced database (NARHGIS) and include whole and partial portions of 23 counties (Table 5). Sites, presented as point data, within the study area total 2,112 and are affiliated with prehistoric, historic, and unknown cultural designations (Figure 4). Information regarding site size and extent of a given survey or archaeological investigation (polygon data) was not available for this study. This information is currently being compiled at the University of Georgia, and would benefit future researchers when evaluating site size and archaeological coverage of the study area. A full list of all cultural resources included within the study area is provided within Appendix A, which includes information associated with current study variables.

Table 5. Counties Included within the Dougherty Plain Study Area

Baker	Early	Schley
Calhoun	Grady	Seminole
Clay	Houston	Sumter
Colquitt	Lee	Terrell
Crisp	Macon	Turner
Decatur	Miller	Webster
Dooly	Mitchell	Worth
Dougherty	Randolph	

Utilizing a large dataset in this fashion does create certain analytical limitations that are important to recognize. Further, the study area is primarily rural and has, overall, not been subject to many large-scale archaeological surveys. Boundaries of those surveys conducted were not available; therefore, the cultural dataset reflects currently known site distribution with little to no knowledge of surveyed areas with negative cultural findings. Figure 4 provides an overview of recorded cultural resources and archaeological coverage of the study area.

The biases recognized within the cultural dataset include:

- o Dependence on the defined cultural component, site type, and location by previous researchers.
- o The site location is provided as point versus polygon and does not illustrate the extent or size of a given site.

- o The extent or boundaries of a given survey is not provided; therefore, one only is aware of the area of existing sites and not survey areas having no site data.
- o A lack of survey data in the majority of the study area limits this study to assessment of cultural trends for components having sufficient sample size. Due to the overall paucity of well-distributed data, no predictive modeling is attempted.

Due to the differing resource needs of prehistoric and historic inhabitants as outlined in the previous sections, cultural resources were analyzed differently within this study. Prehistoric, Proto-historic, and Historic Indian occupations are analyzed by cultural timeframe according to environmental variables (elevation zone, drainage catchment, and soil drainage). These are discussed as Native American occupations within the following chapters. On the other hand, non-Indian historic occupations are analyzed by site type in relation to the same environmental variables. Site type is defined within the NARHGIS database; however, for analytical purposes this data was placed within functional categories as defined by Joseph et al. (2004). The historic functional categories are represented by numerous site types including the following: Agrarian sites such as barns or fields; Cemeteries; Community and Interaction sites such as churches and other places of congregation; Domestic sites are typically homesteads; Military sites range from Civil War earthworks to Cold War installations; Transportation sites include roads, trails, railroads, and wharves; Urban sites include courthouses and other public buildings/locations; Industrial sites include mills and gins; and other sites including dumps and push piles fall under Miscellaneous.

Table 6 provides the total number of resources that fall within a given prehistoric sub-period, historic site types, and sites with unknown cultural affiliation. It is noted that many site locations represent multiple cultural components that are outlined within Table 6. This inflates the actual total of occupations included within the study area. In addition, several sites recorded within the site files lacked differentiating description, were grouped as “not applicable,” and were eliminated from the study sample. The cultural dataset is utilized in subsequent chapters to investigate trends through time within the study area.

Table 6. Cultural Resource Occupations within the Dougherty Plain Study Area

Sub-Period	Count
Native American Early Paleoindian	5
Native American Late Paleoindian	7
Native American General Paleoindian	19
Native American Early Archaic	70
Native American Middle Archaic	58
Native American Late Archaic	220
Native American General Archaic	169
Native American Early Woodland	40
Native American Middle Woodland	103
Native American Late Woodland	180
Native American General Woodland	150
Native American Early Mississippian	10
Native American Middle Mississippian	6

Table 6. Cultural Resource Occupations within the Dougherty Plain Study Area

Sub-Period	Count
Native American Late Mississippian	39
Native American General Mississippian	65
Native American Proto-historic	57
Native American Historic Indian	49
Native American Unknown	959
Site Type	Count
Historic Agrarian	16
Historic Cemetery	55
Historic Community	10
Historic Community/Interaction	5
Historic Domestic	163
Historic Interaction	1
Historic Military	5
Historic Miscellaneous	238
Historic Transportation	15
Historic Urban	3
Historic Unknown	207
Other Designation	Count
Not Applicable	5

SUMMARY

Human occupation of the Dougherty Plain dates from the early origins of human presence in the region, the Paleoindian period, through the historic era and into the modern age. From an archaeological perspective, Native American sites are more common than sites from the historic era, totaling 2,206 resources, versus 718 Historic sites. Based on the sites with diagnostic artifacts recorded for the prehistoric era, the region saw its most intensive use during the Archaic era, where 517 sites are recorded. Woodland period sites were slightly less common, at 473, while Mississippian sites exhibited a further decline in intensity of occupation, totaling 120 (a number comparable to the protohistoric and historic Native American occupation, with 106 sites). Historic period sites only marginally outnumber sites from the Archaic era, a frequency distribution that stands in stark contrast to the state in general, which witnessed an exponential increase in the number of Historic sites.

