A DISTRIBUTION OF ARCHAIC PROJECTILE POINTS ACROSS THE COASTAL PLAIN OF NORTH CAROLINA

A Thesis Presented to

Faculty of the Department of Anthropology

East Carolina University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts in Anthropology

by

John P. Cooke

July 2000

John P. Cooke. A DISTRIBUTION OF ARCHAIC PROJECTILE POINTS ACROSS THE COASTAL PLAIN OF NORTH CAROLINA. (Under the direction of Dr. I. Randolph Daniel, Jr.) Department of Anthropology, July 2000.

The purpose of this thesis is to synthesize the projectile point collections from three major river drainages of the Northern Coastal Province of North Carolina: Neuse-White Oak, Tar-Pamlico, and Roanoke-Albemarle. The study proposes to determine whether Archaic land-use focused on a single-river drainage or rather made use of multiple river drainages, in order to procure necessary resources. Along the Coastal Plain there are numerous projectile points made from metavolcanic stone; however, the only major outcrops of metavolcanic stone in North Carolina occur in the Piedmont.

The presence of non-local stone material in archaeological assemblages allows archaeologists to make assumptions about the extent of land-use during the Archaic time period. As evidenced by the present study, during the Archaic Stage, metavolcanic stone dominates the distribution of Archaic projectile points along the Coastal Plain of North Carolina. Accepting the assumption that the presence of non-local stone material signifies the extent of land-use in archaeological assemblages, Archaic land-use patterns included mobility along and across the major river drainages, from the coastal plain to the piedmont.

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CHAPTER I

A BRIEF HISTORY OF ARCHAIC STAGE RESEARCH

Introduction

Stone projectile points are the only reliable temporal marker artifact of the Archaic time periods (Early Archaic, Middle Archaic, and Late Archaic) in the Southeast. In addition to the temporal use, the regional distribution of diagnostic projectile points can be useful in reconstructing prehistoric settlement patterns. While Archaic settlement patterns have long been a research topic for the North Carolina Piedmont (Coe 1964; Daniel 1998) and South Carolina (Sassaman and Anderson 1995; Sassaman 1996; Tippett 1992), little reported research has been conducted for the Coastal Plain of North Carolina. Although there are few excavated sites or published data about the Archaic time periods in the North Carolina Coastal Plain (Anderson 1991), numerous Archaic projectile point collections exist from both private collectors and archaeological surveys from the Coastal Plain. A study of the distribution of these projectile points and their raw materials can add significantly to our understanding of Archaic land-use patterns in this region.

In particular, the presence of non-local stone in archaeological assemblages can be interpreted to reflect the extent of prehistoric land-use by the distance of the stone material away from its' known source (Binford 1979). Since the Coastal Plain has very little high-quality lithic material, the distribution of projectile points made from non-local stone (i.e. metavolcanic stone and chert) gives insight to the Archaic land-use patterns. In this study, I examine the distribution of Archaic projectile points and their stone material types along and across the major river drainages of the Northern Coastal Province (Roanoke, Chowan, Pasquotank, Tar, Neuse, White Oak Rivers and the Albemarle and Pamlico Sounds), as well as along the Fall Line and the Inner Coastal Plain (Figure 1.1).

Problem Statement

Using the Coastal Plain as a unit of study, I will examine the spatial and temporal distribution of projectile point and raw material types to address questions concerning Archaic land use patterns. Given the results of previous studies mentioned below, this study will consider the question of whether or not the major drainage basins of the North Carolina Coastal Plain (e.g. Neuse-White Oak, Tar-Pamlico, and Roanoke-Albemarle) form the basic context of Archaic settlement ranges in Eastern North Carolina.

Specifically, I address four questions. First, what is the geographic distribution of Archaic projectile points along and across drainages? Second, do these patterns of distribution change temporally? Third, what are the patterns of raw material use? Finally, does the material use change temporally?

To anticipate the results, Archaic land-use appears to have ranged from the Piedmont to the Coast, both along and across the major river drainages.

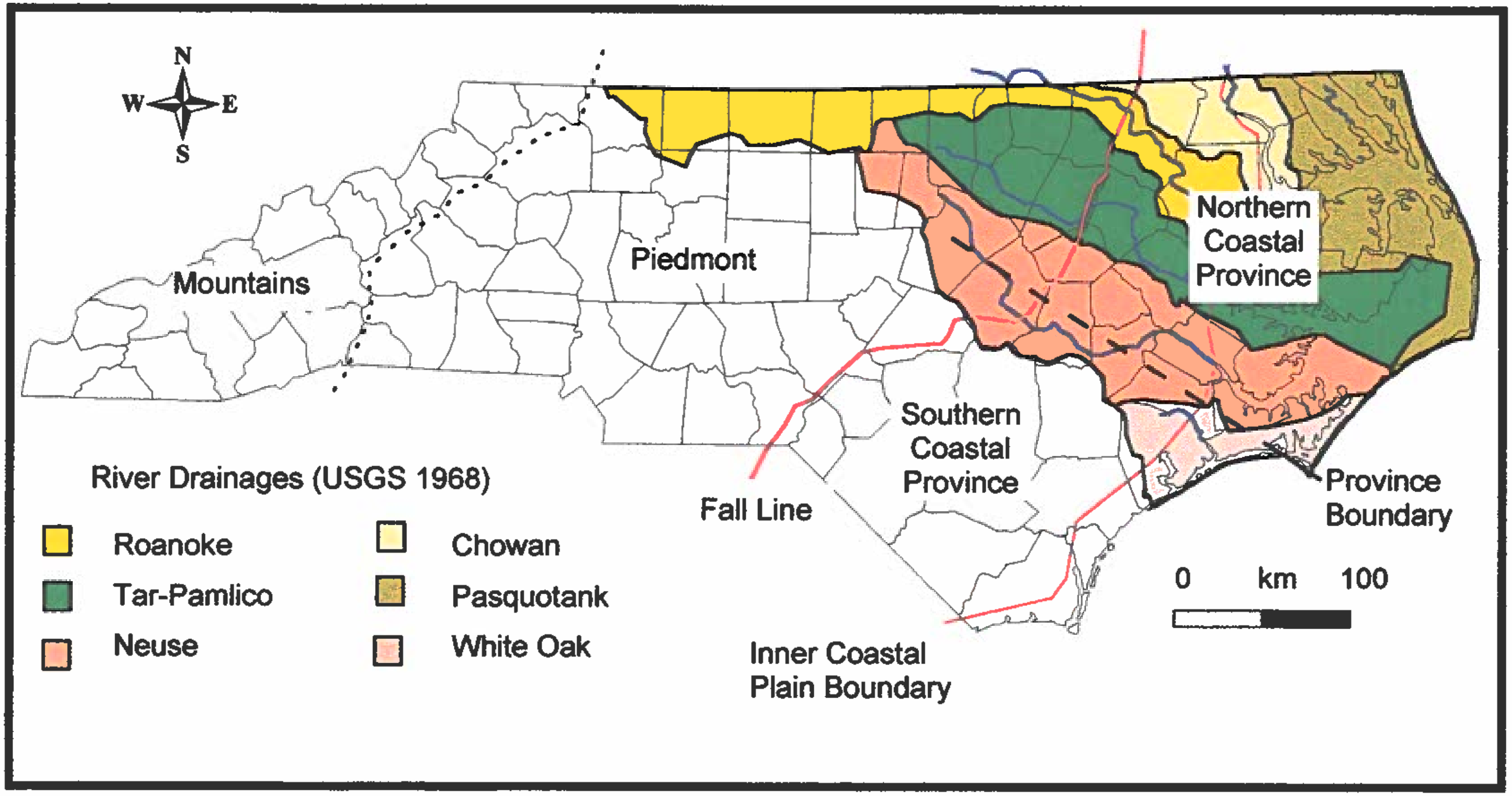

Figure 1.1. Physiographic regions of North Carolina and river drainages included in the present study (modified after Ward and Davis 1999; USGS 1968).

Metavolcanic stone is the most abundant material type in the assemblage and dominates the distributions both along and across the river drainages, with one exception, the Roanoke River. Along the Roanoke River, Chowan, and Pasquotank Rivers, quartz and quartzite increase in use and appear in similar frequencies as metavolcanic stone. The decrease in metavolcanic stone may be attributed to the increasing distance away from the known metavolcanic stone sources in the Piedmont. Also, as suspected, the majority of the projectile points recorded in this survey come from those counties along the Fall Line and adjacent counties. A word of caution is necessary, concerning the distributions of these Archaic projectile points. The data used for this study is biased by the collection strategies of archaeological surveys and the tendencies of private collectors; however, patterns still appear to emerge from the data.

The patterns and conclusions discussed in the present study are not meant to solve Archaic land-use for the Coastal Plain. Rather, the purpose is to propose a working hypothesis for Archaic land-use to be tested as more data becomes available. I like to view this study as a starting point in the study of Archaic land-use along the Coastal Plain of North Carolina.

Archaic Stage Research in the Southeastern United States

The first use of the term "archaic" in relation to the history of Native American Cultures was employed by William Ritchie in the 1930s (Ritchie 1932a, 1932b). In general, the beginning of the Archaic coincides with the beginning of the Holocene (10,000 BP) and ranges from 10,000 BP to 3,000 BP. General characteristics of the Archaic include a hunter-gatherer foraging subsistence base in the absence of ceramic traditions, agriculture, and sedentary villages (Ritchie 1932a, 1932b; Griffin 1952; Ford and Willey 1941).

The Archaic can be divided into three chronological periods based upon diagnostic projectile points: Early (10,000 – 8,000 BP), Middle (8,000 – 5,000 BP), and Late (5,000 – 3,000 BP) (Ward and Davis 1999:24-5). Several distinct projectile point types characterize each of these periods (Table 1.1). The Early Archaic is characterized by corner-notched (Palmer and Kirk) and to a lesser degree bifurcate base (LeCroy or St. Albans) projectile points, followed by a stemmed variety that appears in both Early and Middle Archaic contexts (Kirk Stemmed). Various stemmed projectile points (Stanly, Morrow Mountain, and Guilford) characterize the Middle Archaic, with a side-notched (Halifax) regional variant also included towards the end of the period along the Roanoke River. Large and small stemmed points (Savannah River, Small Savannah River, and Gypsy) characterize the Late Archaic. Each of these projectile points will be described in more detail in the Typology section in *Chapter II Methods.*

The Archaic sequence for North Carolina was first proposed by Coe (1964) and constructed after his work at three sites: Doerschuk, Hardaway, and Gaston (Figure 1.2). Coe relied upon a composite stratigraphic sequence to construct the Archaic chronology. His work demonstrated that "when an occupation zone can be found that represents a relatively short period of time the

Table 1.1. North Carolina Archaic Sequence as proposed by Joffre Coe (1964), with additions from (*) Chapman (1975) and Broyles (1966, 1971) and (**) Oliver 1981.

Time Period	Diagnostic Point Types
Late Archaic (5,500-3,000 BP)	Gypsy Stemmed** Small Savannah River Stemmed** Savannah River Stemmed
Middle Archaic (8,000-5,500 BP)	Halifax Side-Notched Guilford Lanceolate Morrow Mountain Stemmed Stanly Stemmed
Early Archaic (10,000-8000 BP)	Kirk Stemmed Bifurcates (LeCroy and St. Albans)* Kirk Corner-Notched Palmer Corner-Notched

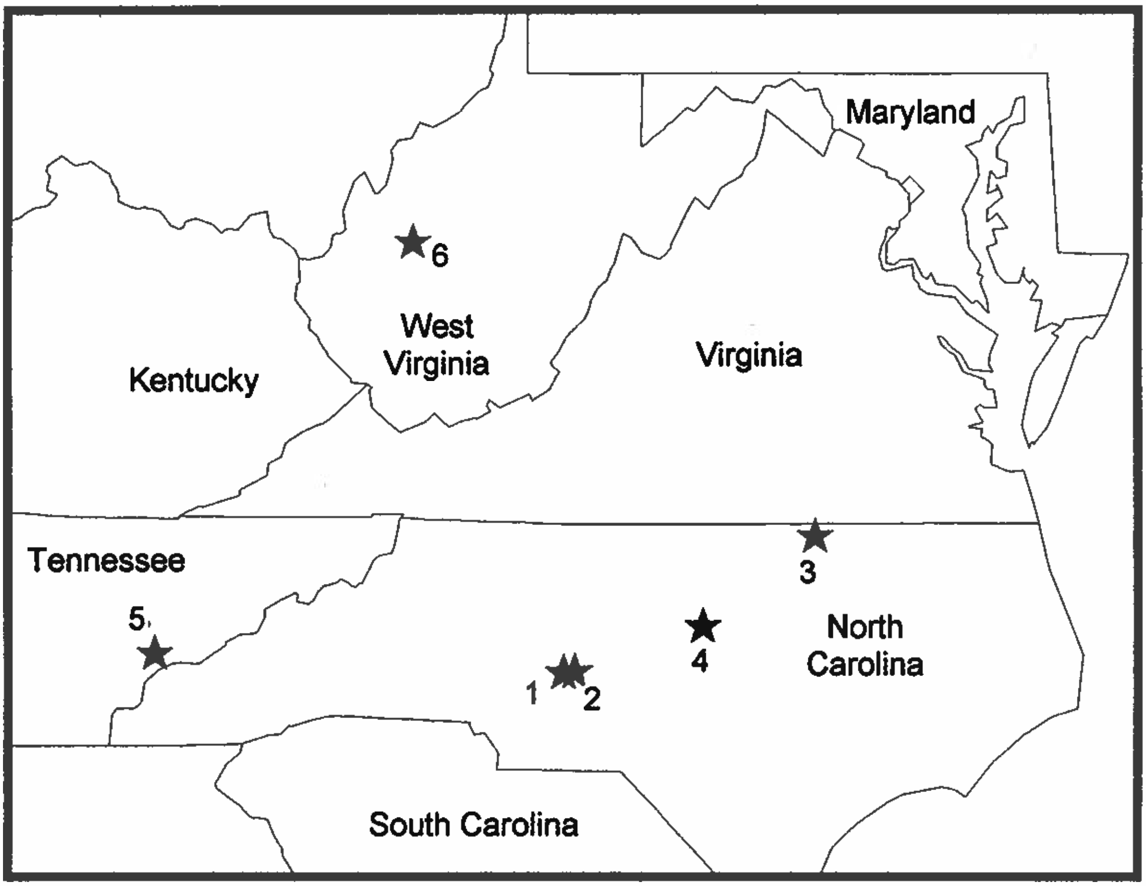

Figure 1.2. General locations of sites mentioned in the text: (1) Hardaway, (2) Doerschuk, (3) Gaston, (4) Haw River, (5) Icehouse Bottom and Rose Island, (6) St. Albans (map outline from ArcView GIS Version 3.1, 1992-1998).

usual hodgepodge of projectile point types are not found-only variations of one specific theme. In the light of this evidence, there can no longer be any doubt as to the diagnostic value of projectile points, but to be useful the types must be defined with precision" (Coe 1964:8-9). Coe's Archaic sequence has been reproduced at other stratified sites in North Carolina (Claggett and Cable 1982; Cable 1996), Tennessee (Chapman 1975, 1977), and West Virginia (Broyles 1966, 1971). Moreover, excavations in Tennessee and West Virginia have provided a series of radiocarbon dates for the Archaic (see Figure 1.2).

From the 1940s to the 1960s, research concerning the Archaic was primarily focused on creating typological sequences and chronologies (e.g. Coe 1964). During the 1970s, researchers became more interested in problems related to site function and settlement patterns. Several settlement models with variations on a base camp/procurement and extraction site dichotomy (Binford and Binford 1966) were proposed. These settlement models focused on settlement mobility along major rivers. Some of these settlement models include: Flint Run Lithic Determinism (Gardner 1983a-b, 1989), the Little Tennessee River Model (Chapman 1975, 1978), the Riverine-Interriverine Model (Goodyear et al. 1979; House and Ballenger 1976; House and Wogaman 1978), and various Dalton Settlement Hypotheses (Goodyear 1974; Morse 1971; Price and Krakkar 1975; Schiffer 1975a, 1975b).

In the late 1980s, Anderson and Hanson (1988) proposed the Band-Macroband model that focused on Early Archaic settlement along the South

Atlantic Slope. Of particular interest here, this model encompassed several North Carolina drainage basins and attempted to measure group mobility by examining the distribution of projectile point and raw material types across the landscape (Anderson and Hanson 1988). In sum, Anderson and Hanson (1988) propose that large river drainage basins formed the context for Early Archaic settlement and mobility.

Subsequently, an alternative model proposed by Daniel (1998) focuses on the stone material sources rather than the drainage basins as the context of Early Archaic settlement-mobility. Regardless of whether drainage basins or raw material locations provided the context for Early Archaic settlement ranges, both of these studies featured the distribution of raw materials for points as a basis for tracing Native American mobility. Likewise, Archaic projectile point distributions have been examined for the South Carolina Piedmont and Coastal Plain (Anderson and Hanson 1988; Anderson 1996a, 1996b; Blanton and Sassaman 1989; Sassaman, Hanson, and Charles 1988; Sassaman 1996b; Tippet 1992) and the Chesapeake Delmarva region (Custer 1986). These projectile point distribution studies have influenced our views of Archaic land-use and mobility. The methods employed in these aforementioned studies form the premise for the present study.

The North Carolina Coastal Plain

Although projectile point and raw material data (Davis and Daniel 1990; Daniel and Davis 1992; Phelps 1983) exist for the North Carolina Coastal Plain, little work has been attempted to synthesize data from across the region. Two reasons form the basis for focusing my study on the Coastal Plain region. First, the Coastal Plain is recognized as a distinct physiographic region (Clark et al. 1912:25; Fenneman 1938:13, 126; Hunt 1964:209-251; Pilkey et al. 1998:49); this physiographic distinctiveness has long been associated with unique archaeological traditions as well (Phelps 1983; Ward and Davis 1999). Second, the unique geological conditions of the Coastal Plain have created a region with limited stone resources for tool production (Pilkey et al. 1998; Sassaman 1996:59). Consequently, much of the stone used by Native Americans was acquired outside the Coastal Plain. As will be shown, patterns in the use and transport of non-local stone provides evidence for the nature of Archaic land-use in Eastern North Carolina.

The Coastal Plain is a flat, partially submerged low lying terraced area that becomes more undulating towards the Fall Line. The Fall Line marks the location where Piedmont deposits dip below Coastal Plain deposits. The overall general slope of land is down towards the coastline to the east (Clark et al. 1912:25; Fenneman 1938:13, 126). Coastal Plain deposits are Cretaceous or younger in age, dating 90 million years or less (Pilkey et al. 1998:49).

