AN ARCHAEOLOGICAL INVESTIGATION OF LATE PREHISTORIC AND CONTACT PERIOD PLANT USE IN THE NORTH CAROLINA PIEDMONT

Sierra S. Roark

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Approved by:

C. Margaret Scarry

R.P. Stephen Davis Jr.

Anna S. Agbe-Davies

Dale L. Hutchinson

ABSTRACT

Sierra S. Roark: "An Archaeological Investigation of Late Prehistoric and Contact Period Plant Use in the North Carolina Piedmont"
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The arrival of Europeans to North America spawned instability among Native populations. Past archaeological studies have worked to reconstruct Contact period human-environmental relationships, botanical usage, and subsistence patterns of Native Americans in the North Carolina Piedmont. That research largely emphasizes patterns of continuity regarding resource selection and subsistence patterns. In this study, I incorporate archaeobotanical data from 10 sites excavated across the Dan, Eno, and Haw River drainages and construct a nuanced depiction of Native botanical usage before and after establishing recurring contact with Europeans. My analysis supports previous observations that Native Piedmont groups had similar subsistence practices with observable differences across time and space. Additionally, I propose evidence for intensification in the use of medicinal taxa over time. I argue these lines of evidence demonstrate the maintenance of prehistoric Siouan practices.

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CHAPTER 1: INTRODUCTION

In the seventeenth century, the arrival of the English in the central North Carolina Piedmont contributed to a tumultuous period for Native groups. The consequences of European disease, trade, and political conflicts led to the depopulation and abandonment of the region in the late seventeenth and early eighteenth centuries. Understanding those effects and Native responses to instability are central questions in contemporary historical and archaeological research of the Contact period. Various scholars have investigated Native Piedmont subsistence and land use to study the effects of contact (Graham 2018; Gremillion 1985, 1989; Holm 1994; Longo 2018; Melton 2014, 2018; VanDerwarker et al. 2007; Wilson 1977, 1983). My work aims to understand behavior regarding plant use by Siouan-speaking groups for the periods immediately before and during European contact, through statistical analyses of a larger body of data than previous studies had available. Using macrobotanical remains, I investigate the responses of Siouan groups to the effects of epidemic disease, sociopolitical instability, and economic change. By focusing on human-environmental relationships and subsistence, I construct a more nuanced depiction of the changes and continuities in plant use by Native Americans of the central North Carolina Piedmont.

The North Carolina Piedmont was home to multiple small, tribally-organized communities who reportedly spoke dialects of the Siouan language and are therefore referred to in scholarship as Siouan (Mooney 1894). However, the ethnic identities of the Native Piedmont populations are not entirely clear (Simpkins 1985; Swanton 1924).

So far as we know, the upper Roanoke River basin was occupied by the Tutelo, Saponi, and Sara tribes during the Contact period. The Eno, Shakori, and eventually the Occaneechi inhabited the Eno River drainage; and the Haw River drainage was home to the Saxapahaw and potentially other groups (Dickens et al. 1987:5).

Although Europeans had traversed the region in the sixteenth century and established the colony of Virginia in the early seventeenth century, Native Piedmont populations were relatively isolated until the arrival of English traders and explorers in the mid-seventeenth century (Morton 1960). At that point, trade networks were established between the English and Native Piedmont groups that provided direct access to European trade goods in return for captive Indians and deerskins. Recurrent interactions generated instability through the spread of disease, intertribal conflicts, and shifting economic priorities.

Explorers and traders to the region left behind several written accounts mentioning Siouan groups. While those accounts do depict some aspects of Siouan life, they are fragmentary and few, heavily biased, and often contain misconceptions. Despite limitations, examinations of both the ethnohistorical and archaeological records have created a compelling portrait of past Native lifeways. Although academics and amateurs had been interested in the archaeology and ethnohistory of the Piedmont for decades, the first systematic examination of the evidence did not occur until the University of North Carolina's (UNC) Research Laboratories of Archaeology (RLA) began the second Siouan Project in 1983. It aimed to study the trajectory of Siouan groups as Europeans began to move into the North Carolina Piedmont (Ward and Davis 1999:234). The Siouan Project has resulted in extensive regional surveys and archaeological excavations at sites located in north-central North Carolina and southern Virginia (Davis and Ward 1991). The findings from the research conducted during the project have provided and continue to provide ample material for reports, projects, theses, and dissertations. The Siouan Project provides not only many of the samples analyzed in this thesis but also a rich background of scholarship.