These distributions runs counter to population trends witnessed elsewhere in Georgia, where Native American populations increased following the advent of horticulture during the Woodland period and further expanded with historic settlement economies and population densities. This contrast may be based on environmental factors, and the analysis of site distributions, by environmental variables, is presented in the following chapter with an analysis of the cultural landscape of the Dougherty Plain.

IV. THE NATURAL ENVIRONMENT AND THE CULTURAL LANDSCAPE: RESULTS OF ANALYSES

In order to assess the significance and associations between environmental variables and site distributions, by cultural period, a series of statistical analyses were performed. The chi-square test was used to evaluate the associations between the cultural dataset and environmental variables, and to identify specific patterns through an environmental approach. An environmental approach functions on the premise that there is a relationship between the environment (i.e. elevation, hydrology, soils, etc.) and human occupation. This relationship potentially differs through time (i.e. cultural periods) based on the changing dynamics of human ecology. The GIS produced frequency of specific variable relationships can be statistically tested for significance through a chi-square test. Given a reliable sample, the significance level is five percent or lower having a probability (p) of 0.05 or less and confidence level of 95 percent or more. If result of high significance and rejection of the null hypothesis of a given environment-cultural association, then particular instances of higher variation between observed and expected values (within the contingency table) were noted and aid interpretations in the following chapter. If the sample was statistically unreliable, observation of frequency distribution aided tentative interpretations. Through these tests and observed variation, trends in cultural landscape utilization could be defined.

The following sections provide discussion of the results of analyses. GIS generated illustrations are provided within this discussion and digitally on an enclosed CD for more detailed viewing of specific areas. Some Native American sub-periods and historic site types are biased by under representation having frequencies too low for statistical analysis. In addition, later prehistoric timeframes are biased by geography such that sites are overly represented along major drainages particularly the Chattahoochee River. Cultural timeframes that are affected by these biases include the Paleoindian, Mississippian, Proto-historic, and Historic Indian periods. The current study does not attempt to analyze Native American site type due to differential site investigation that creates inherent bias within this subset of the cultural dataset.

The Historic cultural dataset shows trends within the environmental variables analyzed for this study. Similar to the Native American sample, some site types are biased by representation within the study area similar to the Native American sample. Historic site types that are affected by this bias include under representation of Community/Interaction, Interaction, Military, Transportation, and Urban types. This result illustrates the limited habitation of the upland area during the historic timeframes. On the other hand, the Miscellaneous site type is heavily represented within the sample and includes sites of undefined function such as earthworks, rock piles, isolated finds, and push piles.

NATIVE AMERICAN CULTURAL TRENDS AND CHERT OUTCROPS

The distribution of Native American site data from the limited survey coverage within the study area is not sufficient to perform analysis of identified areas of chert outcrops and sites with lithic assemblages. In addition, county information (Goad 1979) indicates that chert outcrops are

widespread within the study area (Table 7), which limits any interpretative differentiation in regards to this variable. Based on literature review and evidence discovered during the PCWMS investigations, it is hypothesized that there is a strong correlation between lithic resources and Native American sites. Unfortunately, this correlation cannot be empirically tested with the current dataset.

Table 7. Counties Included within the Dougherty Plain Study Area Having Chert Outcrops (compiled from Goad 1979)

Baker	Early	Mitchell
Calhoun	Grady	Randolph
Crisp	Houston	Seminole
Decatur	Lee	Sumter
Dooly	Macon	Terrell
Dougherty	Miller	Worth

*Clay, Colquitt, Schley, Turner, and Webster do not have documented chert outcrops.

NATIVE AMERICAN CULTURAL TRENDS AND ELEVATION ZONES

Elevation zones (i.e. lowlands, uplands, etc.) are defined by a GIS calculated, natural break range representing the spectrum of elevations within the study area. Prehistoric cultural trends observed during analysis of elevation zones represented within the study area shows a distinctive pattern for specific cultural sub-periods (Figure 5). While several cultural periods are biased within the present sample, the Archaic and Woodland timeframes show observable differences and are analyzed in greater depth below.