The North Carolina Coastal Plain is divided into two provinces, Northern and Southern. The division between the two provinces can be delineated with a line drawn from Raleigh to Kinston and to Cape Lookout (see Figure 1.1) (Pilkey et al. 1998:61). The Northern Province surficial deposits are composed of unconsolidated Quaternary age sediments that reach depths up to 70 meters. The older consolidated rocks are generally inaccessible (Pilkey et al. 1998:62). Hence, the lack of significant lithic raw material sources in the Northern Coastal Province. There are some cobbles available in the riverbeds, called the Riverine Quaternary gravels. However, these cobbles are generally small in size and useful in the manufacture of some Archaic projectile points (Riggs 2000, personal communication). Not to discount the possibility of the use of these river cobbles, but for simplicity's sake, I assume the majority of the non-local stone was procured from the Piedmont.

In contrast, the Southern Coastal Province is part of the Carolina Platform, with only a thin layer of unconsolidated Quaternary sediments, and older rock formations are closer to the surface (Pilkey et al. 1998:61). Unfortunately, the collections utilized in this study included sparse data from the Southern Coastal Province. The average slopes for the two provinces are significantly different, .06 meters per 1.6 km for the Northern Province and .9 meters per 1.6 km for the Southern Province (Pilkey et al. 1998:62).

The average elevation of the Coastal Plain plays a major role when discussing the sea level changes. There have been numerous oscillations in sea level change over the last 20,000 years. During the Archaic there were two major sea level rises, one between 7,500 to 5,500 BP and another from 5,000 to 3,000 BP, generally corresponding to the Middle and Late Archaic time periods, respectively. During these oscillations, sea level was still about 16 and 10 meters below modern sea level (Riggs 1999, 2000).

During periods of low sea level of the Archaic, the Coastal Plain of North Carolina extended into the Atlantic Ocean to below the edge of the present Continental Shelf (Riggs 1999, 2000). In association with sea level rise, the low average slope of the Northern Province can be one reason why there are few Early Archaic sites recorded along the Coastal Plain (Schuldenrein 1996:1). Since the slope of the Northern Province is about .06 km per 1.6 km (or 3 feet per mile), more area is inundated with a little increase in sea level. Furthermore, the net rise in sea level has been inundating coastal areas since the beginning of the Holocene, thus there may be numerous Middle and Late Archaic sites that have been inundated or deeply buried (Phelps 1983:5; Riggs 2000, personal communication). Hence, the data collected in the present study may be biased toward the available data and only represents a percentage of the preserved data, since many of the sites may have been washed away (Schuldenrein 1996).

Chapter Overviews

The remaining portion of this thesis is organized as follows; Chapter II reviews the database, as well as discussing the methodology behind the research and the analysis. Chapter III presents the results of this study and discusses the patterns evident in the data. Chapter IV summarizes my conclusions and interprets the data in relation to land-use.

CHAPTER II

METHODOLOGY

The Database

The database for this study was compiled from several collections and totals 4,286 projectile points from 618 sites in 27 counties in the North Carolina Coastal Plain (Figure 2.1, Table 2.1). The first collection is compiled from a previously existing database catalogued by the Research Laboratories of Archaeology (RLA) at the University of North Carolina at Chapel Hill (Davis and Daniel 1990; Daniel and Davis 1996). The remaining portion of the database was compiled from two collections I analyzed: the first collection is curated at the David S. Phelps Archaeology Laboratory at East Carolina University (ECU) and the second, the Daughety Collection, represents a private collection from Lenoir County. Finally, I incorporated data from 33 projectile points reported from three counties for which little data was available from the ECU or RLA collections: Currituck, Pasquotank, and Perquimans (Haynes 1994; Rogers 1989). The ECU portion of the database was entered in a Microsoft Excel format and is maintained at the David S. Phelps Archaeology Laboratory at East Carolina University, Greenville, North Carolina.

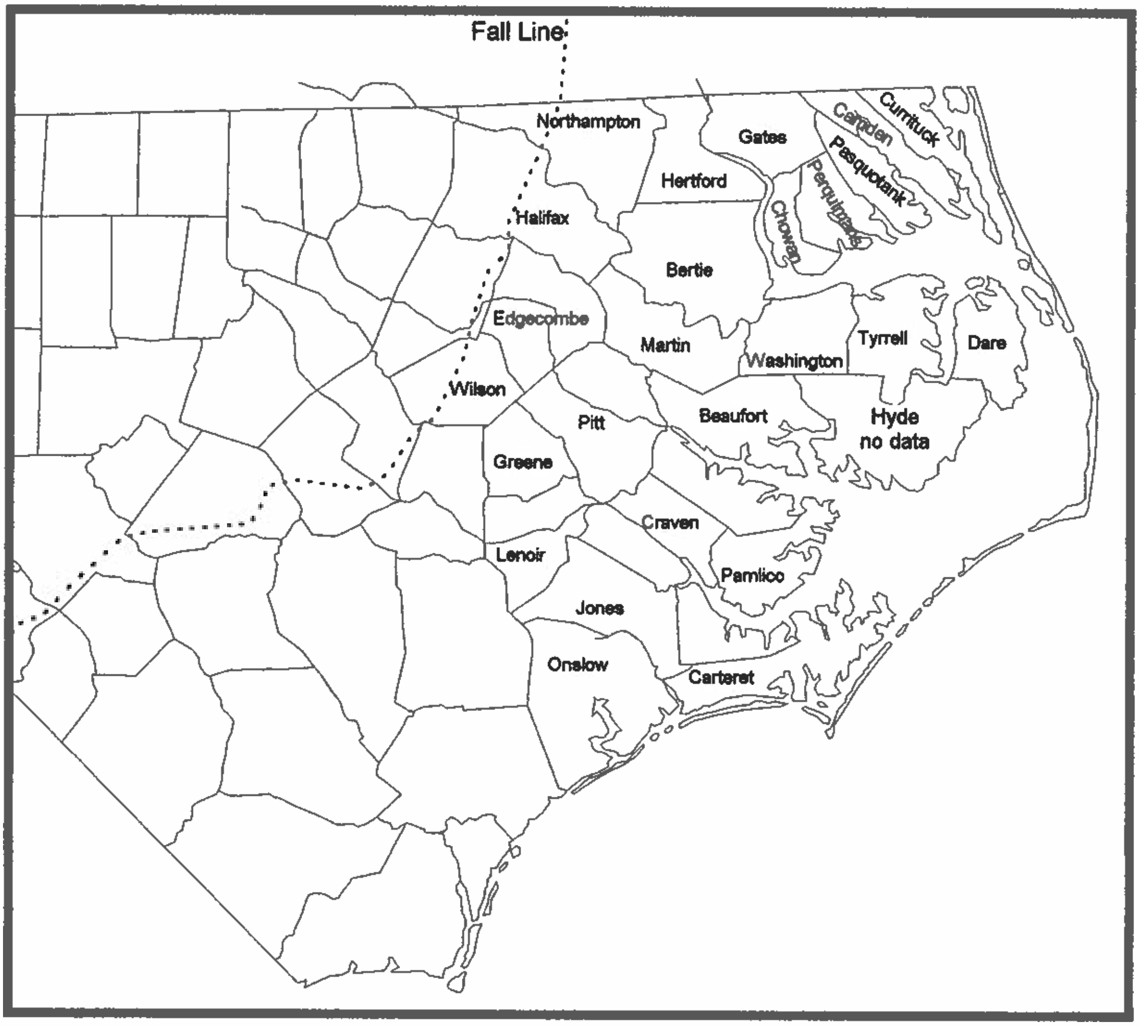

Figure 2.1. Counties included in the present study (map modified after Phelps 1983).

Table 2.1. The Database.

Collection	Number of Archaic Projectile Points
East Carolina University, Phelps Archaeology Laboratory	2722
University of North Carolina, Research Laboratories of Archaeology	1406
Daughety Collection	125
Other Reports on file at the Office of State Archaeology	33
Total	4286

Analysis

Artifact analysis was consistent with the format of Davis and Daniel (1990) and Daniel and Davis (1996). All artifacts were classified by type, raw material, and provenience. Projectile point and raw material types are discussed further below. Provenience was recorded at the county level. However, since four counties (Halifax, Martin, Pitt, and Wilson) are bisected by two river drainage basins, general site locations were checked on the Office of State Archaeology United State Geologic Survey 7.5' Series Topographic maps, in order to place the sites within the correct drainage basin. All sites recorded from Halifax and Martin Counties were located in the Roanoke-Albemarle drainage and classified as such. Sites recorded from Pitt County were divided between the Tar-Pamlico and Neuse-White Oak drainages and classified as such. All sites recorded from Wilson County were located in the Neuse-White Oak drainage and classified as such.

Projectile Point Typology

Below is a brief description of the basic characteristics of each projectile point used here:

Palmer Corner-Notched. "A small corner notched blade with a straight, ground base and pronounced serrations" (Coe 1964:67) characterizes the Palmer Corner-Notched type (Figure 2.2, a-c). This corner-notched point is

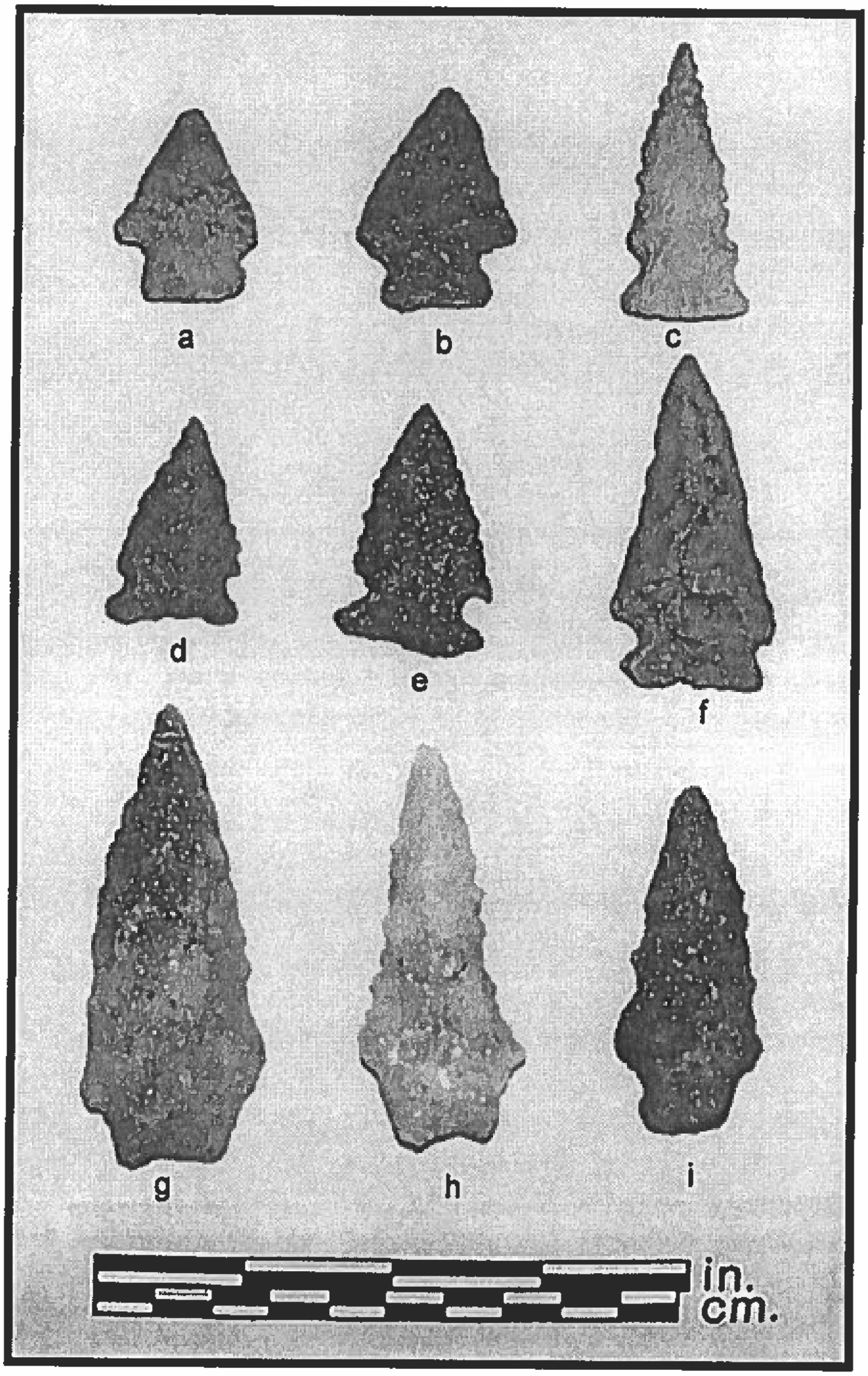

Figure 2.2. Early Archaic projectile points: (a-c) Palmer Corner-Notched, (d-f) Kirk Corner-Notched, (g-i) Kirk Stemmed and Serrated.

considered a transitional form between the Hardaway Side-Notched projectile point from the Paleoindian period (12,000 to 10,000 BP) and the Kirk Corner-Notched and Stemmed projectile points in the Early Archaic (Davis and Daniel 1990:4).

Kirk Corner-Notched. "A large triangular blade with a straight base, corner-notches, and serrated edges" (Coe 1964:69) are the diagnostic features of the Kirk Corner-Notched (Figure 2.2, d-f). In contrast to the Palmer Corner-Notched point, Coe further describes the base of this point as unground, and generally twice the size of the Palmer Type (Coe 1964:70).

The Kirk Stemmed and Serrated. Coe's (1964:70) classification of the Kirk Stemmed and Serrated point types are similar, except for the basal characteristics (Figure 2.2, g-i). They are both stemmed points with long blades, however, Coe calls the serrated variety "daggerlike" with deep serrations. The stemmed variety base "typically is straight or slightly rounded" (Coe 1964:70). The serrated variety base "is straight and blunt but may be thinned and concave" (Coe 1964:70).

Stanly Stemmed. The Stanly Stemmed projectile point has "a broad triangular blade with a small squared stem and a shallow notched base" (Coe 1964:35) (Figure 2.3, a-b). The Stanly Stemmed type has morphological similarities to both the Early Archaic Kirk Stemmed and the Late Archaic Savannah River Stemmed (Coe 1964).

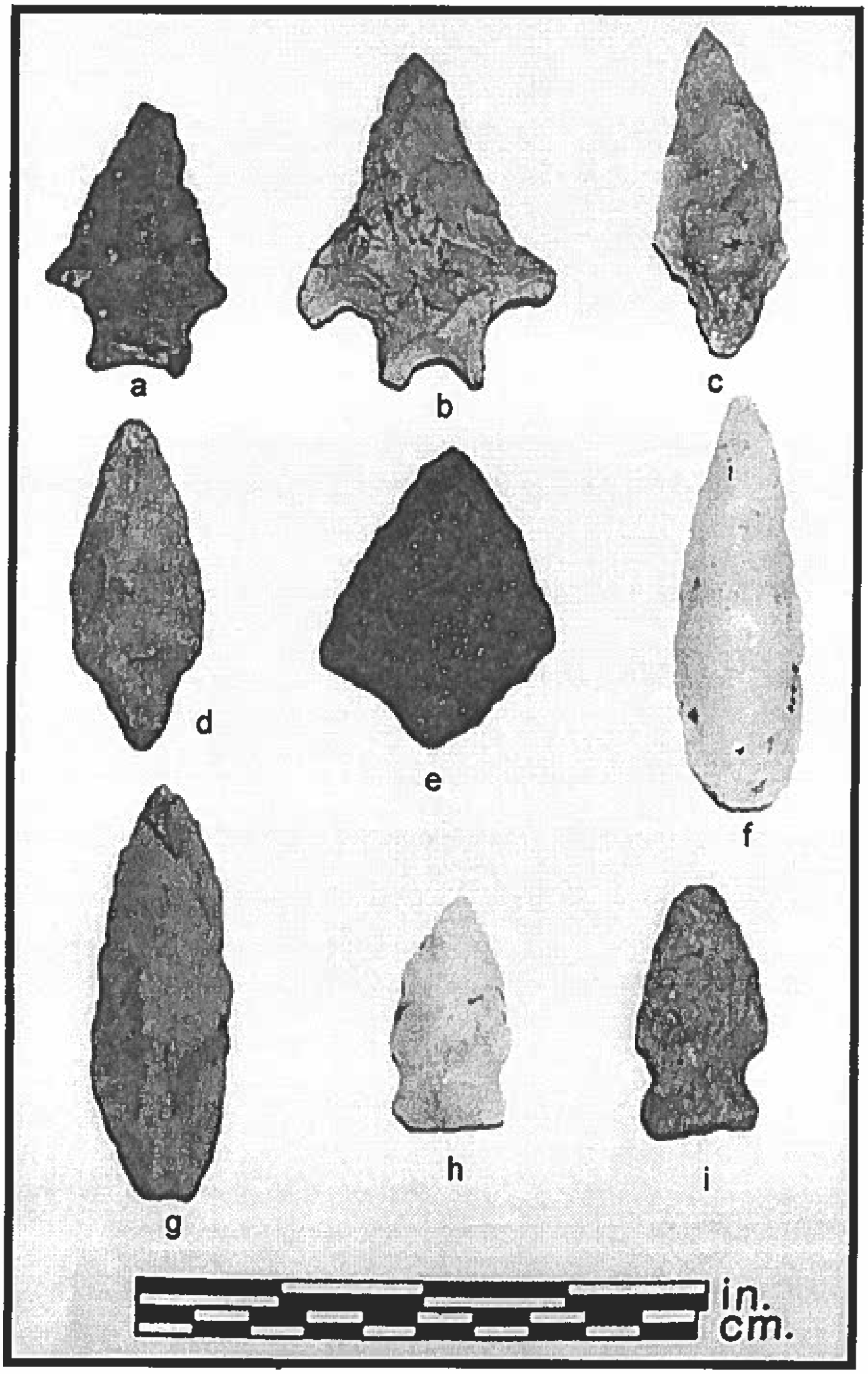

Figure 2.3. Middle Archaic projectile points: (a-b) Stanly Stemmed, (c-e) Morrow Mountain Stemmed, (f-g) Guilford Lanceolate, (h-i) Halifax Side-Notched.

Morrow Mountain Stemmed. Coe's original typology divided the Morrow Mountain Stemmed projectile points into two class (I and II) based on a temporal distinction (Figure 2.3, c-e). Other studies (Goodyear et al. 1979; Ashcraft and Henry, 1999) have suggested that there is less temporal distinctiveness between the two types than originally thought. Therefore, I have subsumed the two types into one category: Morrow Mountain Stemmed. The distinguishing characteristics of the Morrow Mountain Stemmed projectile point include a contracting stem with a small triangular to a long and narrow blade (Coe 1964:37).

Guilford Lanceolate. The Guilford Lanceolate exhibits a narrow form tapering at both ends (Figure 2.3, f-g). Coe defines this point as "long, slender, but thick blade with straight, rounded, or concave base" (Coe 1964:43).

Halifax Side-Notched. The distinctive characteristics of this point are its shallow side-notches and relatively small size (Figure 2.3, h-i). Furthermore, this point exhibits ground bases and side-notches (Coe 1964:108). This point type has a generally restricted geographic occurrence in the Northeastern portion of North Carolina (Coe 1964).

Savannah River Stemmed. This type is defined as a "large, heavy, triangular blade with a broad stem, [that is] occasionally straight but usually concave" (Coe 1964:44) (Figure 2.4, a-c).