In this work, I compare the archaeobotanical assemblages from ten sites located within the Dan, Eno, and Haw River drainages to investigate Native practices involving plant use before and during European contact (Figures 1 and 2). Five sites are situated within the Dan River drainage: Lower Saratown (31Rk1), Powerplant (31Rk5), William Kluttz (31Sk6), Upper Saratown (31Sk1a), and Hairston (31Sk1). Three sites are located within the Eno River drainage: Jenrette (31Or231a), Fredricks (31Or231), and Wall (31Or11). Lastly, two sites are situated within the Haw River drainage: Edgar Rogers (31Am167) and Mitchum (31Ch452). For most of the sites, I include the archaeobotanical remains from more than one period of occupation. To do this, I drew on data published by Kristen Gremillion (1989; 1993b), Amber VanDerwarker, Jane Eastman, and C. Margaret Scarry (2007), and Mallory Melton (2014) as well as data from newly analyzed samples. Table 1 contains specific information regarding each site. Using the archaeobotanical data from these sites, I consider human activity across the river drainages and over time. Epidemic disease, conflict, and slave raiding all contributed to instability and subsequently the depopulation of the Piedmont. Native settlements were quickly established and abandoned during the later phases of contact. By the 1730s, many of the Siouan groups had suffered significant depopulation and migrated to join other Native communities to the north and south (Ward and Davis 1991:51). As a result, this region of the Piedmont was left vacant and quickly settled by Europeans. This process required time and specific actions and reactions by the affected communities. By studying the presence and frequencies of plants used over time, it is possible to identify and explain changes in activity. In this research, evidence from ethnohistorical accounts and the archaeological record are merged to form a foundation for untangling the responses of Native Piedmont groups to contact-related pressures.

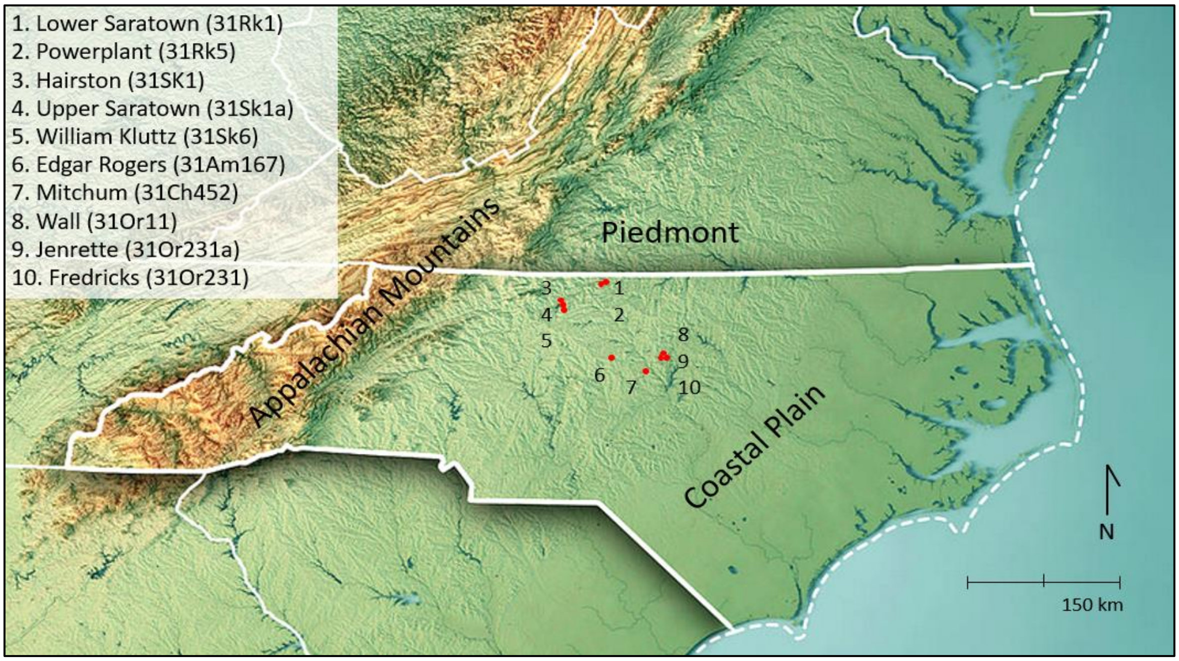


Figure 1. Physiographic regions and locations of study sites.