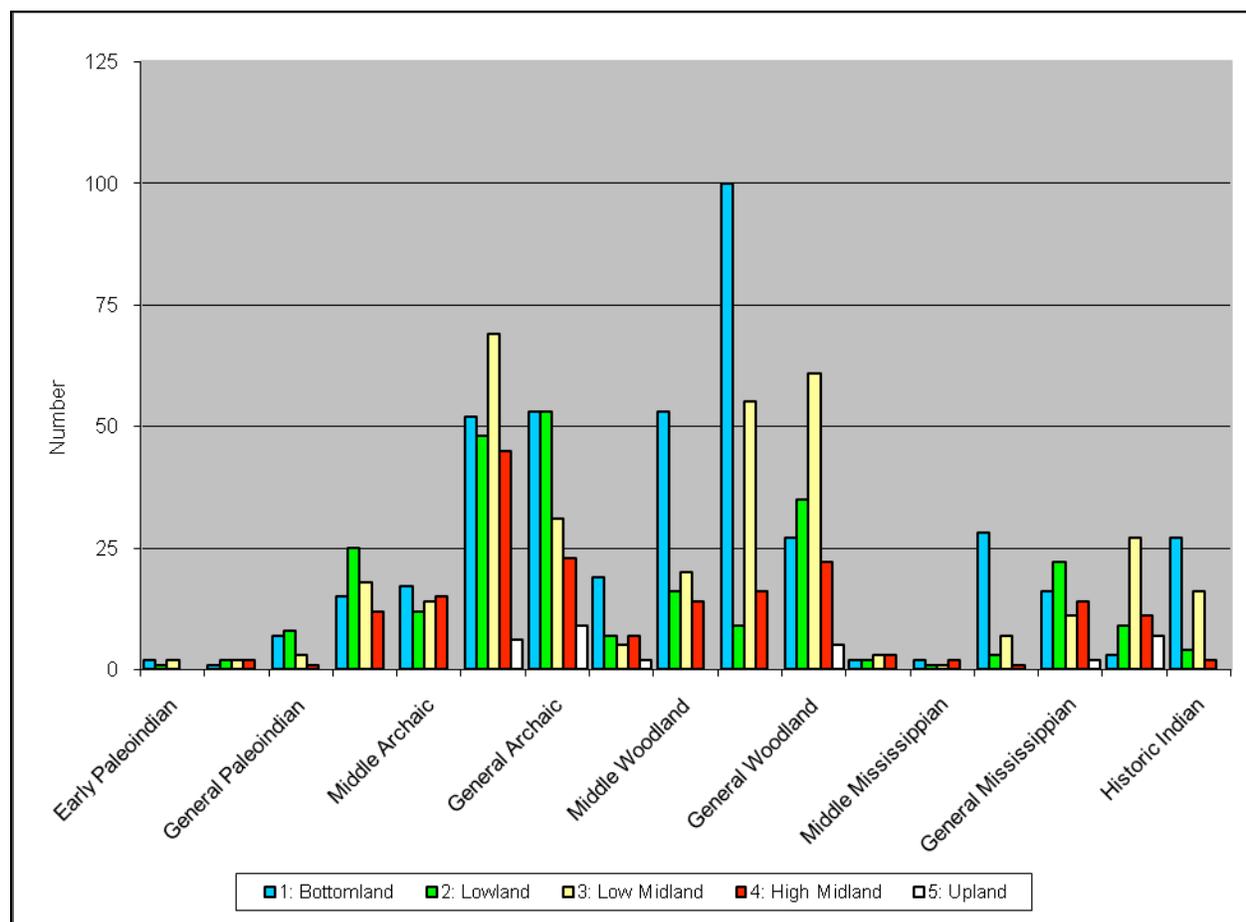
The small quantity of Paleoindian period sites does not allow for statistical analysis within this study. However, with respect to the Archaic sub-periods, there is a trend of bottom and lowland occupations during the Early and Middle Archaic. The relatively low quantity of occupations during these earlier timeframes is noted in comparison to that observed during the Late Archaic sub-period. The populations of the Late Archaic appear to have integrated higher elevations into the general settlement pattern and are more distributed across the landscape.

In the interest of determining if this observed pattern was a factor of sampling bias, a chi-square test was performed to determine any significant statistical pattern (Table 8). For the purposes of this analysis Elevation Zones 4 and 5 were collapsed as not to skew statistical testing through null values. The following hypotheses were defined following Drennan (1996):

H₀: there is no difference in settlement of specific elevation zones during the Archaic sub-periods.

H₁: there is a difference in settlement of specific elevation zones during the Archaic sub-periods

Figure 5. Number of Cultural Components in Elevation Zones.



The difference between the Archaic sub-periods in respect to elevation zone is not significant ($\chi^2 = 7.8641, 0.5 > p > 0.200$) and failed to reject the null hypothesis. This result is unsurprising as the calculated expected values are relatively close to those observed within the cultural dataset for this environmental variable. In other words, the results showed that Archaic groups did not significantly deviate from the statistically expected trend.

Table 8. Chi-Square Test for Archaic Sub-periods Within Elevation Zones.

Elevation Zone	Early Archaic	Middle Archaic	Late Archaic
	Observed/Expected Value		
1. Bottomland	15.0/16.9	17.0/14.0	52.0/53.1
2. Lowland	25.0/17.1	12.0/14.2	48.0/53.7
3. Low Midland	18.0/20.3	14.0/16.8	69.0/63.9
4&5. High Midland and Uplands	12.0/15.7	15.0/13.0	45.0/49.3
All	70.0	58.0	220.0

$\chi^2 = 7.8641, df=6, p=0.248$