Small Savannah River Stemmed. The Small Savannah River Stemmed type is just that, a smaller version of the Savannah River Stemmed type

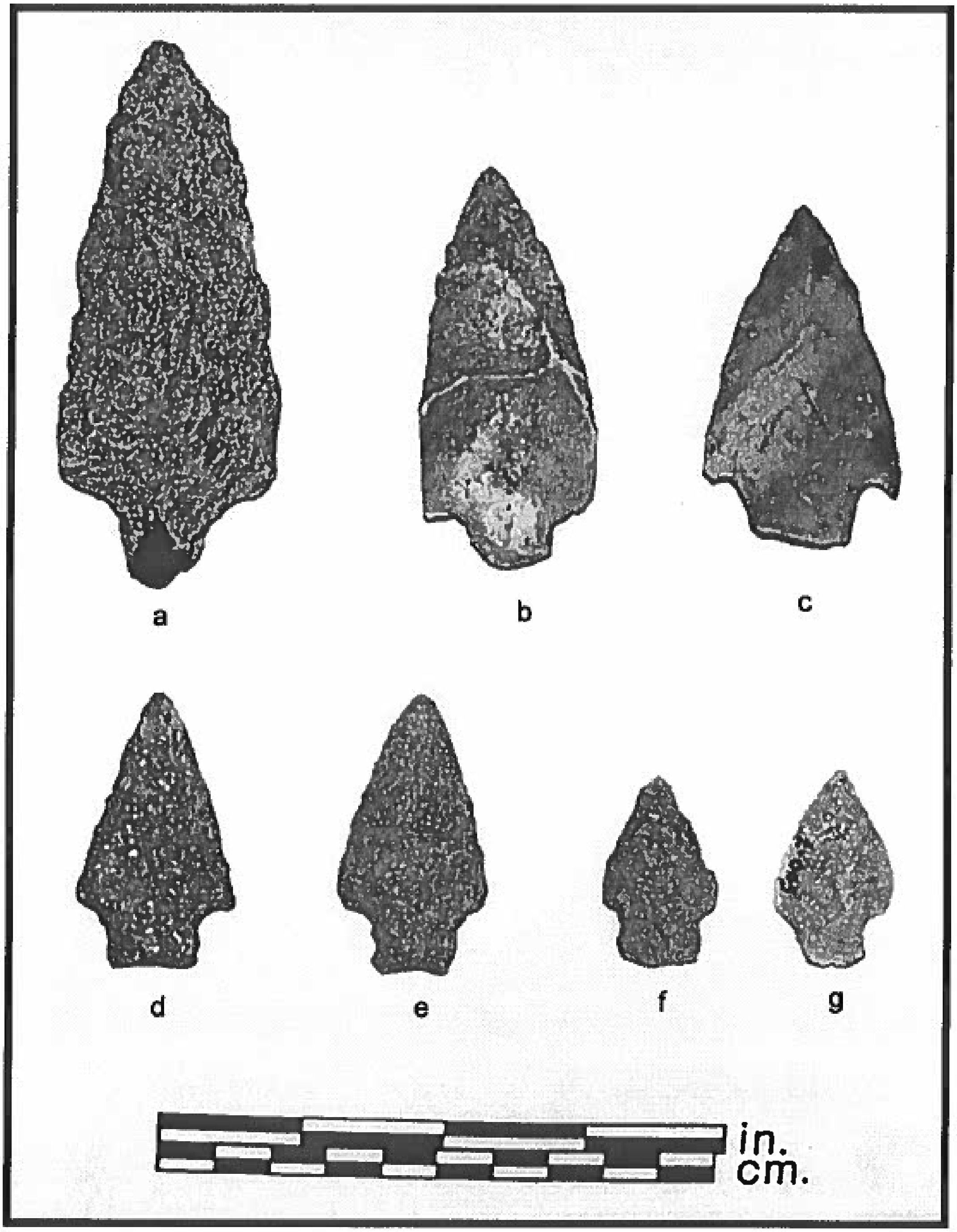

Figure 2.4. Late Archaic projectile points: (a-c) Savannah River Stemmed, (d-e) Small Savannah River Stemmed, (f-g) Gypsy Stemmed.

(Figure 2.4, d-e). This projectile point is "small to medium sized, broad, triangular bladed point with a rectangular stem and straight or slightly excurvate base" (Oliver 1981:181).

Gypsy Stemmed. The Gypsy Stemmed projectile point is considered the transitional type between the Late Archaic and the Early Woodland periods (Figure 2.4, f-g). Oliver describes this point type as "a small trianguālar bladed point with a square or rectangular straight stem, and a straight, slightly incurvate base, or excurvate base" (Oliver 1981:188).

Bifurcate (LeCroy and St. Albans). These point types are Early Archaic varieties that are relatively rare in North Carolina, but is more commonly found in Tennessee and West Virginia (Broyles 1966, 1971; Chapman 1975, 1977, 1978, 1979, 1994) (Figure 2.5, a-b). Likewise they were infrequent in the collections used here. Bifurcate bases characterize both the LeCroy and the St. Albans types. The Lecroy type is described as a "trianguloid with straight or incurvate side edges. The blade edges are usually serrated, often deeply so, resulting in a series of several sharp barbs from the tip to the shoulders. The stem varies from straight to slightly flared, and is usually deeply bifurcated.... The majority are usually small, and have broad proportions" (Kneberg 1956:28). The St. Albans type is similar to the LeCroy type, with a triangular shape, side-notching, and a notched base (Broyles 1971:73).

Big Sandy/Taylor Side-Notched. Both these point types are early Archaic varieties more common in the southern portion of South Carolina (Sassaman

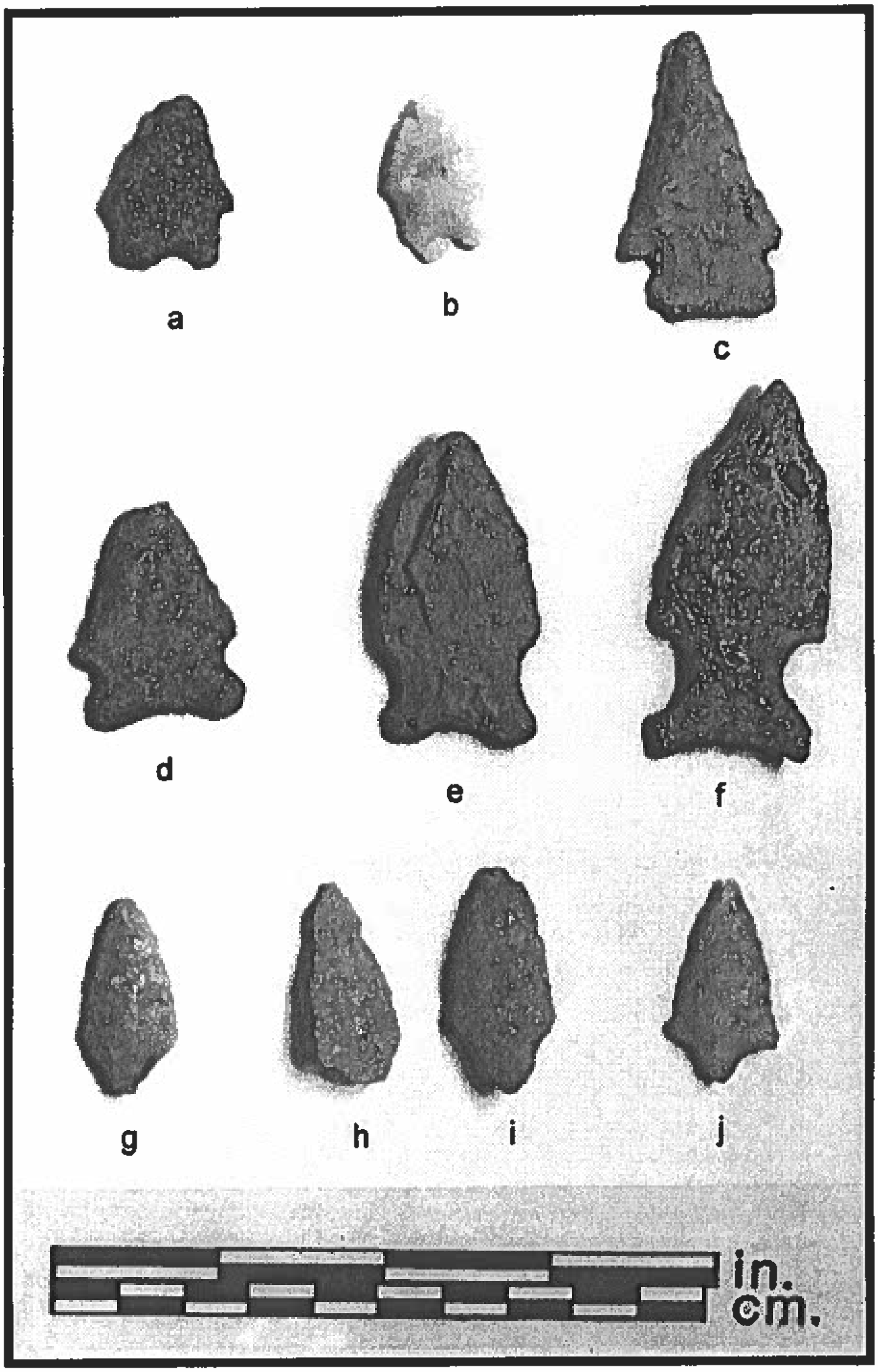

Figure 2.5. Other projectile point types: (a-b) Bifurcates, (c-f) Big Sandy/Taylor Side-Notched, (g-j) Unidentified Small Stemmed.

1996b:59) (Figure 2.5, c-f). Aside from the side-notching, the base of the Taylor is usually straight to slightly curvate (Sassaman 1996b: 59-63). The Big Sandy Side-Notched type is similar to the Taylor type. The differences include a wider side-notch and a curvate base (Sassaman 1996b: 59-63). The projectile point is described as having a blade that is generally a narrow, elongated triangle and shallow side-notching (Justice 1987:60).

Unidentified Small Stemmed. This point is a relatively well-made and generally small Morrow Mountain-like point (Figure 2.5, g-j). Since the point did not share the same general size dimensions as the Morrow Mountain Stemmed, the point was given an unidentified classification for the purposes of this study.

Indeterminate Archaic. A specific point type could not be used to classify 389 of the projectile points in the study. This category represents those projectile points that are either broken or unfinished and exhibit one or more characteristics of the point types discussed above. The Indeterminate Archaic category is not included in the discussion to follow in *Chapter III.*

Raw Material Categories

For the purpose of this study raw materials are classified into five general categories: chert, metavolcanic stone, quartz, quartzite, and other stone. Some of these categories include more than one stone type, and were combined for simplicity in the analysis. Locations of significant lithic quarries are located in Figure 2.6.

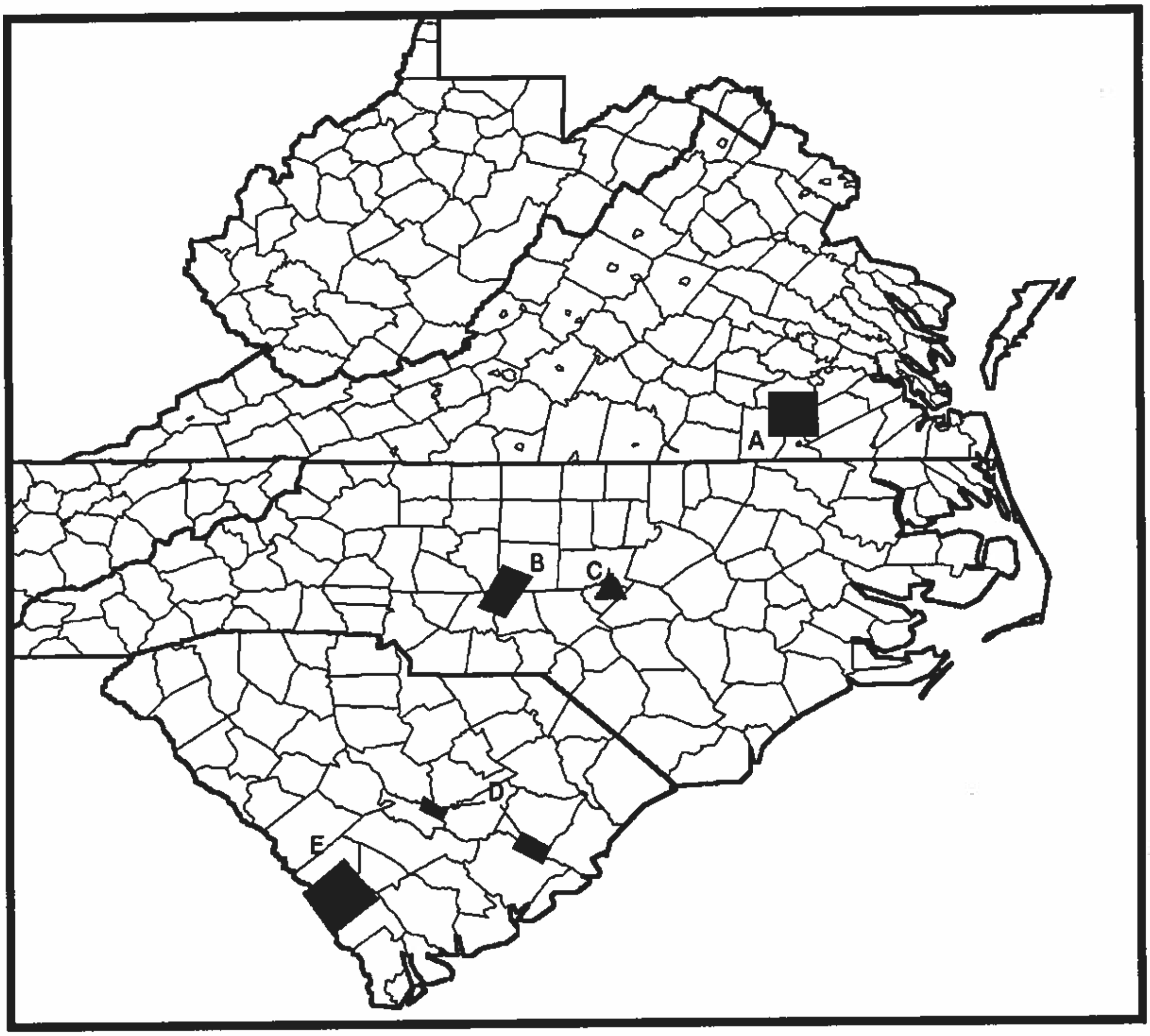

Figure 2.6. Locations of Quarries mentioned in the Text: (A) Chert and Quartzite Quarries in Virginia (McAvoy 1992); (B) Metavolcanic Quarries in the Uwharrie Mountains (Daniel and Butler 1996); (C) Chert quarry (Lautzenheiser et al. 1996); (D) Quartzite quarries along the Santee River in South Carolina (Goodyear and Charles 1984); (E) Allendale Chert Quarries, Allendale South Carolina (Goodyear and Charles 1984) (map outline from ArcView GIS Version 3.1, 1992-1998).

Chert. Chert is fine-grained, compact silica based microcrystalline, sedimentary rock. This category includes jasper, chalcedony, and chert. Chert artifacts are found in limited quantities in the coastal plain of North Carolina, presumably because there are no chert outcrops in this area. Therefore the majority of the chert projectile points recovered from the Coastal Plain probably originated from outside the region. For example, one type of chert is likely Allendale chert, a chert from the coastal plain of South Carolina. It is an abundant resource in South Carolina assemblages (Goodyear and Charles1984). Also, four chert quarries have been identified near the fall line area of Virginia (McAvoy 1992:24-33) (Figure 2.6). Another chert quarry was recorded in Lee County, North Carolina (Lautzenheiser et al. 1996). Although only comprising less than 1 percent (32 projectile points) of the total assemblage, the majority of the chert projectile points (60 percent) were recorded from the Neuse-White Oak River drainage and 37 percent were recovered along the Roanoke River. One projectile point (3 percent) was recorded from Pitt County.

Metavolcanic stone. For present purposes, the category for metavolcanic stone also includes metasedimentary raw materials, on the basis of their most likely origin in the Carolina Slate Belt. Metavolcanic stone include those igneous rocks that have been metamorphosed by volcanic activity and cooled on the earth's surface (Busch 1990:22-7). Rhyollite is one common example of metavolcanic stone. Metasedimentary lithic materials are those sedimentary rocks that form on the earth's surface "by accumulation and cementation of fragments, minerals, and organisms" (Gilluly et al. 1960:23), these sedimentary rocks are then metamorphosed by other geologic processes. Argillite and metasiltstone are common examples of metasedimentary stone that has its origins in the Carolina Piedmont. The best known metavolcanic quarries in North Carolina are located in the Uwharrie Mountains (Figure 2.6) in Stanly, Randolph, and Montgomery counties (Daniel and Butler 1996). Many of the raw materials identified as metavolcanic stone in this study probably originated from the Uwharrie Mountains. Although most of the metavolcanic stone is presumed to originate directly from the Piedmont, metavolcanic cobbles are present in the riverbeds along the coast, and may attribute a percentage of the metavolcanic stone in the assemblage. However, generally the metavolcanic cobbles found in the riverbeds are relatively small and would not be useful for the larger Archaic projectile points (Riggs, personal communication).

Quartz. Quartz is the most abundant raw material type in the earth's crust (Busch 1990:2). It is comprised of silicon and oxygen. Quartz's composition makes it a hard and durable rock that does not weather as easily as other stone (Tarbuck and Lutgens 1992:49-50). Since unconsolidated Quaternary (1.6 million years ago to present) deposits make up the majority of the coastal plain, there is limited access to the underlying solid rock formations, thus creating an stone deprived environment. Hence, quartz is the most accessible stone material, exposed along the rivers and streams (Pilkey et al. 1998; Sassaman 1996).

Quartz is accessible in the riverbeds of the Piedmont and Coastal Plain. The riverbeds erode the surficial Quaternary deposits and exposed riverbed cobbles (Clark et al. 1912:280, 283-4; Daniel 1998:47). Quartz is highly variable in flaking qualities, with pure quartz possessing the better flaking qualities (Daniel 1998:47; House and Wogaman 1978:53).

Quartzite. Quartzite includes both quartzite and orthoquartzite, since they are morphologically similar and originate from similar sources. Quartzite is another abundant material found in the Piedmont and Coastal Plain. Quartzite is made up of metamorphosed quartz grains (Hamilton et al. 1976:188). The texture of this material is sugary and grainy with small cemented grains of quartz. Quartzite tends to break across the grains of the quartz, rather than around them (Gilluly et al. 1960:507; Tarbuck and Lutgens 1992:170).