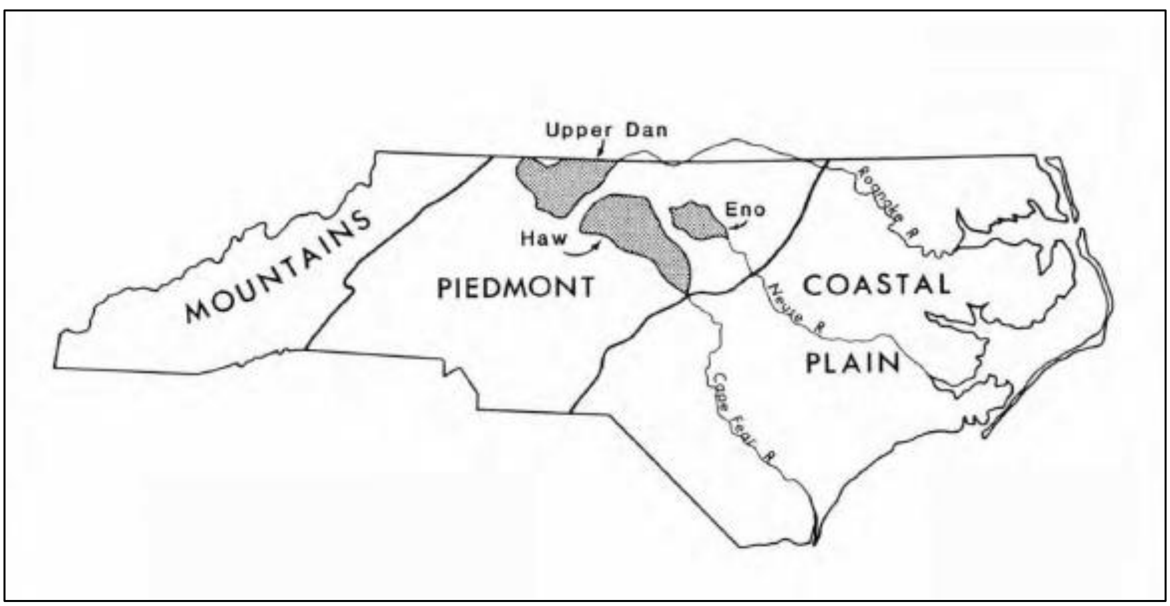


Figure 2. Map of the river drainages (Gremillion 1989:8).

Table 1. Physiographic Regions, Locations, and Chronological Associations.

Site Name	Smithsonian Trinomial Identifier	County, State	River Drainage	Occupation (AD)	Archaeological Phase
Lower Saratown	31Rk1	Rockingham, N.C.	Dan	1100-1450 1620-1670	Dan River Middle Saratown
Powerplant	31Rk5	Rockingham, N.C.	Dan	1000-1450 1450-1620	Dan River Early Saratown
William Kluttz	31Sk6	Stokes, N.C.	Dan	1100-1450 1670-1710	Dan River Late Saratown
Hairston	31Sk1	Stokes, N.C.	Dan	1250-1450 1450-1607 1607-1650	Dan River (Late) Early Saratown Middle Saratown
Upper Saratown	31Sk1a	Stokes, N.C	Dan	1650-1670 1670-1710	Middle Saratown Late Saratown
Jenrette	31Or231a	Orange, N.C.	Eno	1000-1200 1660-1680	Haw River (Early) Jenrette
Wall	31Or11	Orange, N.C.	Eno	1400-1600	Hillsboro
Fredricks	31Or231	Orange, N.C.	Eno	1680-1710	Fredricks
Edgar Rogers	31Am167	Alamance, N.C.	Haw	1400-1600	Hillsboro
Mitchum	31Ch452	Chatham, N.C.	Haw	1600-1670	Mitchum

*Edgar Rogers is referred to as RLA-Am162 in RLA records.