Orthoquartzite is a silica based stone material formed by the cementing of quartz sand. This material fractures the same as quartzite, across the grains. As noted by Novick (1978:433), the majority of the orthoquartzite, in archaeological assemblages, is found along the Coastal Plain. Quartzite quarries (Figure 2.6) have been identified in the fall line zone of Virginia (McAvoy 1992), the lower Santee River areas in South Carolina (Anderson et al. 1982:120-122; Charles 1981:15; Goodyear and Charles 1984), and the Savannah River Valley (Goodyear and Charles 1984:116). There are no known outcrops of orthoquartzite in North Carolina; however, orthoquartzite has been identified from geologic corings in Halifax County (Wise et al. 1981).

Other stone. This is a residual category that includes all unidentifiable raw materials. The majority of the other stone is heavily weathered, so much so that it is difficult to reliably identify the stone. The only reliable way to identify these heavily weathered materials would be to take thin sections and analyze them under a microscope (Gall 1999, personal communication), which was not in the scope of the present study.

CHAPTER III

RESULTS

Constructing the Transects

Each transect is defined by the United States Geologic Survey (USGS) designation of river drainage basins, extending from the Fall Line to the coastline (Figure 3.1). The transects parallel the general flow of the rivers. The three drainage basins included in this study are the Neuse-White Oak, Tar-Pamlico, and the Roanoke-Albemarle, from south to north (Figure 3.2). For present purposes, the White Oak River is combined with the Neuse River, since the White Oak drainage basin essentially occupies a single county (Onslow) at the eastern end of the Neuse River drainage. The Tar-Pamlico River drainage is as defined by the USGS (1968). The Roanoke, Chowan, and Pasquotank Rivers all drain into the Albemarle Sound in the Northeastern corner of North Carolina and combine to form the Roanoke-Albemarle drainage used in the present study. The Chowan and Pasquotank Rivers flow in a north-south direction and occupy relatively small areas of the Coastal Plain, and they both originate and terminate in the Coastal Plain region, therefore I included them within the Roanoke-Albemarle drainage.

Two additional transects are included in this study to explore cross-drainage distributions of the raw material types (Figure 3.3). The Fall Line Transect is located in the general vicinity of the area known as the Fall Zone.

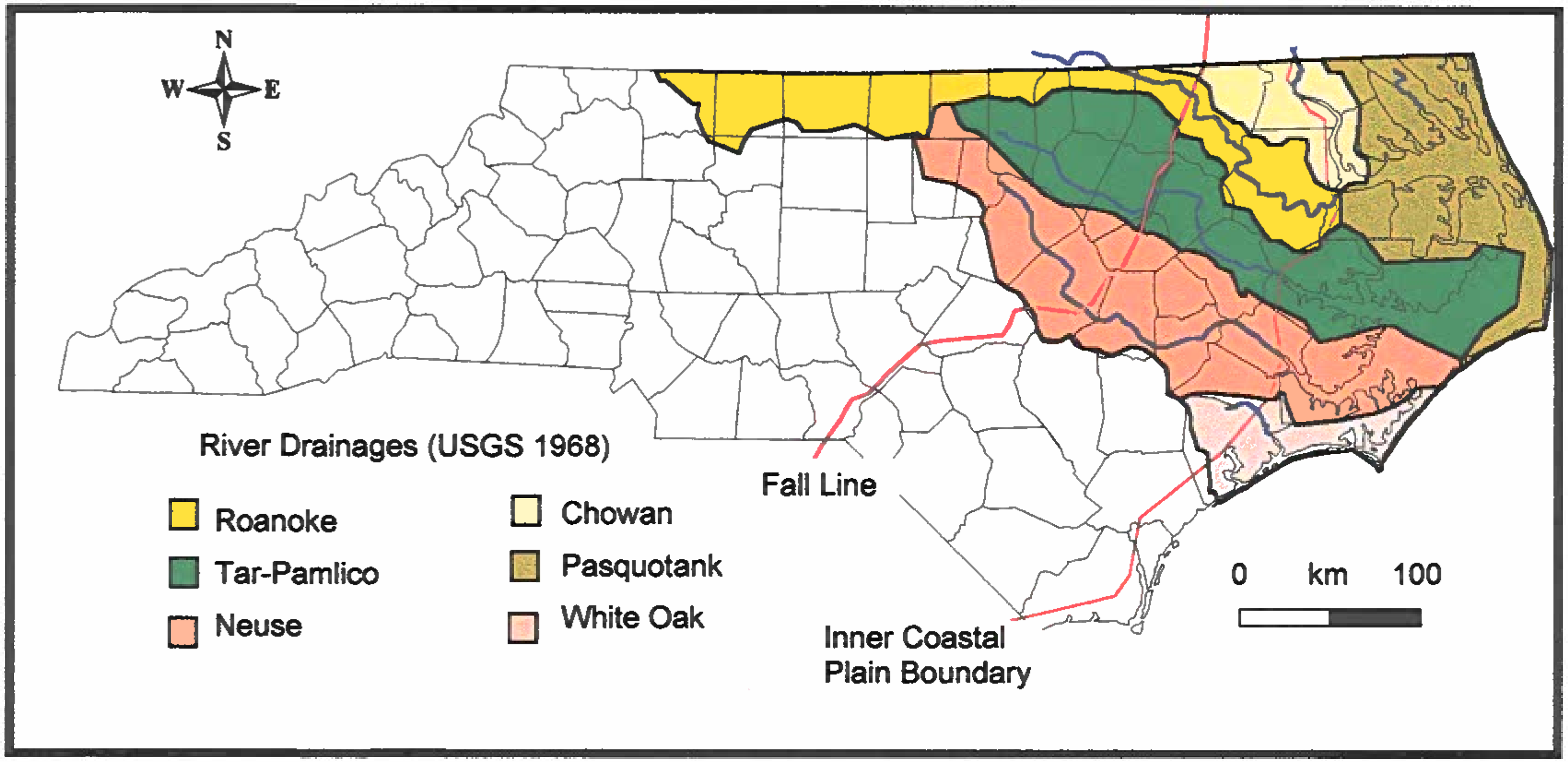

Figure 3.1. Major River Drainages included in the Present Study, as Defined by the United States Geologic Survey (modified after USGS1968).

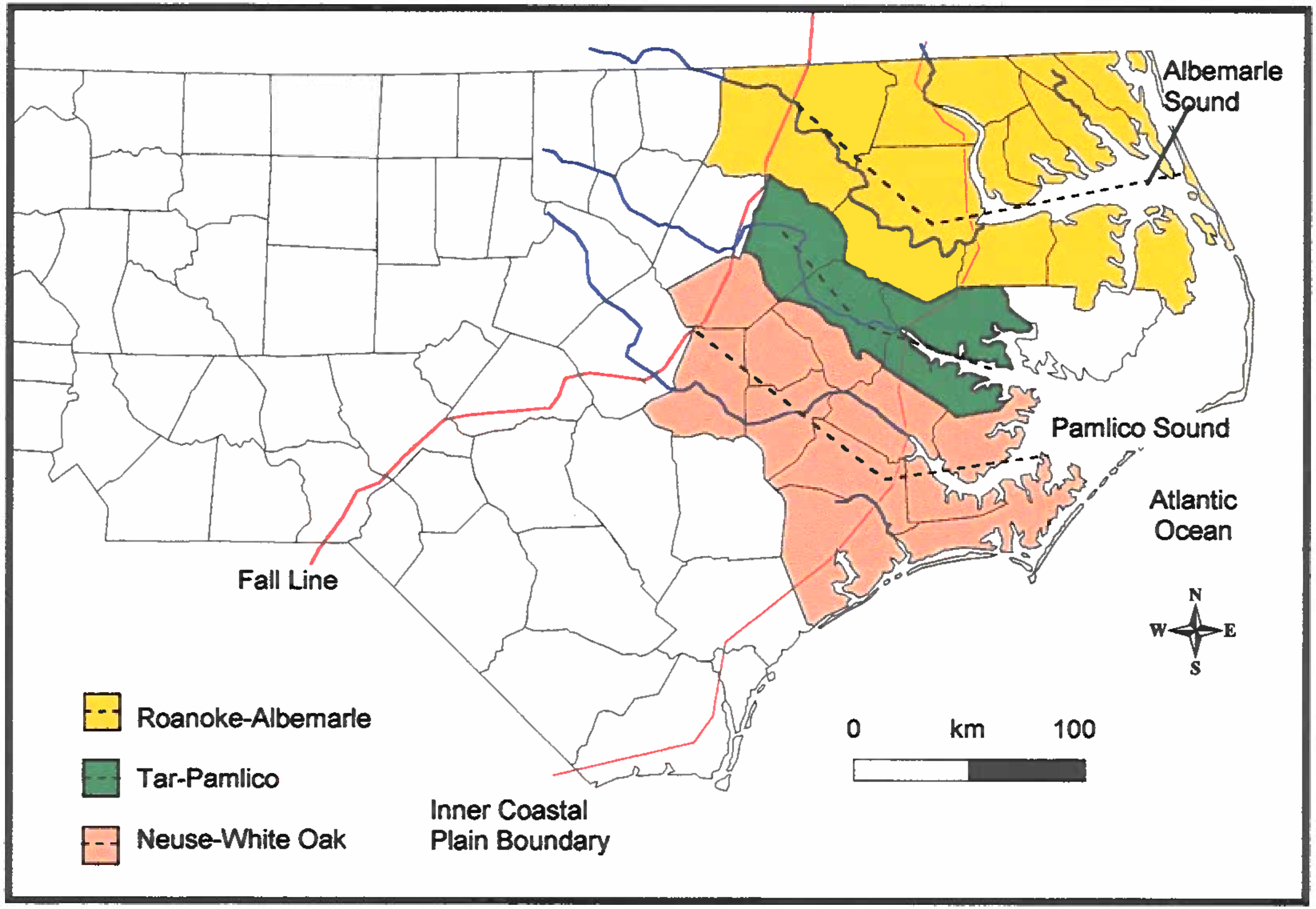

Figure 3.2 River drainage transects as defined in the present study (modified after USGS 1968 and Phelps 1983).

The Fall Line is an imaginary line drawn roughly down the middle of the Fall Zone, a 50 to 60 km wide zone where the Piedmont deposits dip below the Coastal Plain deposits in the upland areas. Significant to the present study, the Fall Zone is also where the rivers expose the crystalline rocks, i.e. quartz (Stuckey 1965:7-8). The Inner-Coastal Plain Transect is located about 31 kilometers east of the Fall Line, roughly in line with the Outer Coastal Plain/Inner Coastal Plain boundary that is defined as the transition zone between rivers and estuaries (Pilkey et al. 1998:68).

Constructing the Line Graphs

The river transect graphs represent their respective river drainages, from the Fall Line to the Coast; and the cross drainage transects begin at or below the Neuse River and proceed north to the North Carolina/Virginia state boundary. The figures were produced by calculating percentages of material types by county, and using a midpoint for each county as a graphical reference point along the transect. Along some transects, adjacent counties were combined to increase sample size and the reference point was adjusted accordingly. Other stone and chert comprise less than 2 percent of the total assemblage; therefore, the two categories were combined for sake of simplicity in the line graphs.

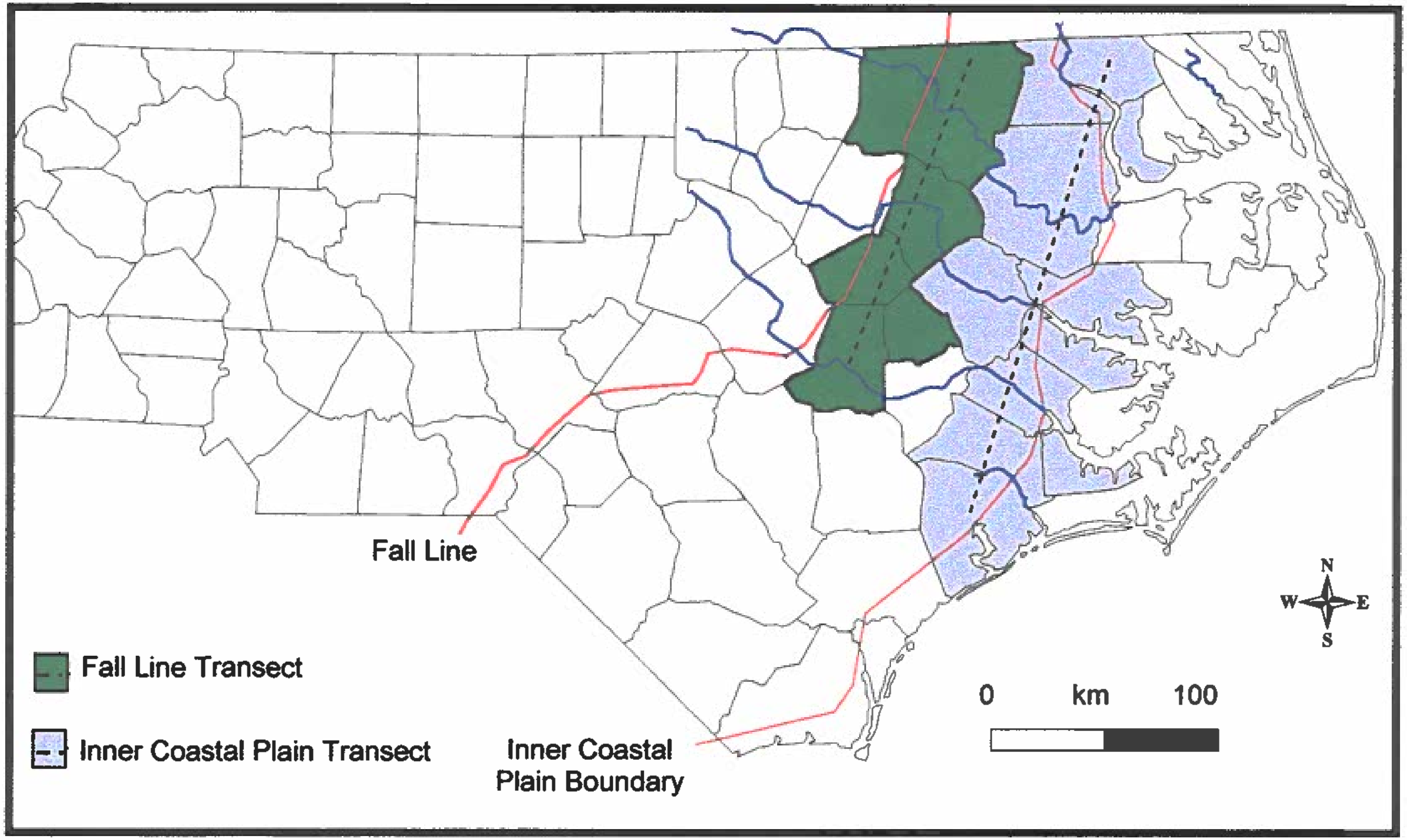

Figure 3.3 Cross-Drainage transects as defined in the present study.

Early Archaic Distributions

A total of 372 Early Archaic projectile points were recorded from the study area (Tables 3.1-3.2, Figure 3.4). Relative to their total area, the Neuse-White Oak and Roanoke-Albemarle transects exhibit the majority of the Early Archaic projectile points, 49 percent and 36 percent respectively. The Tar-Pamlico transect only contained 15 percent of the Early Archaic projectile points. Metavolcanic stone comprises 47 percent of the Early Archaic material, while 32 percent of the material was quartz and 16 percent was quartzite. Other stone only comprises five percent of the Early Archaic material, of which only 2 percent were identified as chert.

The Early Archaic material distribution patterns are as follows (Figures 3.5-3.9, Tables 3.3-3.7). Along both the Neuse-White Oak and Tar-Pamlico transects, metavolcanic stone dominates the assemblage ranging from 33 percent to 100 percent. However, along the Neuse-White Oak transect, metavolcanic stone declines to nearly equal frequencies with quartz and other stone at 20 km and 100 km, respectively. Although, quartz is the second most abundant material overall with frequencies from 47 percent to zero percent; quartzite increases in use along the Roanoke-Albemarle transect and comprises a majority of the transect; however, caution is due since the sample sizes are relatively low. Along all three river drainages, other stone ranges from 0 percent to 4 percent, except for the eastern end of the Neuse-White Oak transect (140 km to 160 km), where other stone frequencies range from 33 percent to 50

Table 3.1. Frequencies of Early Archaic Projectile Points.

River Drainage/ County	Chert	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Total
Roanoke-Albemarle						
Bertie	0	2	0	2	1	5
Camden	0	0	0	0	1	1
Chowan	0	0	0	1	0	1
Currituck	0	0	1	0	0	1
Dare	1	1	0	0	0	2
Gates	0	0	0	0	0	0
Greene	0	10	0	1	0	11
Halifax	0	17	0	21	5	43
Hertford	0	2	0	0	2	4
Martin	1	19	3	16	16	55
Northampton	0	5	0	4	2	11
Pasquotank	0	0	6	0	0	6
Perquimans	0	0	0	1	1	2
Tyrell	0	0	0	0	0	1
Washington	0	1	0	1	0	2
Sub-Total	2	57	10	47	28	145
Tar-Pamlico						
Beaufort	0	2	0	1	0	3
Edgecombe	0	10	0	4	4	18
Pitt	1	18	0	5	11	35
Sub-Total	1	30	0	10	15	35
Neuse-White Oak						
Carteret	0	3	0	0	0	3
Craven	1	8	0	2	1	12
Jones	1	0	0	0	1	2
Lenoir	1	9	0	4	3	17
Onslow	2	5	0	2	1	10
Pitt	0	6	0	3	1	10
Pamlico	0	0	0	0	0	0
Wayne	1	40	0	42	6	89
Wilson	0	16	0	9	3	28
Sub-Total	6	87	0	62	16	171
Total	9	174	10	119	59	372

Table 3.2. Frequencies of Early Archaic projectile point types.