I present my arguments in seven chapters. The chapter that follows my introduction is a summary of the environmental settings of this research. In the third chapter, I explain the archaeological and historical context and the chronology of the drainages. The fourth and fifth chapters describe the methodology and initial findings. The sixth chapter features an analysis and discussion of the data. The final chapter presents concluding remarks and makes recommendations for future research and research plans.

Several research questions guide this study. First, is change observable with plant foods across time or river drainage? Does Siouan plant use appear to be consistent across the Piedmont? Do plants with medicinal properties increase in appearance when indicators of epidemic disease are present? Furthermore, I ask if changing climatic conditions can help explain the observed trends in the data. I am interested in seeing if observations made in previous archaeobotanical analyses hold true with a larger dataset. For instance, is there archaeobotanical evidence for risk-averse subsistence strategies? Were agricultural practices altered in response to contact-related factors? Overall, the main question driving this study is, what do the observed trends in plant use reveal regarding the Siouan experience before and after the arrival of Europeans to the Piedmont.

Using the framework established by Gremillion (1985, 1989), I hypothesize that Siouan groups across the three drainages and over the years worked to maintain pre-Contact subsistence economies. Due to the chaotic nature of the time and the trends observed by Eastman (1999) and others, I believe an intensification in the use of plant-based medicines is possible. Since Piedmont groups were not homogenous, were affected differently by contact-related factors, and responded independently — noticeable differences in plants subsistence and resource remains across time and river drainage are plausible.

CHAPTER 2: ENVIRONMENTAL CONTEXT

In this chapter, I discuss the environmental setting of the Piedmont. The region of this study includes the Dan, Eno, and Haw River drainages. Today, the environmental setting of the Piedmont is vastly different from that of the Piedmont in the Late Woodland and Historic periods (McCaleb and Lee 1956; Matthews 2011). During Siouan occupation, the Piedmont was neither ecologically homogenous nor stable (Holm 1994; Stahle et al. 1988). The surrounding floodplain ecosystems are highly productive communities and feature high plant diversity (Matthews 2011). Although located near one another, the three river drainages vary in their suitability for agriculture, soil composition, basin size, river length, elevation range, terrain, and local ecosystems.

The Physical Setting and Natural Resources

Located between the Appalachian Mountains and the Atlantic Coastal Plain, the Piedmont ranges in elevation from 50 to 370 meters above sea level (North Carolina Department of Agriculture 1879). The climate of the North Carolina and Virginia Piedmont is warm temperate, and rain occurs year-round, with July and August typically receiving the most precipitation (McCaleb and Lee 1956; Peet and Christensen 1980). Winters are mild: the average number of days without frost is 210 and the temperature rarely drops below -15º Celsius (Kopec and Clay 1975).

The vegetation of the North Carolina Piedmont is the result of a combination of unique environmental settings and histories (Matthews 2011:153). Native groups played significant roles in molding their environments. Groups across the Eastern Woodlands practiced anthropogenic burning to discourage woody growth, encourage mast and herbaceous production, assist with hunting, and increase the carrying capacity for game animals (Abrams 1992:346; Abrams and Nowacki 2008; Delcourt and Delcourt 1997; Hammett 1992; Purdue 1985:16). Additionally, Native practices resulted in environmental patches (Abrams and Nowacki 2008; Cronon 1983; Hammett 1992). This meant that certain areas featured distinct environmental characteristics compared to the environment immediately surrounding that area. Siouan groups utilized those patches before and after European contact (Gremillion 1989:139).

Both Native and European groups recognized the Piedmont contained a wealth of natural resources. Wildlife including deer, beavers, and various types of turtles, snakes, and birds are native to the region. The desire for deerskins and animal pelts prompted initial interactions and trade between Native Piedmont groups and the English. Deerskins and furs were a significant commodity for England and an important component of seventeenth-century European fashion (Lapham 2005).

The forests of the Piedmont were a valuable resource for both European and Native groups. Hardwoods, including various types of oak and hickory, chestnut, American sycamore, and sweetgum, comprise Piedmont forests (North Carolina Department of Agriculture and Consumer Services 2012). Pines are also commonly found across Piedmont forests (McCaleb and Lee 1956). Europeans saw the forests of the New World as a limitless supply of lumber, ideal for building, burning, and exporting (Cronon 1983). Native Americans used trees and their byproducts for construction, fuel, medicine, ceremonial purposes, and subsistence. Native groups found the Piedmont to be a productive region for foraging and later for growing Native cultigens.

Overall, the soil of the North Carolina Piedmont is well suited for agriculture. Flooding along the region's steams created rich soils that facilitated the growth of Native cultigens. Additionally, clay sources are abundant in the Piedmont (Carpenter et al. 1995). Native groups used local clays to construct ceramic vessels and stone resources to produce tools. Sources of chert and rhyolite can be found within 100 km of the Dan River drainage (Eastman 1999:7). The natural resources of the Piedmont allowed for Siouan material culture, foodways, and traditions to flourish and encouraged the economic pursuits of European colonists.

Abandoned Native American settlements were some of the first areas settled by Europeans (Coughlan and Nelson 2018). Europeans saw the potential for profit in extracting resources, clearing the Piedmont of timber, and establishing plantations. Subsequent poor land management by Euro-Americans resulted in an accelerated loss of soil and, ultimately, the abandonment of farmland in the nineteenth and twentieth centuries (Dunn 1977:44; Peet and Christensen 1980).

The Three Drainages

Of the three drainages, the Dan is the best suited for agriculture and supporting large settlements. The drainage is composed of high ridges and broad floodplains with extensive bottomlands (Olsen et al. 1990). The fertile soil of the floodplains is likely a factor for why the drainage was extensively settled before the Contact period. The Dan drainage supported a larger population and has revealed earlier evidence of nucleated settlements than the Eno or Haw River drainages (Davis and Ward 1988).

Although the Eno and Haw drainages have less favorable land for agriculture and are more restricted than the Dan River drainage, Native Americans also occupied this area for millennia (Ward and Davis 1993). Environmental scientists report the floodplains of narrow, lower-order rivers, like the Haw River, exhibit less richness due to less fertile characteristics (Matthews et al. 2011:501). The Eno River drainage is similar in topography to the Haw River drainage. The large U-shaped floodplain at the Hillsborough Archaeological District is one of the largest areas of bottomlands along the Eno river. The floodplain is composed of fertile agricultural land, which likely encouraged numerous phases of human occupation. The Haw River drainage is believed to have been home to small hamlets; it lacks broad floodplains and features swamp-like conditions. According to Ward and Davis (1993:3), the archaeology of the Haw Drainage indicates the groups may have been too small to attract the attention of traders. In 1701, John Lawson made almost no mention of the people living in the Haw River drainage apart from mentioning the “Sissipahau” or Sissipahaw Indians (Lefler 1967:60; Ward and Davis 1993:3).

Climate Change in the Region

The climatic periods of the Medieval Warm Epoch (AD 1000-1300) and the Little Ice Age (ca. AD 1300-1850) cover the range of dates included in this study. Dendrochronological studies suggest the climate of North Carolina and the Southeast has fluctuated dramatically over the past thousand years. Using tree-ring measurements from bald cypress trees discovered along a tributary of the Cape Fear River, David Stahle and collaborators (1988) created a 1614-year reconstruction of the June Palmer Drought Severity Index (PDSI) and found the region undergoes periods of wet and dry conditions that alternate every 30 years. PDSI is a measurement of dryness based on precipitation and temperature. PDSI ranges between positive and negative four— with negative numbers indicating drought, positive numbers indicating wet spells, and zero indicating normal conditions (Palmer 1965). For example, the score of negative two represents a moderate drought, negative three is severe drought, and negative four is extreme drought. This PDSI reconstruction found that several prolonged droughts occurred during the Medieval Warm Epoch followed by significantly wetter conditions during the first three hundred years of the Little Ice Age (Stahle et al. 1988:1518). During this period, the climate continued to fluctuate. The Southeast experienced waves of the most severe drought in 500 years in the 1560s and again during the 1580s to 1590s (Stahle et al. 2000:121). This "megadrought" significantly contributed to the struggles experienced during early Spanish and English attempts at settlement (Anderson et al. 1995; Blanton 2000, 2013; Blanton and Thomas 2008; Stahle et al. 1998, 2000). Summer climatic conditions became drier again between 1650-1750.