River Drainage/ County	Palmer Corner-Notched	Kirk Corner-Notched	Kirk Stemmed/ Serrated	Bifurcate	Big Sandy/ Taylor	Total
Roanoke-Albemarle						
Bertie	1	0	2	1	0	4
Camden	0	1	0	0	1	1
Chowan	0	0	0	1	0	1
Currituck	0	1	0	0	0	1
Dare	1	1	0	0	0	2
Gates	0	0	0	0	0	0
Halifax	5	15	14	7	0	43
Hertford	2	1	1	0	0	4
Martin	13	22	8	2	2	55
Northampton	3	5	9	2	0	11
Pasquotank	6	0	0	0	0	6
Perquimans	0	1	0	1	0	2
Tyrell	0	0	0	0	0	1
Washington	1	0	1	0	0	2
Sub-Total	32	47	35	14	3	133
Tar-Pamlico						
Beaufort	0	3	0	0	0	3
Edgecombe	8	2	8	0	0	18
Pitt	6	10	18	0	1	35
Sub-Total	14	15	26	0	1	56
Neuse-White Oak						
Carteret	0	2	1	0	0	3
Craven	1	7	1	3	0	12
Greene	0	3	7	1	0	11
Jones	0	1	1	0	0	2
Lenoir	7	5	5	0	0	17
Onslow	0	10	0	0	0	10
Pamlico	0	0	0	0	0	0
Pitt	1	3	4	1	1	10
Wayne	26	22	35	6	2	91
Wilson	0	12	15	1	0	28
Sub-Total	35	65	69	12	3	184
Total	81	127	130	26	7	371

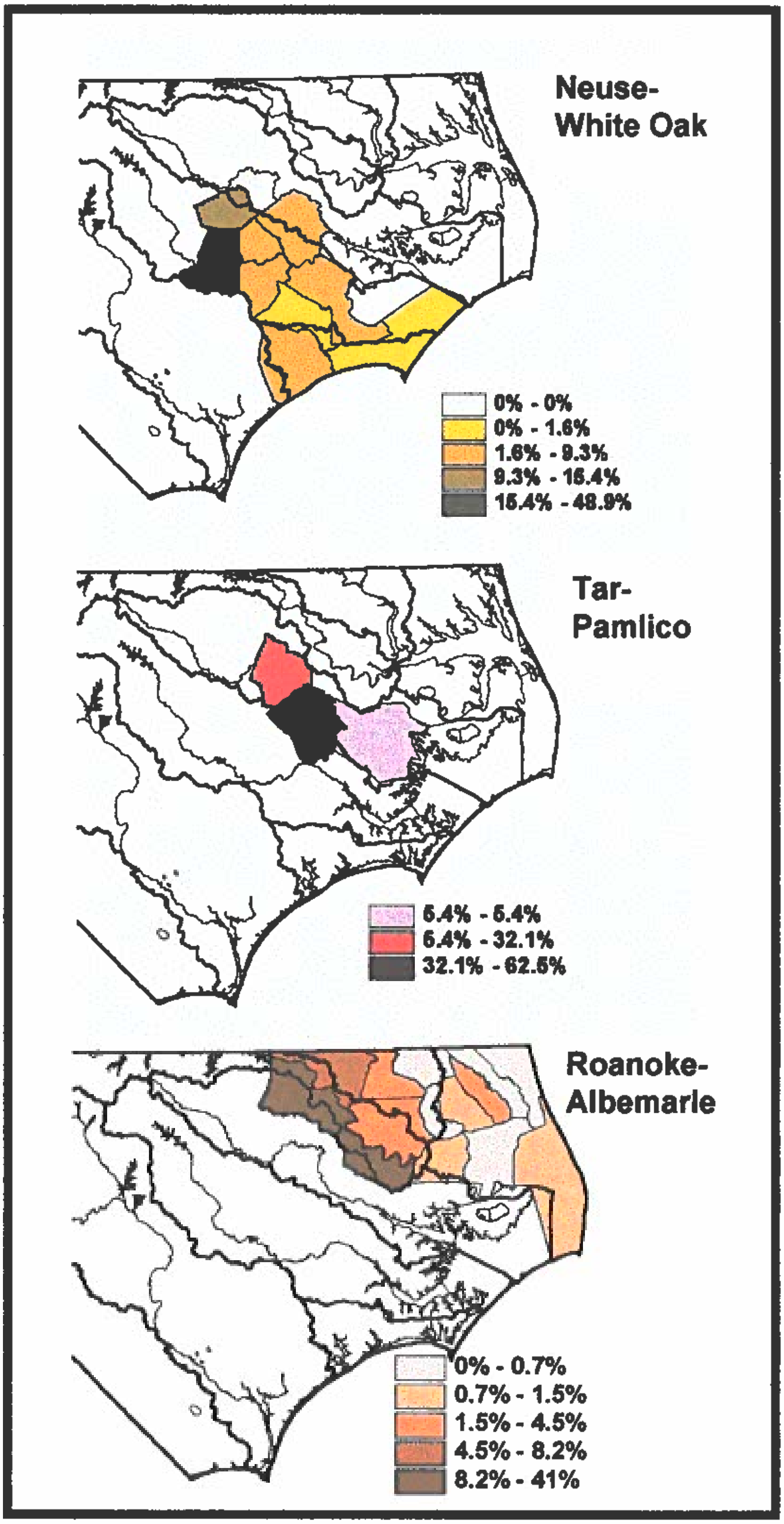

Figure 3.4. Distribution of Early Archaic projectile points (map modified from ArcView Version 3.1, 1998).

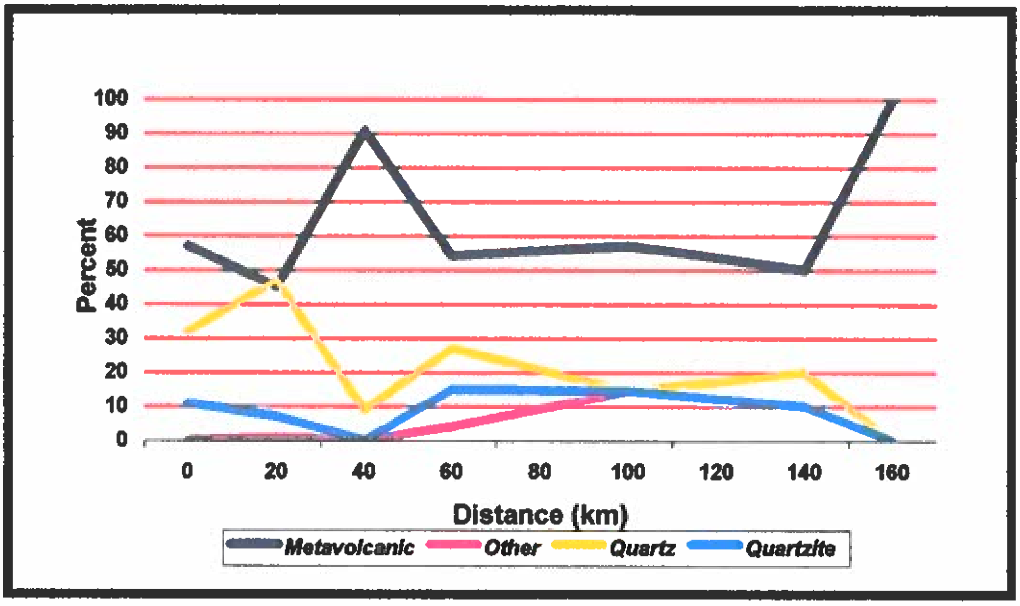

Figure 3.5. Early Archaic projectile point (Palmer Corner-Notch, Kirk Corner-Notch, Bifurcates, Kirk Stemmed) distribution by material types along the Neuse River Transect. Distance is measured west to east from the Fall Line. (n = 181)

Table 3.3. Frequencies of Early Archaic projectile points (Palmer Corner-Notch, Kirk Corner-Notch, Bifurcates, Kirk Stemmed) by material types along the Neuse River Transect. Distance is measured west to east from the Fall Line.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Wilson	0	16	0	9	3	28
Wayne	20	40	1	42	6	89
Green	40	10	0	1	0	11
Lenoir/Pitt	60	14	1	7	4	26
Jones/Craven	100	8	2	2	2	14
Onslow	140	2	5	2	1	10
Carteret/ Pamlico	160	3	0	0	0	3

Note: Distance is measured from west to east from the Fall Line.

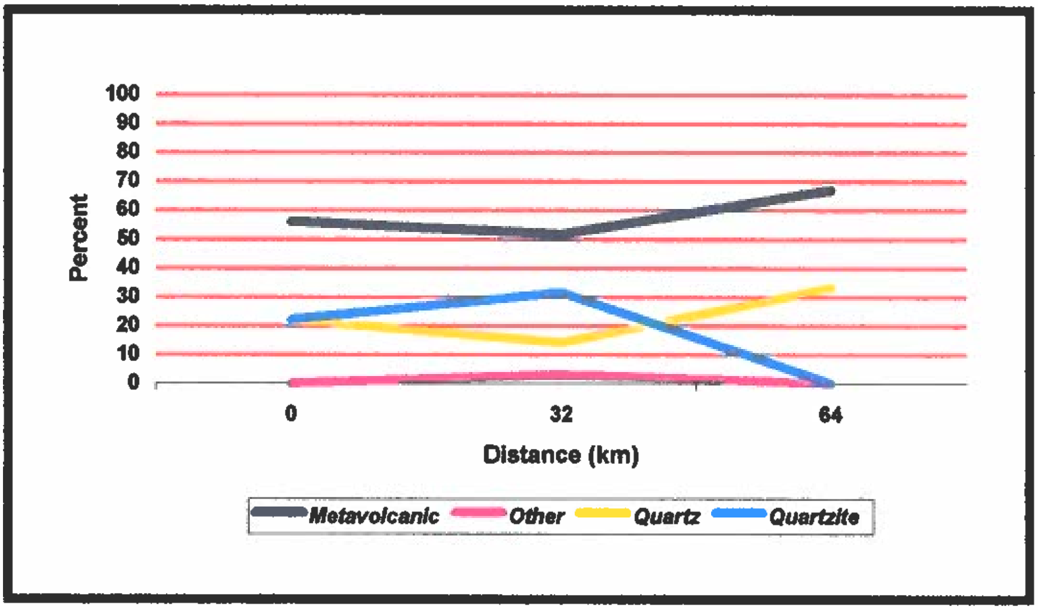

Figure 3.6. Early Archaic projectile point (Palmer Corner-Notched, Kirk Corner-Notched, Bifurcates, Kirk Stemmed) distribution by material types along the Tar-Pamlico River Transect. Distance is measured from west to east from the Fall Line. (n = 57)

Table 3.4. Frequencies of Early Archaic projectile points (Palmer Corner-Notched, Kirk Corner-Notched, Bifurcates, Kirk Stemmed) by material types along the Tar-Pamlico River Transect.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Edgecombe	0	10	0	4	4	18
Pitt	32	19	1	5	11	36
Beaufort	64	2	0	1	0	3

Note: Distance is measured from west to east from the Fall Line.

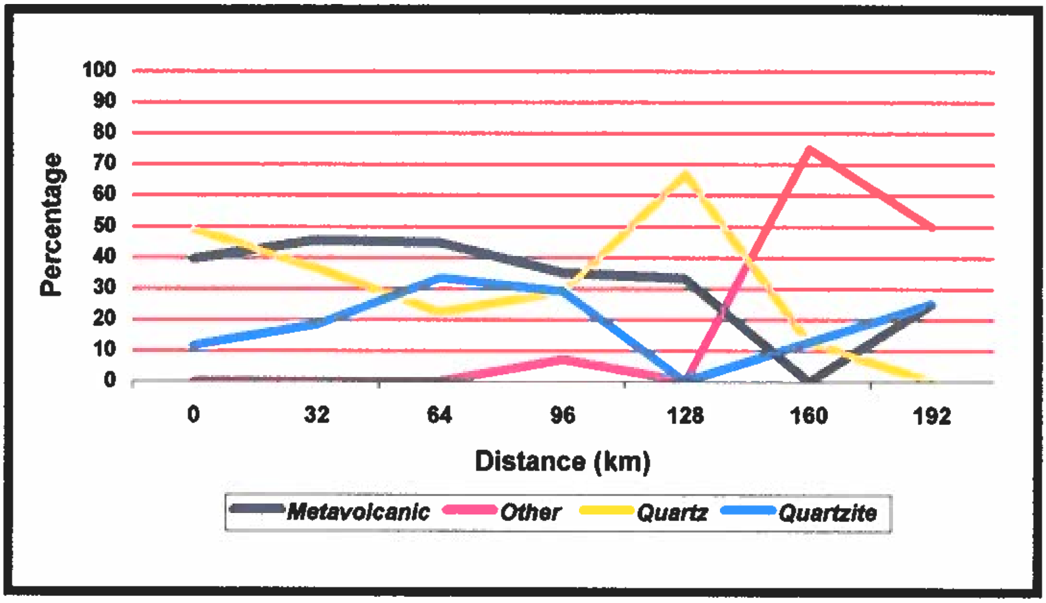

Figure 3.7. Early Archaic projectile point (Palmer Corner-Notch, Kirk Corner-Notch, Bifurcates, Kirk Stemmed) distribution by material types along the Roanoke-Albemarle River Transect. Distance is measured west to east from the Fall Line. (n = 133)

Table 3.5. Frequencies of Early Archaic projectile points (Palmer Corner-Notch, Kirk Corner-Notch, Bifurcates, Kirk Stemmed) by material types along the Roanoke-Albemarle River Transect.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Halifax	0	17	0	21	5	43
Northampton	32	5	0	4	2	11
Hertford/Bertie	64	4	0	2	3	9
Martin	96	19	4	16	16	55
Chowan/Gates/ Washington	128	1	0	2	0	3
Pasquotank/ Perquimanns/	160	0	6	1	1	8
Camden/ Currituck/Dare	192	1	1	0	1	3

Note: Distance is measured west to east from the Fall Line.

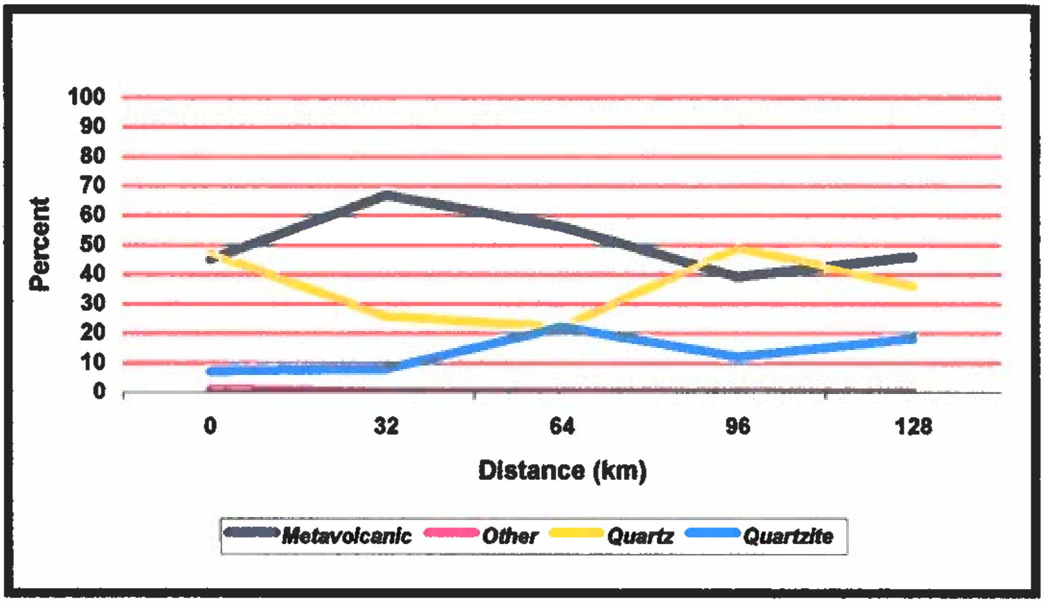

Figure 3.8. Early Archaic (Palmer Corner-Notch, Kirk Corner-Notch, Bifurcates, Kirk Stemmed) projectile point distribution by material types along the Fall Line Transect. Distance is measured South to North from the Neuse River. (n = 200)

Table 3.6. Frequencies of Early Archaic projectile points (Palmer Corner-Notch, Kirk Corner-Notch, Bifurcates, Kirk Stemmed) by material types along the Fall Line Transect.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Wayne	0	40	1	42	6	89
Wilson/Greene	32	26	0	10	3	39
Edgecombe	64	10	0	4	4	18
Halifax	96	17	0	21	5	43
Northampton	128	5	0	4	2	11

Note: Distance is measured south to north from the Neuse River.

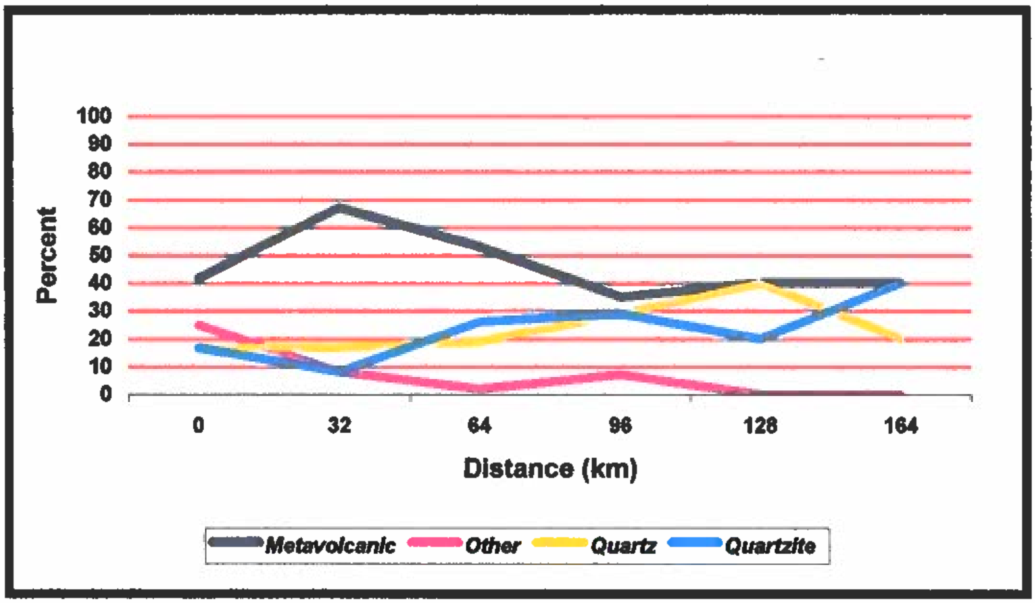

Figure 3.9. Early Archaic projectile point (Palmer Corner-Notched, Kirk Corner-Nothed, Bifurcates, and Kirk Stemmed) distirbution by material types along the Inner-Coastal Plain Transect. Distance is measured south to north from Onslow/Jones Counties. (n = 136)

Table 3.7. Frequencies of Early Archaic projectile points (Palmer Corner-Notched, Kirk Corner-Nothed, Bifurcates, and Kirk Stemmed) by material types along the Inner Coastal Plain Transect.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Onslow/Jones	0	5	3	2	2	12
Craven	32	8	1	2	1	12
Beaufort/Pitt	64	25	1	9	12	47
Martin	96	19	4	16	16	55
Bertie	128	2	0	2	1	5
Hertford/ Chowan/Gates	164	2	0	1	2	5

Note: Distance is measured south to north from the Neuse River.

percent. Of the 19 other stone projectile points, nine are made of chert, and the majority of those chert projectile points (n = 6) were recorded from the Neuse-White Oak transect.

The cross-drainage patterns exhibited during the Early Archaic also mimic the General Archaic patterns discussed above. Metavolcanic stone dominates the majority of the Fall Line and Inner Coastal Plain transects with ranges from 35 percent to 70 percent. Around the Roanoke River, the dominant material types fluctuate, although metavolcanic stone does not decline significantly north of the Roanoke River, quartz surpasses metavolcanic stone, in frequency, along the Fall Line for a portion of the transect. Quartz and quartzite are present in near equal frequencies (40 percent) with metavolcanic stone along the Inner Coastal Plain transect. Also, near the Neuse River (0 km) along the Fall Line transect, quartz is present at the same frequency as metavolcanic stone (ca 47 percent). Quartz ranges from 19 percent to 50 percent, while quartzite ranges from 7 percent to 40 percent. Although other stone is less than 10 percent along the Inner Coastal Plain transect, four chert projectile points were recorded from the southern end of the transect (Onlsow, Jones, and Craven Counties).