Another measurement used by geoscientists is the Palmer Drought Hydrological Index (PDHI), which is identical to PDSI except for the criteria required to terminate a drought or wet spell (Stahle et al. 2013). Compared to PDSI, PDHI takes longer to return to normal conditions and is useful for understanding long-term moisture regimes that can influence groundwater, streamflow, and freshwater input onto an estuary. Stahle and coauthors (1998) observed that PDHI exhibited a stronger correlation with bald cypress tree ring data than PDSI in the Tidewater region of North Carolina and Virginia.

In the Albemarle Sound of North Carolina, researchers using PDHI have found evidence that revealed climate changes to be both abrupt and prolonged (Stahle et al. 2013:1352). Moreover, in the first half of the eighteenth century, two of the most extreme decade-long droughts and three of the moistest periods in a millennium occurred (Stahle et al. 2013:1349). While PDSI and PDHI are not well suited for predicting crop yields, these fluctuations likely had major implications for plant resources and natural resource management (Meyer et al. 1993:389; Stahle et al. 2013:1352).

It is important to remember climatic reconstructions are proxy indicators with significant limitations. It is difficult to determine whether reconstructions are reflective of local, regional, or global conditions. The previously discussed reconstruction from the Albemarle Sound are possibly only representative of regional weather patterns that do not extend to the Piedmont. Additionally, the accuracy of proxy indicators can be difficult to interpret and/or assess for accuracy (Sorooshian and Martinson 1995:493). While the droughts were not solely, or even mainly, responsible for the depopulation of the North Carolina Piedmont, the environmental conditions may have influenced the decisions of the remaining Siouan populations to leave. It is probable that Native groups were aware of environmental differences but found the conditions in the Piedmont tolerable until other pressures were present. In addition to disease, raiding, and shifting economic priorities, Native life was further complicated by the ramifications of dramatic climatic shifts and presumably unpredictable fluctuations in crops and wild resources.

CHAPTER 3: ARCHAEOLOGICAL AND HISTORICAL CONTEXT

This chapter summarizes the archaeological and historical background of the North Carolina Piedmont immediately before and during the Contact period. I begin by explaining the chronology and archaeological phases used to classify the periods of occupation. Additionally, I discuss the ethnohistorical evidence that has inspired much of this archaeology.

Chronology

Humans have occupied the North Carolina Piedmont for at least 12,000 years. Archaeological evidence indicates the Piedmont was occupied throughout four major cultural traditions, including the Paleo-Indian (before 8000 BC), Archaic (8000-1000 BC), Woodland (1000 BC-AD 1600), and Historic (after AD 1540) periods (Ward and Davis 1999). Material culture largely defines the cultural traditions by indicating general cultural patterns and changes over time. Using cultural traditions, scholars can make generalizations regarding a population.

The archaeobotanical assemblages featured in this study were recovered from 10 Siouan sites that span nine different phases of cultural association that occurred before or during the Contact period (Table 2 and Figure 3). These archaeological phases are separately defined for the three drainages and are influenced by environmental features, cultural features, and material culture, specifically the ceramic series, that distinguish the occupations.

Table 2. Archaeological Phases Associated with River Drainage.

River Drainage	Archaeological Phase	Dates (AD)
	Late Saratown	1670-1710
Dan River	Middle Saratown	1607-1670
	Early Saratown	1450-1620
	Dan River	1000-1450
	Fredricks	1680-1710
	Jenrette	1660-1680
Eno River	Hillsboro	1400-1600
	Haw River	1000-1400
Haw River	Mitchum	1600-1670
	Hillsboro	1400-1600

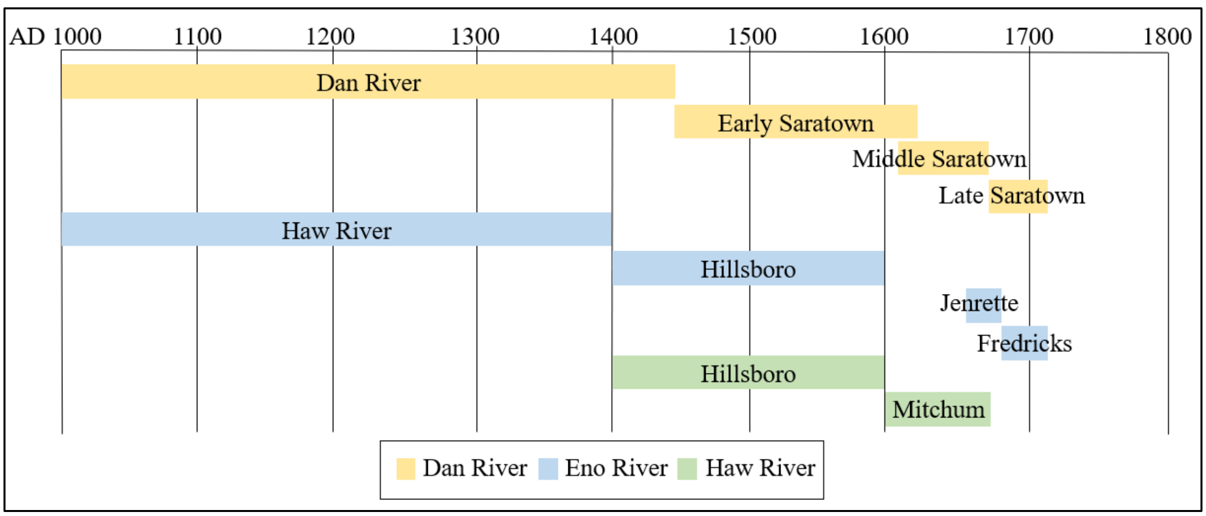


Figure 3. Timeline of included archaeological phases.

The Late Woodland period (AD 1000-1450) encompasses the Haw River and Dan River cultural phases. In this region, the Historic period encompasses the Protohistoric and Contact periods. During the Protohistoric period, indirect contact between Piedmont groups and Europeans occurred between AD 1540-1620 (Ward and Davis 1993). The Early Saratown and Hillsboro phases fall during this period of indirect contact. The date range of the Contact period varies considerably by location. In the central Piedmont, it begins after AD 1600 and ends around 1710 after Native populations migrated or dispersed (Ward and

Davis 1999:233). The Jenrette, Middle Saratown, Fredricks, and Late Saratown phases fall within the middle and later components of the Contact period. By the eighteenth century, recurring interaction between Siouan groups and Europeans is evident in both the historical and archaeological records.

Archaeological Background

For nearly eighty years, scholars have worked to identify archaeological sites associated with Siouan groups. Early written accounts depicting Siouan life have captured the imaginations of both amateurs and professionals (Bland 1651; Cumming 1958; Lefler 1967). Eager to find the Native settlements referenced in historical accounts, private benefactors and the Works Progress Administration funded early archaeology in the Piedmont. Using insights from various informa nts, including Douglas Rights, Joffre Coe organized the first Siouan project in the late 1930s to identify Contact period sites located in the central Piedmont (Ward and Davis 1993). While they were looking in the correct areas, Coe and his team failed to excavate contexts that displayed evidence of seventeenth-century European contact (Ward and Davis 1999:235).

Launched in 1983, the second Siouan Project produced a wealth of data and analysis. The Siouan Project facilitated extensive regional surveys and excavations of sites across the Dan, Eno, and Haw River drainages. The project aimed to address culture change in the Piedmont following the arrival of Europeans, including subsistence strategies, community organization, and mortuary patterns.