How, then are the above patterns to be interpreted. Presumably, the Early Archaic range of land-use included the Piedmont and Coastal Plain, as suggested by the dominance of metavolcanic stone both along and across the river drainages. The dominance of metavolcanic stone suggests that Early Archaic land use was not confined to a single river drainage, but rather Early

Archaic bands made use of cross-drainage movement to procure metavolcanic stone from the Piedmont, e.g. The Uwharrie Mountains. Although metavolcanic stone is the dominant raw material, it does decrease north of and along the Roanoke-Albemarle drainage. Exchange, of course, cannot be ruled out as an alternative explanation for the occurrence of metavolcanic stone projectile points in the Coastal Plain. Daniel (1998:179) views the possibility of trade contributing metavolcanic stone in such high frequencies as 60 percent to 70 percent as a "highly disadvantageous adaptive strategy." However the limited presence of other non-local stone material (e.g. chert) may be suggestive of trade. This will be discussed further in the *Chapter IV.*

Middle Archaic Distributions

A total of 2204 Middle Archaic projectile points were recorded from the study area (Tables 3.8-3.9, Figure 3.10). The Neuse-White Oak and Roanoke-Albemarle yielded the majority of the Middle Archaic projectile points, 50 percent and 38 percent respectively. The Tar-Pamlico only yielded 12 percent of the Middle Archaic projectile points. Metavolcanic stone comprises 66.5 percent of the Middle Archaic stone material, while 23 percent of the material was quartz and 9 percent was quartzite. Other stone only comprises 1.5 percent of the Early Archaic material, of which only .5 percent (n = 11) were identified as chert.

Comparing the three river drainage transects for the Middle Archaic, we see only minor changes from Early Archaic distribution patterns (Figures 3.11-

Table 3.8. Frequencies of Middle Archaic Projectile Points.

River Drainage/ County	Chert	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Total
Roanoke-Albemarle						
Bertie	0	136	0	17	36	189
Camden	0	2	0	3	5	10
Chowan	0	0	0	0	2	2
Currituck	0	1	1	0	1	3
Dare	0	0	0	0	1	1
Gates	0	1	0	1	1	3
Halifax	1	132	2	129	18	282
Hertford	0	11	0	9	8	28
Martin	2	126	7	47	34	216
Northampton	1	26	0	40	9	76
Pasquotank	0	3	1	3	1	8
Perquimans	0	3	2	1	12	18
Tyrrell	0	0	0	0	0	0
Washington	0	5	0	0	1	6
Sub-Total	4	446	13	250	129	842
Tar-Pamlico						
Beaufort	0	6	0	2	0	8
Edgecombe	0	85	0	30	9	124
Pitt	0	89	2	23	14	128
Sub-Total	0	180	2	55	23	260
Neuse-White Oak						
Carteret	0	4	0	6	2	12
Craven	0	146	0	19	13	178
Greene	1	74	0	11	3	89
Jones	1	5	0	3	0	9
Lenoir	1	90	0	21	9	121
Onslow	0	40	0	11	2	53
Pitt	0	37	1	6	3	47
Pamlico	0	0	0	0	0	0
Wayne	4	218	0	58	10	290
Wilson	0	230	0	64	9	303
Sub-Total	7	844	1	199	51	1102
Total	11	1470	16	504	203	2204

Table 3.9. Frequencies of Middle Archaic projectile point types.

River Drainage/ County	Stanly Stemmed	Morrow Mountain Stemmed	Guilford Lanceolate	Halifax Side-Nothced	Total
Roanoke-Albemarle					
Bertie	1	157	38	10	206
Camden	0	9	0	1	10
Chowan	0	1	0	0	1
Currituck	0	1	0	0	1
Dare	0	1	1	0	2
Gates	0	1	2	1	4
Halifax	8	78	72	105	263
Hertford	0	17	7	2	26
Martin	2	142	53	34	231
Northampton	1	26	17	24	68
Pasquotank	2	4	0	1	7
Perquimans	0	15	0	1	16
Tyrell	0	0	1	0	1
Washington	0	5	2	0	7
Sub-Total	14	457	193	179	843
Tar-Pamlico					
Beaufort	0	6	1	1	8
Edgecombe	1	63	39	10	113
Pitt	1	96	17	25	139
Sub-Total	2	165	57	36	260
Neuse-White Oak					
Carteret	0	9	3	0	12
Craven	1	139	14	23	177
Greene	0	63	19	7	89
Jones	0	7	1	1	9
Lenoir	2	89	12	18	121
Onslow	0	44	9	0	53
Pamlico	1	0	0	0	1
Pitt	4	28	9	5	46
Wayne	11	217	30	30	288
Wilson	5	166	103	29	303
Sub-Total	24	762	200	113	1099
Total	40	1384	450	328	2202

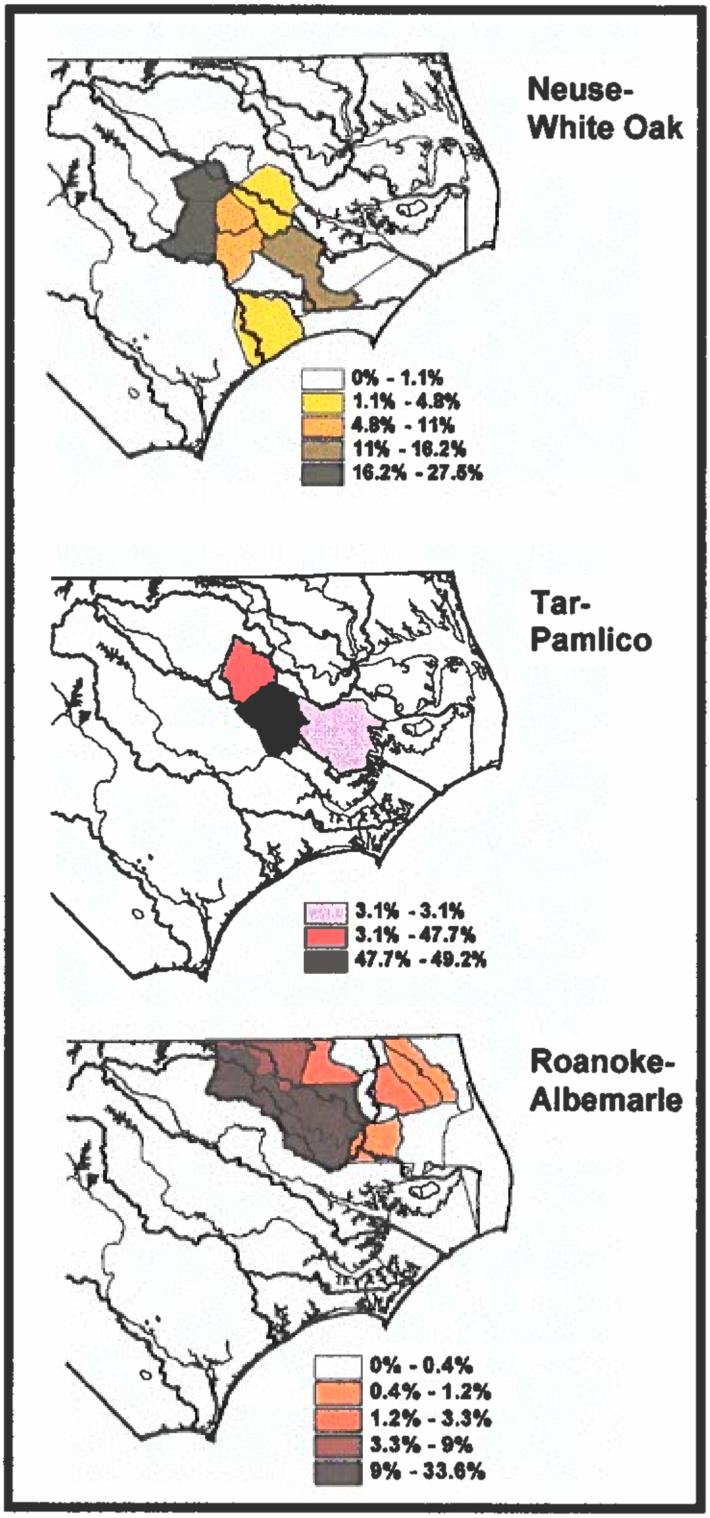

Figure 3.10. Distribution of Middle Archaic projectile points (maps modified from ArcView Version 3.1, 1998).

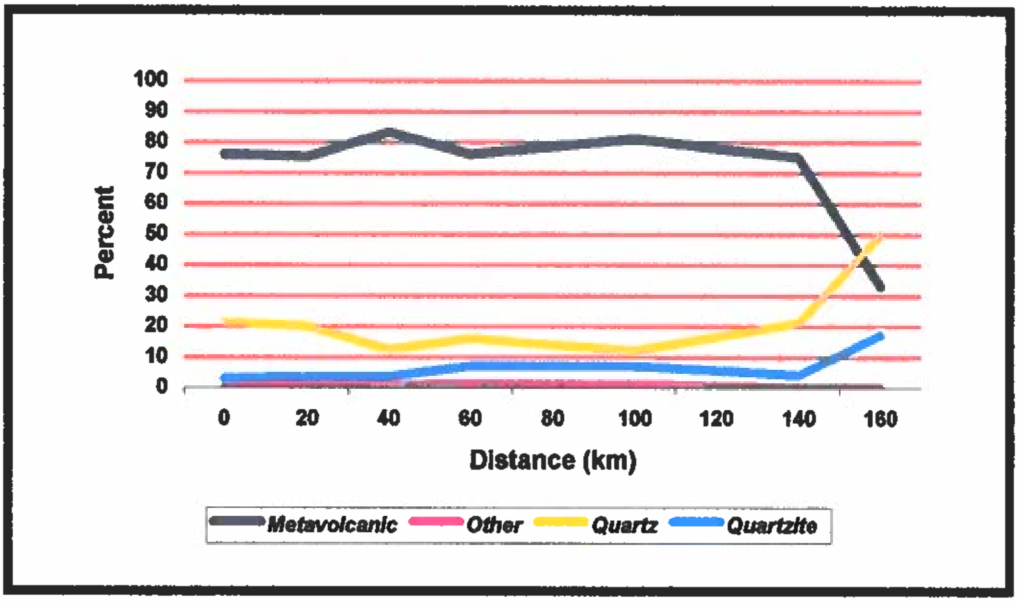

Figure 3.11. Middle Archaic projectile point (Stanly Stemmed, Morrow Mountain Stemmed, Guilford Lanceolate, Halifax Side-Notch) distirbution by material types along the Neuse River Transect. Distance is measured west to east from the Fall Line. (n = 1102)

Table 3.10. Frequencies of Middle Archaic projectile points (Stanly Stemmed, Morrow Mountain Stemmed, Guilford Lanceolate, Halifax Side-Notch) by material types along the Neuse River Transect.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Wilson	0	230	0	64	9	303
Wayne	20	218	4	58	10	290
Green	40	74	1	11	3	89
Lenoir/Pitt	60	127	2	27	12	168
Jones/Craven	100	151	1	22	13	187
Onslow	140	40	0	11	2	53
Carteret/ Pamlico	160	4	0	6	2	12

Note: Distance is measured from west to east from the Fall Line.

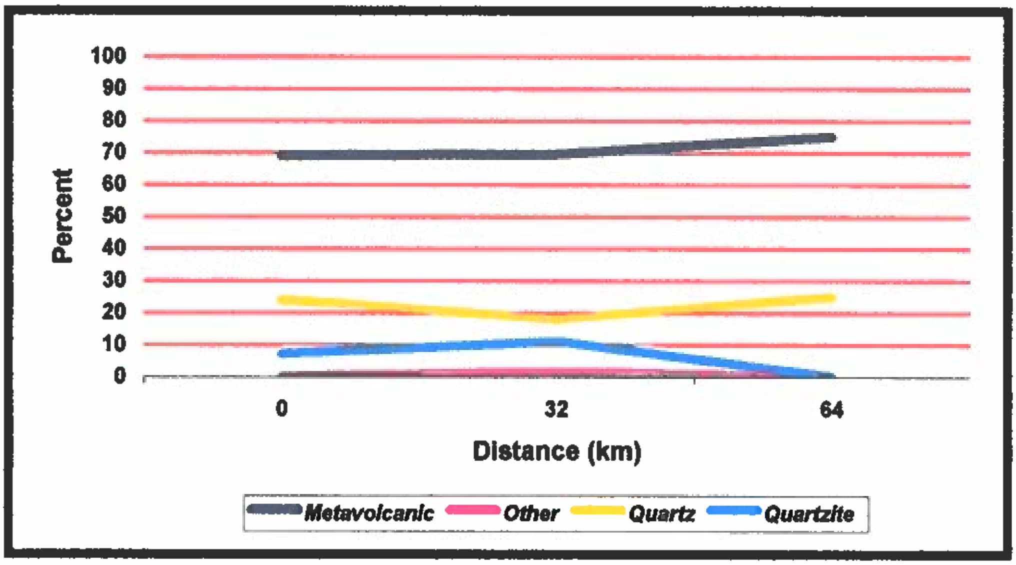

Figure 3.12. Middle Archaic projectile point (Stanly Stemmed, Morrow Mountain Stemmed, Guilford Lanceolate, Halifax Side-Notched) distribution by material types along the Tar-Pamlico River Transect. Distance is measured west to east from the Fall Line. (n = 260)

Table 3.11. Frequencies of Middle Archaic projectile points (Stanly Stemmed, Morrow Mountain Stemmed, Guilford Lanceolate, Halifax Side-Notched) by material types along the Tar-Pamlico River Transect.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Edgecombe	0	85	0	30	9	124
Pitt	32	89	2	23	14	128
Beaufort	64	6	0	2	0	8

Note: Distance is measured west to east from the Fall Line.

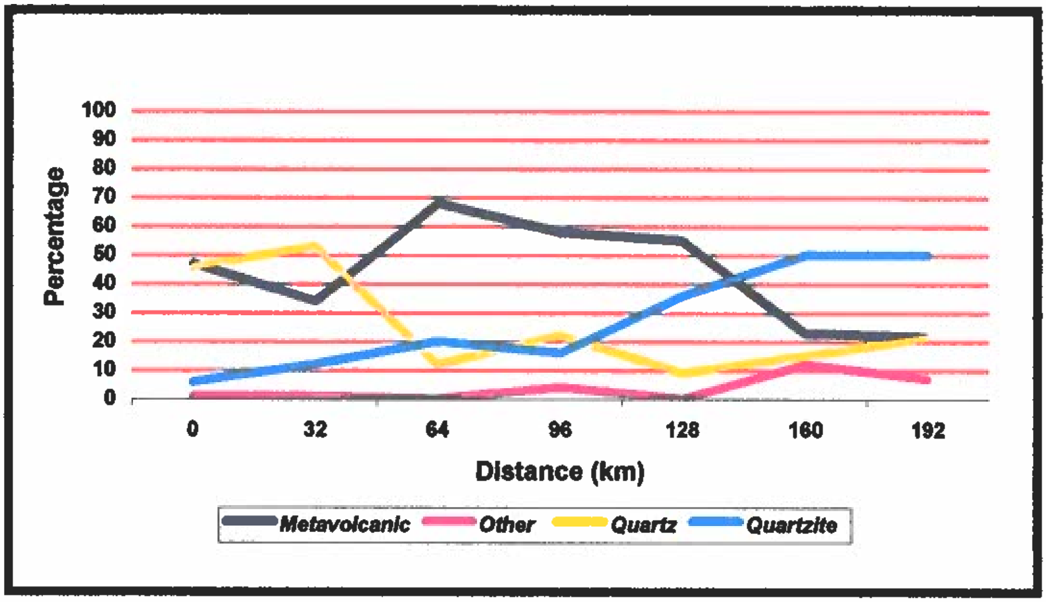

Figure 3.13. Middle Archaic projectile point (Stanly Stemmed, Morrow Mountain Stemmed, Guilford Lanceolate, Halifax Side-Notch) distribution by material types along the Roanoke-Albemarle River Transect. Distance is measured west to east from the Fall Line. (n = 842)

Table 3.12. Frequencies of Middle Archaic projectile points (Stanly Stemmed, Morrow Mountain Stemmed, Guilford Lanceolate, Halifax Side-Notch) by material types along the Roanoke-Albemarle River Transect (distance (km) from the Fall Line).

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Halifax	0	132	3	129	18	282
Northampton	32	26	1	40	9	76
Hertford/Bertie	64	147	0	26	44	217
Martin	96	126	9	47	34	216
Chowan/Gates/ Washington	128	6	0	1	4	11
Pasquotank/ Perquimanns/ Tyrrell	160	6	3	4	13	26
Camden/ Currituck/Dare	192	3	1	3	7	14

Note: Distance is measured west to east from the Fall Line.

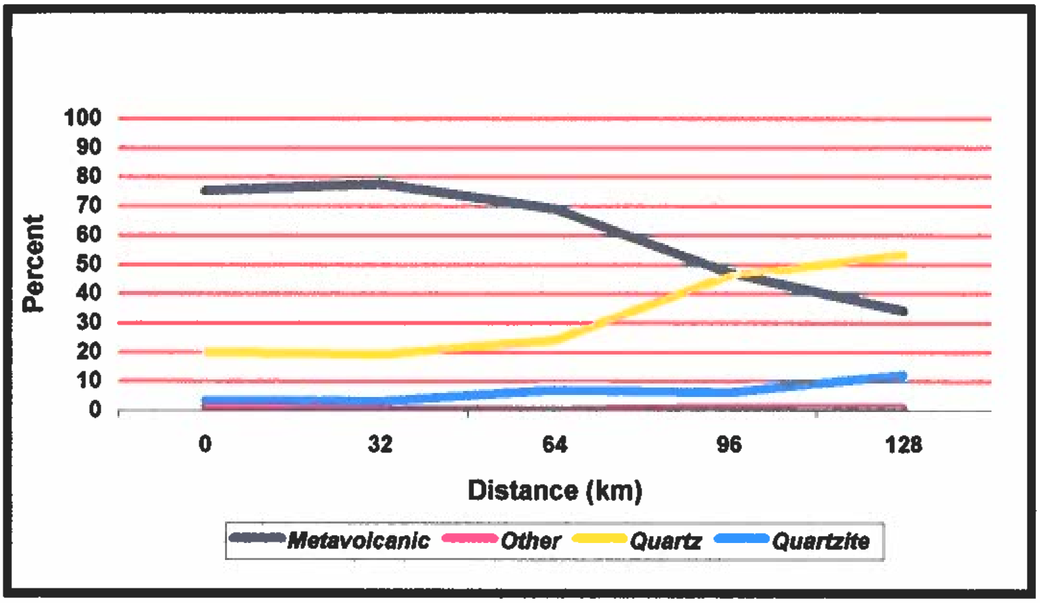

Figure 3.14. Middle Archaic projectile point (Stanly Stemmed, Morrow Mountain Stemmed, Guilford Lanceolate, Halifax Side-Notch) distribution by material types along the Fall Line Transect. Distance is measured south to north from the Neuse River. (n = 1164)

Table 3.13. Frequencies of Middle Archaic projectile points (Stanly Stemmed, Morrow Mountain Stemmed, Guilford Lanceolate, Halifax Side-Notch) by material types along the Fall Line Transect.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Wayne	0	218	4	58	10	290
Wilson/Greene	32	304	1	75	12	392
Edgecombe	64	85	0	30	9	124
Halifax	96	132	3	129	18	282
Northampton	128	26	1	40	9	76

Note: Distance is measured south to north from the Neuse River.

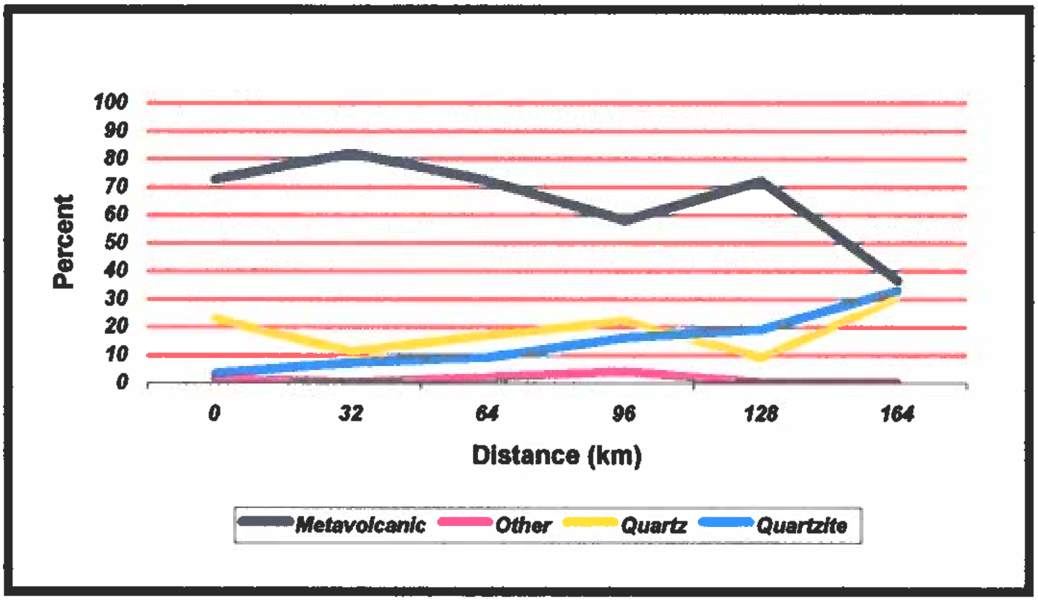

Figure 3.15. Middle Archaic projectile point (Stanly Stemmed, Morrow Mountain, Guilford, and Halifax Side-Nothced) distribution by material types along the Inner Coastal Plain Transect. Distance is measured south to north from Onlsow/Jones Counties. (n = 861)

Table 3.14. Frequencies of Middle Archaic projectile points (Stanly Stemmed, Morrow Mountain, Guilford, and Halifax Side-Nothced) by material types along the Inner Coastal Plain Transect.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Onslow/Jones	0	45	1	14	2	62
Craven	32	146	0	19	13	178
Beaufort/Pitt	64	132	3	31	17	183
Martin	96	126	9	47	34	216
Bertie	128	136	0	17	36	189
Hertford/ Chowan/Gates	164	12	0	10	11	33

Note: Distance is measured south to north from the Neuse River.

3.15, Tables 3.10 - 3.14). That is, the Neuse-White Oak and the Tar-Pamlico transects resemble one another, while the Roanoke-Albemarle is quite different. Metavolcanic stone overwhelmingly dominates the length of the drainages, ranging from about 70 percent to 84 percent. An exception to this pattern occurs at the very end of the Neuse-White Oak transect where metavolcanic stone declines significantly from 75 percent to about 30 percent, over a distance of 20 km at the eastern end of the transect. As metavolcanic stone declines, quartz replaces it as the most dominant material with 50 percent. However, there are only 12 projectile points recorded at 160 km, which might give spurious results due to inadequate sample size. Otherwise, quartz ranks as the second most abundant material in use along both transects, ranging from 10 percent to 25 percent. Quartzite (1 percent to 17 percent) and other stone (0 percent to 6 percent) respectively rank as third and fourth. Chert was recorded in limited quantities, with less than one percent from the Neuse-White Oak and none recorded from the Tar-Pamlico.

The Middle Archaic distribution along the Roanoke-Albemarle drainage is also similar to the Early Archaic distribution for the Roanoke-Albemarle transect. Quartz, metavolcanic stone, and quartzite all dominate the drainage at various places along the transect. Quartz declines away from the Fall Line (from about 50 percent) exhibiting a step-like decline to a range of 15 percent to 21 percent along the remainder of the drainage. Quartzite, on the other hand, increases in frequency along the transect from 6 percent at the Fall Line to about 50 percent at the end of the drainage. Metavolcanic stone fluctuates along the transect dominating most of the drainage from about 40 km to about 130 km with a range from 40 percent to 68 percent, declining at either end of the transect. Other stone never exceeds 12 percent, and comprises less than 5 percent along most of the drainage. Within the other stone category less than one percent was recorded along the Roanoke-Albemarle transect.

The two cross drainage transects are also very similar to their Early Archaic counterparts. Metavolcanic stone dominates both of these transects from the Neuse to the Tar River, ranging from about 35 percent to 82 percent, but do show considerable declines moving northward towards the Roanoke River (96 to 128 km), where quartz and quartzite increase in frequency. Quartz ranges from 20 percent to 50 percent, appearing in greater frequency (53 percent) than metavolcanic stone only north of the Roanoke River along the Fall Line, and both quartz and quartzite increase to nearly equal frequencies as metavolcanic stone at the northern end of the Inner Coastal Plain transect. Quartzite is the third most abundant material ranging from 8 percent to 40 percent, but does fluctuate with quartz along the Inner Coastal Plain transect as the second most abundant material for portions of the transect. Other stone is generally insignificant to the patterns discussed here; however, the majority of chert stone (n = 7) was recorded along the Fall Line transects. In short, similar to the Early Archaic patterns, metavolcanic stone dominates Middle Archaic distributions, with slight decreases towards the Roanoke River in the northern part of the Coastal Plain.

Again, with respect to interpreting these patterns, we can assume that there were little significant changes in the Middle Archaic adaptations in comparison to their Early Archaic counterparts. That is, Middle Archaic land-use range encompassed both the Piedmont and the Coastal Plain. Furthermore, the land-use range was not confined by single river drainages, but rather the band ranges seem to have included the entire study area with movement along and across river drainages, as evidenced by the continuous dominance of metavolcanic throughout all five transects. The decline in the use of metavolcanic stone around the Roanoke-Albemarle transect suggest that the Middle Archaic bands were relying more on quartz and quartzite raw material.

Late Archaic Distributions

A total of 1263 Late Archaic projectile points were recorded from the study area (Tables 3.15-3.16, Figure 3.16). Relative to their total area, the Neuse-White Oak and Roanoke-Albemarle yielded the majority of the Middle Archaic projectile points, 41 percent and 50 percent respectively. The Tar-Pamlico only yielded nine percent of the Middle Archaic projectile points. Metavolcanic stone comprises 48 percent of the Middle Archaic stone material, while 35 percent of the material was quartz and 16 percent was quartzite. Other stone only comprises one percent of the Early Archaic material, of which only .4 percent were identified as chert.

Table 3.15. Frequencies of Late Archaic Projectile Points.

River Drainage/ County	Chert	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Total
Roanoke-Albemarle						
Bertie	0	138	1	49	64	252
Camden	0	1	0	0	0	1
Chowan	0	2	0	1	2	5
Currituck	0	0	0	0	0	0
Dare	1	0	0	0	0	1
Gates	0	0	0	0	5	5
Halifax	1	71	1	103	15	191
Hertford	0	7	0	8	13	28
Martin	0	23	0	24	34	81
Northampton	0	14	0	20	14	48
Pasquotank	0	0	2	0	0	2
Perquimans	0	0	3	0	5	8
Tyrrell	0	1	0	0	1	2
Washington	0	5	0	1	2	8
Sub-Total	2	262	7	206	155	632
Tar-Pamlico						
Beaufort	0	6	1	0	2	9
Edgecombe	0	13	0	16	8	37
Pitt	0	38	0	20	10	68
Sub-Total	0	57	1	36	20	114
Neuse-White Oak						
Carteret	0	4	0	0	1	5
Craven	0	0	0	5	1	6
Greene	1	19	0	16	4	40
Jones	0	1	0	3	0	4
Lenoir	2	33	0	14	6	55
Onslow	0	22	0	11	3	36
Pitt	0	1	0	7	3	11
Pamlico	0	1	0	0	0	1
Wayne	0	69	0	66	8	143
Wilson	0	139	0	76	1	216
Sub-Total	3	289	0	198	27	517
Total	5	608	8	440	202	1263

Table 3.16. Frequencies of Late Archaic projectile point types.

River Drainage/ County	Savannah River Stemmed	Small Savannah River Stemmed	Gypsy Stemmed	Total
Roanoke-Albemarle				
Bertie	185	32	35	252
Camden	0	0	1	1
Chowan	3	1	1	5
Currituck	0	0	0	0
Dare	0	0	1	1
Gates	2	2	1	5
Halifax	77	52	62	191
Hertford	7	6	15	28
Martin	20	20	41	81
Northampton	20	10	18	48
Pasquotank	2	0	0	2
Perquimans	6	2	0	8
Tyrell	2	0	0	2
Washington	7	0	1	8
Sub-Total	331	125	176	632
Tar-Pamlico				
Beaufort	3	1	5	9
Edgecombe	19	12	6	37
Pitt	18	14	26	58
Sub-Total	40	27	37	104
Neuse-White Oak				
Carteret	1	2	2	5
Craven	6	5	4	15
Greene	19	9	12	40
Jones	2	0	2	4
Lenoir	14	18	23	55
Onslow	17	8	11	36
Pamlico	1	0	0	1
Pitt	4	0	8	12
Wayne	81	48	14	143
Wilson	77	101	38	216
Sub-Total	222	191	114	527
Total	593	343	337	1273

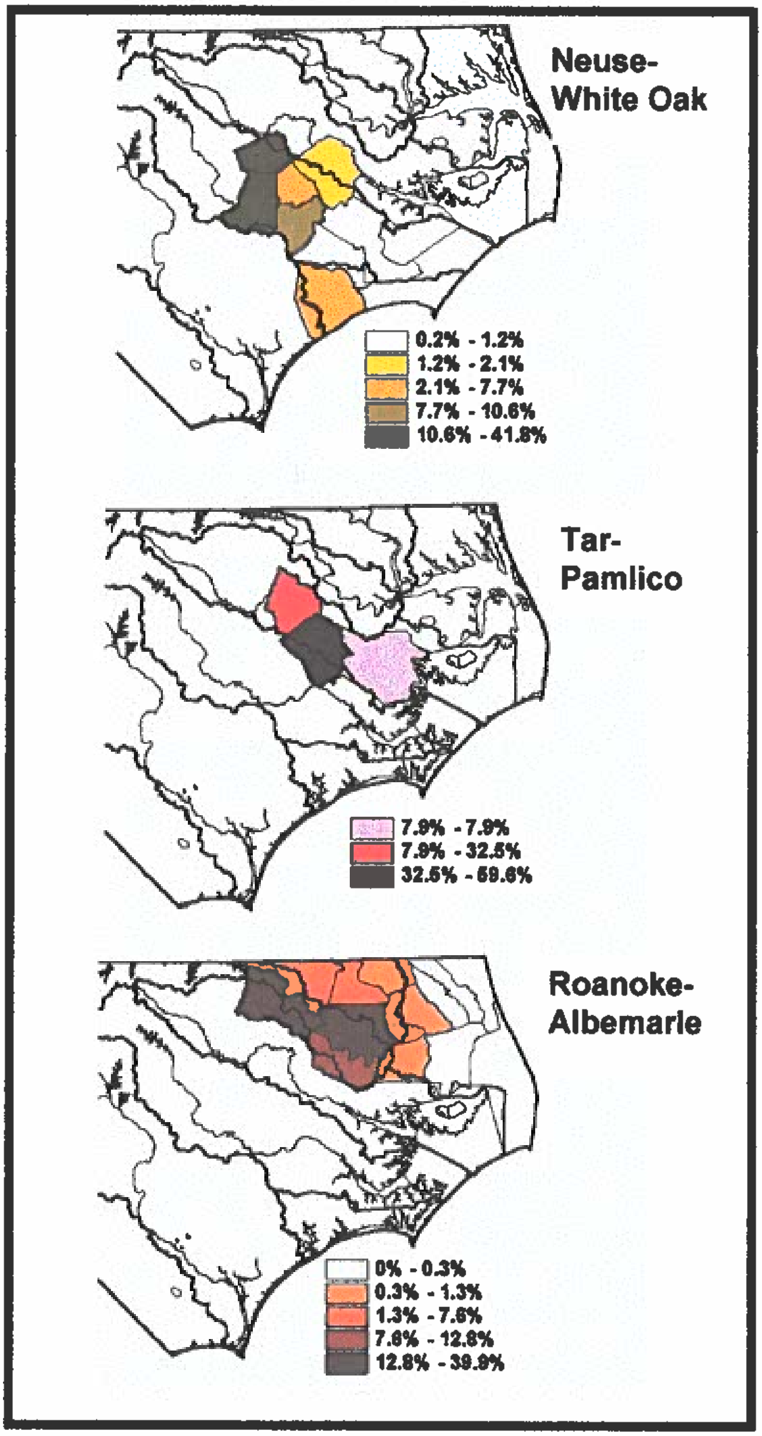

Figure 3.16. Distribution of Late Archaic projectile points (maps modified after ArcView Version 3.1, 1998)

The patterns of raw material distributions exhibited along the river transects (Neuse-White Oak, Tar-Pamlico, and Roanoke-Albemarle) for the Late Archaic fluctuates more than in either the Early or Middle Archaic; however, metavolcanic stone does dominate the stone types along each transect (Figures 3.17-3.21, Tables 3.17-3.21). Along the Neuse-White Oak transect, metavolcanic stone dominates with a range of 20 percent to 83 percent, although quartz dominates the transect from 70 km to 125 km. Quartz ranges from 0 percent to 80 percent along the transect. Quartzite is a distant third in frequency, ranging from 0 percent to 33 percent. Along the Tar-Pamlico transect, metavolcanic generally increases towards the coast ranging from 30 percent to near 70 percent. While quartz begins at a greater frequency than metavolcanic stone (43 percent), quartz declines significantly towards the to 0 percent. Quartzite remains steady along the transect at 20 percent, while other stone comprises less than 11 percent along both the Neuse-White Oak and Tar-Pamlico transects.

The Roanoke-Albemarle transect shows considerable variability in dominant material types. Each of the four categories dominate a portion of the transect, beginning with quartz (at the Fall Line), metavolcanic stone, quartzite, and other stone at the eastern end of the transect. Metavolcanic stone still comprises 41 percent of the total along the drainage, and ranges from about 10 percent to 50 percent. Quartz, quartzite, and other stone all range from 0 percent to about 50 percent. Limited sample size coupled with an increase in the

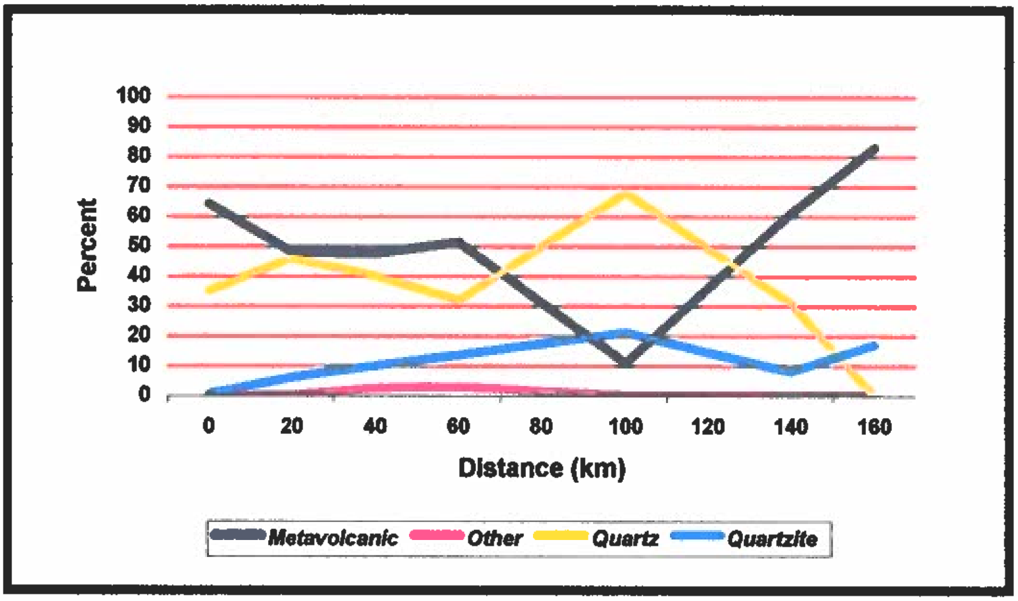

Figure 3.17. Late Archaic projectile point (Savannah River, Small Savannah River, and Gypsy Stemmed) distribution by material types along the Neuse River Transect. Distance is measured west to east from the Fall Line. (n = 526)

Table 3.17. Frequencies of Late Archaic projectile points (Savannah River, Small Savannah River, and Gypsy Stemmed) by material types along the Neuse River Transect.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Wilson	0	139	0	76	1	216
Wayne	20	69	0	66	8	143
Green	40	19	1	16	4	40
Lenoir/Pitt	60	34	2	21	9	66
Jones/Craven	100	2	0	13	4	19
Onslow	140	22	0	11	3	36
Carteret/ Pamlico	160	5	0	0	1	6

Note: Distance is measured west to east from the Fall Line.

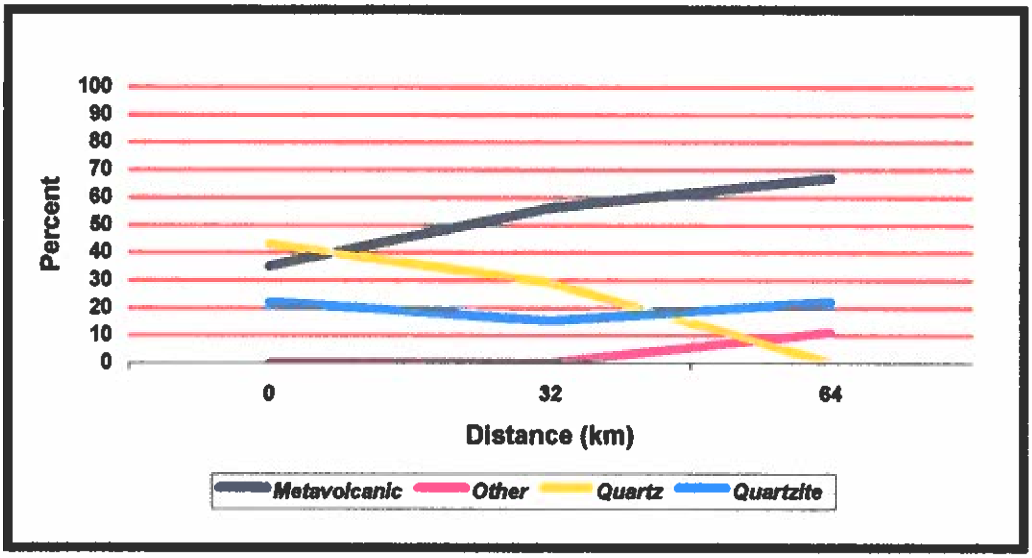

Figure 3.18. Late Archaic projectile point (Savannah River Stemmed, Small Savannah River Stemmed, Gypsy Stemmed) distribution by material types along the Tar-Pamico River Transect. Distance is measured west to east from the Fall Line. (n = 115)

Table 3.18. Frequencies of Late Archaic projectile points (Savannah River Stemmed, Small Savannah River Stemmed, Gypsy Stemmed) by material types along the Tar-Pamlico River Transect.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Edgecombe	0	13	0	16	8	37
Pitt	32	38	0	20	10	68
Beaufort	64	6	1	0	2	9

Note: Distance is measured west to east from the Fall Line.

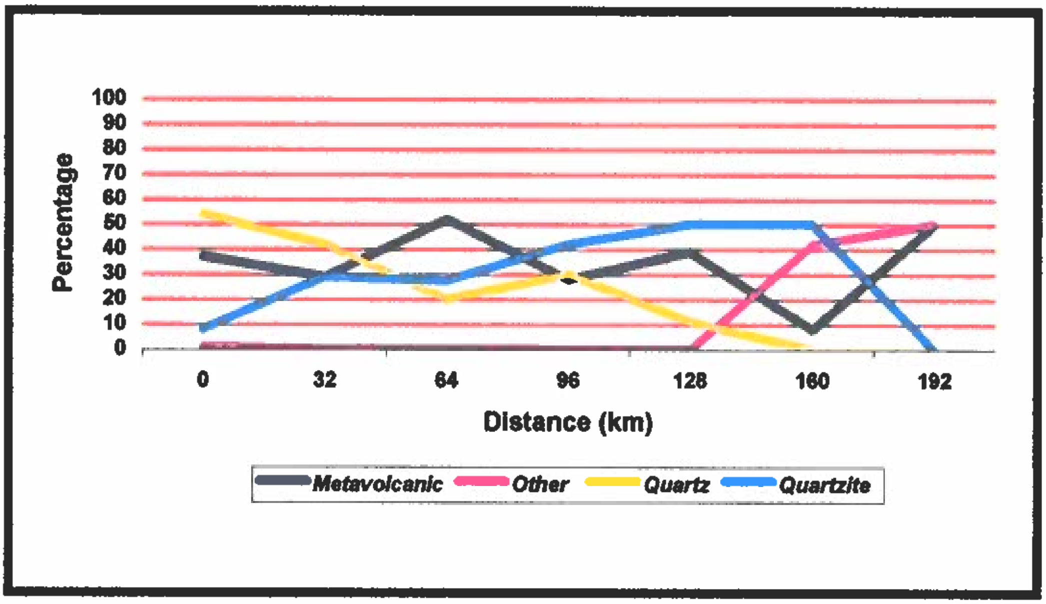

Figure 3.19. Late Archaic projectile point (Savannah River, Small Savannah River, and Gypsy Stemmed) by material types along the Roanoke-Albemarle River Transect. Distance is measured west to east from the Fall Line. (n = 632)

Table 3.19. Frequencies of Late Archaic projectile points (Savannah River, Small Savannah River, and Gypsy Stemmed) by material types along the Roanoke-Albemarle River Transect.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Halifax	0	71	2	103	15	191
Northampton	32	14	0	20	14	48
Hertford/Bertie	64	145	1	57	77	280
Martin	96	23	0	24	34	81
Chowan/Gates/ Washington	128	7	0	2	9	18
Pasquotank/ Perquimanns/ Tyrrell	160	1	5	0	6	12
Camden/ Currituck/Dare	192	1	1	0	0	2

Note: Distance is measured west to east from the Fall Line.

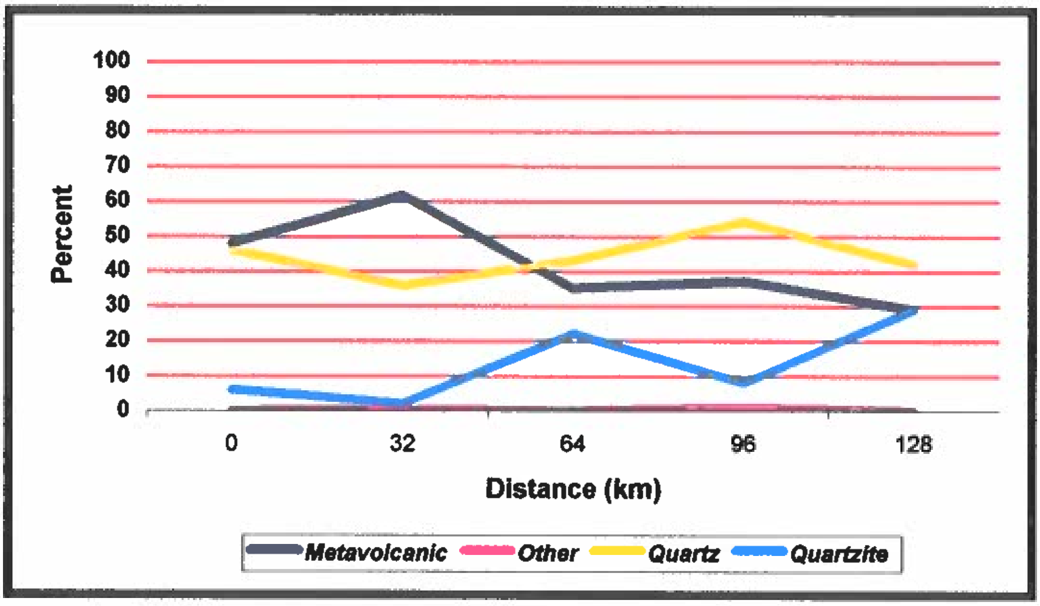

Figure 3.20. Late Archaic projectile point (Savannah River, Small Savannah River, and Gypsy Stemmed) distribution by material types along the Fall Line Transect. (n = 675)

Table 3.20. Frequencies of Late Archaic projectile points (Savannah River, Small Savannah River, and Gypsy Stemmed) by Material Types Along the Fall Line.

County	Distance (km)	Metamorphic Stone	Other Stone	Quartz	Quartzite	Totals
Wayne	0	69	0	66	8	143
Wilson/Greene	32	158	1	92	5	256
Edgecombe	64	13	0	16	8	37
Halifax	96	71	2	103	15	191
Northampton	128	14	0	20	14	48

Note: Distance is measured south to north from the Neuse River.

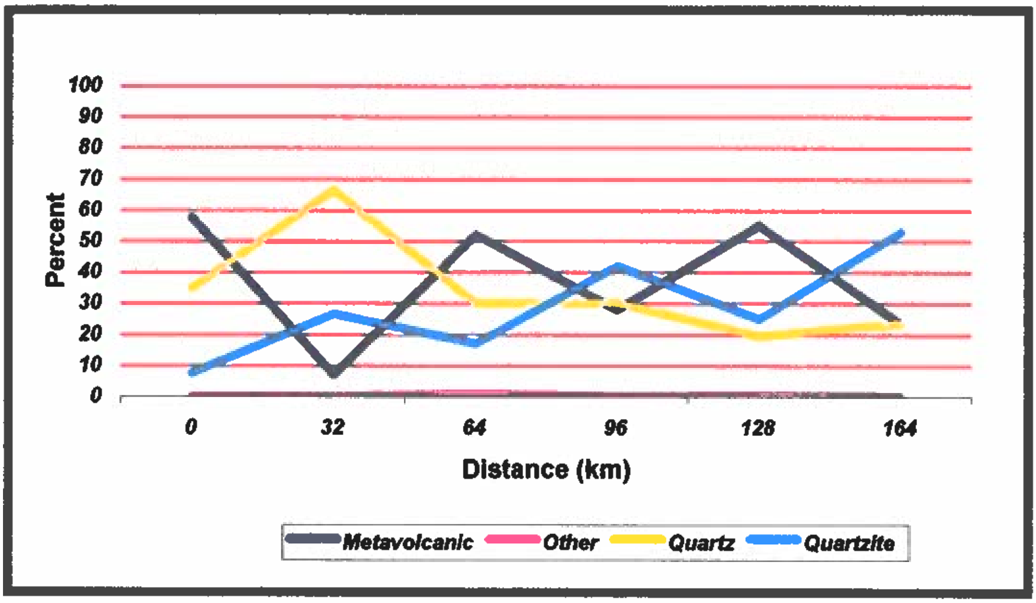

Figure 3.21. Late Archaic projectile point (Savannah River Stemmed, Small Savannah River Stemmed, Gypsy Stemmed) distributions by material types along the Inner Coastal Plain Transect. Distance is measured south to north from Onlsow/Jones Counties. (n = 515)

Table 3.21. Frequencies of Late Archaic projectile points (Savannah River Stemmed, Small Savannah River Stemmed, Gypsy Stemmed) by material types along the Inner Coastal Plain Transect.

County	Distance (km)	Metavolcanic Stone	Other Stone	Quartz	Quartzite	Totals
Onslow/Jones	0	23	0	14	3	40
Craven	32	1	0	10	4	15
Beaufort/Pitt	64	46	1	27	15	89
Martin	96	23	0	24	34	81
Bertie	128	138	1	49	64	252
Hertford/ Chowan/Gates	164	9	0	9	20	38

Note: Distance is measured south to north from the Neuse River.

frequencies of unidentified material between 160 km and 192 km, apparently accounts for the significant increase in other stone.

Along the cross drainage transects, the two respective patterns are considerably different from previous cross-drainage patterns. The Fall Line transect is dominated by metavolcanic stone from 0 to about 60 km, while quartz dominates the northern portion from 60 km to 128 km. Overall, metavolcanic stone ranges from 30 percent to 60 percent and quartz ranges from 36 percent to 54 percent. Quartzite increases northward along the Fall Line transect, from about 2 percent to 30 percent. The only similarity between the Fall Line and Inner Coastal Plain transects during the Late Archaic is that other stone comprises less than 1 percent along the length of either transect. Metavolcanic stone, quartz, and quartzite all dominate the Inner Coastal Plain transect at different points, with metavolcanic stone ranging from 7 percent to about 60 percent and peaking at three points (0, 64, 128 km). Quartz ranges from 20 percent to nearly 70 percent, but only dominates the Inner Coastal Plain transect around the Neuse River at 32 km. Quartzite generally increases along the transect, ranging from less than 7 percent to 53 percent, and dominating the Inner Coastal Plain transect just south of the Roanoke (96 km) and then at the end of the transect (164 km).

During the Late Archaic, metavolcanic stone, again, dominates the entire study area; however, presumably locally available stone material, e.g. quartz and quartzite, begins to dominate sections of several transects. Quartz dominates the Neuse-White Oak transect near the Fall Line, while, along the Roanoke-Albemarle drainage, there are significant increases in the frequencies of quartz and quartzite. With the continued dominance of the use of metavolcanic stone, Late Archaic adaptation and land-use appears to be consistent with the Early and Middle Archaic land-use patterns. However, the drop off in metavolcanic use north of the Roanoke-Albemarle transect appears to correlate with the northern extent of the Neuse-White-Oak and Tar-Pamlico rivers. Presumably, this decline could mark the limits of a band range. Also the increased use of quartz and quartzite could be correlated with the increase in populations, and decrease in band ranges. With larger populations occupying the same area, band ranges would decrease locally available resources would be become more widely used as access to more distant resources is potentially cut off. Some researchers may associate this with an increase in more sedentary villages, although not necessarily permanent villages (Klein and Klatka 1991:166; Ward and Davis 1999:64).

CHAPTER IV

SUMMARY AND CONCLUSIONS

Archaic Land-Use Patterns across the Coastal Plain of North Carolina

"[T]he proportions of raw materials found at a given site is primarily a function of the scale of the habitat which was exploited from the site location....the presence of exotic cherts may simply be a fair measure of the mobility scale of the adaptation appearing as a consequence of the normal functioning of the system..." (Binford 1979:274). One implication of this statement for the Coastal Plain of North Carolina is that the dominance of "exotic" or non-local metavolcanic stone projectile points suggests that Archaic land-use encompassed portions of the Piedmont as well as the majority of the Coastal Plain. That is, I interpret high frequency of metavolcanic stone projectile points in the Coastal Plain as stone that was directly obtained from the Piedmont.

Alternatively, Daniel (1998) notes that one could interpret the patterns of non-local stone material distribution as the result of trade. That is, however, unlikely given the overwhelming majority of the metavolcanic stone in the assemblages along each transect. To rely upon trade for such an important resource as stone materials goes against most social theory and would be disadvantageous adaptive strategy. A band range including the Piedmont and Coastal Plain would not be an improbable trek for a band (Daniel 1998). On the other hand, the low frequency of chert suggests the possibility of trade, especially since there are few known chert sources in North Carolina. Allendale and Williamson Chert (South Carolina and Virginia respectively) are known sources that were utilized during prehistoric times (Goodyear 1974, 1979; Goodyear et al 1979; McAvoy 1992). Some of the chert recorded along the Neuse River is most likely Allendale Chert and therefore is interpreted as trade (Daniel 1998). Although there are some small cobbles of chert found along the coast of North Carolina, most of them are to small to be used in the manufacture of Archaic projectile points (Phelps 1983, Daniel 1999).

During the Early Archaic, land use encompassed a range from the Piedmont (presumably the Uwharrie Mountains and other metavolcanic outcrops) to the Coastal Plain and at least from the Neuse to the Roanoke River. Metavolcanic stone dominates the two southern river drainages, Neuse-White Oak and Tar-Pamlico; but metavolcanic stone drops off considerably to the north along the Roanoke-Albemarle drainage where locally available quartz and quartzite increase in use, suggesting that this may mark the northern extent of Early Archaic land-use for some prehistoric band.

During the Middle Archaic, prehistoric land use appears similar to Early Archaic. However, metavolcanic stone dominates all three river drainages, including the Neuse-White Oak, Tar-Pamlico, and Roanoke-Albemarle. There is only a slight decline in metavolcanic stone along the coastal counties in the Neuse-White Oak and Roanoke-Albemarle transects, where presumably locally available quartz and quartzite increase in use. Again, the cross-drainage patterns are similar to the Early Archaic patterns, where metavolcanic declines as quartz and quartzite increase in use around the Roanoke-Albemarle transect. The drop off in metavolcanic use may mark the northern extent of Middle Archaic land-use.

During the Late Archaic, the land use range appears similar to the previous time periods. Again, metavolcanic stone dominates the Neuse-White Oak, Tar-Pamlico, and Roanoke-Albemarle transects, but drops off in the northern portion of the study area, around the Roanoke River. Along the Fall Line and Inner Coastal Plain transects, metavolcanic stone decreases as quartz and quartzite increase towards the northern end of the each transect. The land use range is similar to the patterns exhibited in the previous two time periods; however, quartz and quartzite appear in greater frequencies suggesting a declining range of land use in conjunction with a postulated increase in sedentary villages (Phelps 1983:25-26, Klein and Klatka 1991:166).

The patterns discussed in the previous chapter allude to the following conclusions. First, the river drainages do not restrict land-use throughout the Archaic. Rather, group adaptations probably included regular cross-drainage movement as evidenced by the consistent use of metavolcanic stone across the river drainages. Second, the Neuse-White Oak and Tar-Pamlico drainages exhibit similar land-use patterns that contrast with the Roanoke-Albemarle drainage. Hence, the latter drainages may include a band adaptation that is distinct from the former drainages.

Finally, a word might be said about Archaic settlement patterns. The majority of Archaic projectile points (49 percent) were recorded from the counties along the Fall Line transect. Another 38 percent of the Archaic projectile points were recorded from counties adjacent to the Fall Line transect counties. In other words, the geographic distribution of points is concentrated along the Fall Line and adjacent counties. Along the river drainages, point frequencies drop off considerably towards the coastal counties, suggesting less intense occupation along the coast, whereas the concentration of projectile points along the Fall Line might be associated with more intense occupations. The Fall Line is considered a place of aggregation between several smaller groups where exchange of information, goods, and marital partners took place. The wide range of available resources from both the Piedmont and Coastal Plain were easily accessible from the Fall Line area and facilitated larger population gatherings (Anderson 1996a; Anderson and Hanson 1988; Egloff 1989; Michie 1996).

Another interpretation of the distribution of projectile points could be related to site preservation. Sites along the riverbanks and shorelines may not be preserved due to the ongoing flooding/drowning process associated with Holocene sea level fluctuations and the resulting shoreline recession in the coastal region (Pilkey et al. 1998; Riggs 1999, 2000).

The data is also biased by collection strategies, i.e. private collectors, environmental studies, and development. Hence there may be unidentified sites along the coast, either buried or inundated in the marshes, swamps, sounds and along the continental shelf. Therefore, the patterns discussed in this thesis are not final, on the contrary, I view them as the first step in getting to understand Archaic land-use along the North Carolina Coastal Plain.

Future Directions

It is hoped that this research will not end here, rather the purpose behind this research is to spark interest in defining Archaic sites and land-use for the Coastal Plain. It was once assumed that only small, short-term occupation Archaic sites located along the Coastal Plain, while the larger and more extensively used sites were located close to the Fall Line. However, as evidenced by this research and others (Rogers 1989), there are some rather large sites around the inner Coastal Plain boundary at least. Rogers (1989) noted a private collection, near Elizabeth City in Pasquotank County, with over 300 projectile points with the majority being Archaic and I recorded projectile points from sites in Bertie and Martin County with 400 or more points. Ideally the next step is to research the private collections across the Coastal Plain, as Tommy Charles has done for South Carolina with his South Carolina Collector Survey (Charles 1981, 1983, 1986), and as Daniel (1998) has begun for the North Carolina Piedmont.

There is a wealth of data in private collections and in Cultural Resource Management reports that were not used in this research (except for two reports pointed out to me by the State Archaeologist, Mark Mathis) because of time constraints and funding. Although archaeologists generally frown upon private collectors, we should not condemn the data they can provide. I was fortunate enough to benefit from one gracious private collection owner who offered his collection for use in my research, also most of the collections in the ECU Phelps Archaeology Laboratory were donated by private collectors.

Another possible research topic, to add to the results presented in this thesis, is to identify stone material sources of the projectile points in the study. This process involves crushing and destroying some samples of the stone materials, but larger sites usually contain larger amounts of debris from tool manufacturing that can be used to source the stone material, instead of sacrificing the stone tools.

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