Native life was neither simple nor without strife; new markets, intertribal conflicts, violence, disease, climatic changes, and other disruptions had all occurred on some level before the arrival of Europeans. The arrival of Europeans added complexity to some elements of Native lifeways. Scholars agree that the introduction of trade, European diseases, and shifting political dynamics disrupted Native groups, although disagreement exists as to what degree. However, as Graham (2018:4) notes, “each community’s experience and response varied.” The examination of both historical and archaeological evidence allows for a more comprehensive understanding of Native experiences and responses to the impacts of European contact.

The Sites

The Dan River Drainage

The broad floodplains of the Dan River drainage accommodated Native occupations for thousands of years. The Lower Saratown, Powerplant, William Kluttz, Hairston, and Upper Saratown sites are all located in northern North Carolina along the Dan River (see Figure 1 for site locations). The Sara Indians are documented to have lived in this area during the seventeenth and early eighteenth centuries (Ward and Davis 1999:247-248). Despite looting in the area, archaeologists identified numerous late prehistoric sites and discovered undisturbed contexts associated with the Contact period settlements (Ward and Davis 1993:6).

Lower Saratown (31Rk1)

The Lower Saratown site contains a Middle Saratown phase (AD 1620-1670) palisaded village and a Dan River phase (AD 1100-1450) village. The site was first explored by Douglas Rights in 1936, who hoped the site was the abandoned village described in

William Byrd II's writings (Ward and Davis 1993:163). Joffre Coe continued excavations at the site in 1938 but was disappointed when he failed to find evidence indicating the site was from the Historic period (Ward and Davis 1999:14).

Ironically, when RLA archaeologists returned to the site in 1988, they found Contact period features less than 10 feet from Coe's units (Ward and Davis 1993:166). Those excavations revealed pits, depressions, hearths, basins, pot holes, food preparation facilities, smudge pits, and a single burial. Based on the associated burial goods, the burial is a representation of traditional mortuary practices (Ward and Davis 1993:214). A single house was identified. "Given these attributes of site size and density of cultural material, Lower Saratown probably had a larger resident population than any previous Dan River phase settlement in the region" (Davis and Ward 1991:49). The site revealed some trade goods but lacked evidence of European weaponry or European-introduced diseases. Lower Saratown likely predates the arrival of English traders to the Piedmont.

Powerplant (31Rk5)

Located within 0.5 miles of Lower Saratown, the Powerplant site was discovered by Bennie Keel in 1967 (Ward and Davis 1993:221). No work was conducted at the site until 1988 when erosion revealed intact cultural deposits. The Powerplant site represents a small, early Dan River phase (AD 1100-1450) village and contained some pits associated with the Early Saratown phase (AD 1450-1620). The site was interpreted as a linear arrangement of houses parallel to the Dan River. The site is unlike later Dan River phase settlements that feature circular arrangements and palisade walls (Ward and Davis 1993:256). Excavated features include storage pits, basins, burials, and food preparation facilities (Ward and Davis

1993:226). Although large, the features excavated at the Powerplant site are not as rich as features from contemporary sites (Ward and Davis 1993:256).

William Kluttz (31Sk6)

R. P. Gravely alerted RLA archaeologists to the existence of the William Kluttz site in 1967, when it was being actively looted. Limited archaeological excavations occurred in 1988. The site is located on an alluvial terrace and is within 0.2 miles of Upper Saratown (Ward and Davis 1993:257). During the Contact period, the site was briefly occupied before being abandoned in the early eighteenth century. William Kluttz was potentially home to a community of Native refugees (Davis and Ward 1991:50). Despite intense looting at the site, numerous undisturbed features were identified, including human burials, basins, postholes, and pits (Ward and Davis 1993:263-264). No clear architectural patterns were detected (Eastman 1999:21).

However, archaeologists believe the site contains two distinct occupations across three excavation areas. Area A contains mainly Dan River phase (AD 1100-1450) pits. Area B appears to be a Late Saratown phase (AD 1670-1710) cemetery, consisting of shallow burials mostly of children. It has been suggested that these deaths were the result of an epidemic of a disease that the adults of the site had previously encountered (Ward and Davis 2002:137). Area C is located toward the northeastern edge of the site and revealed an unusually large Late Saratown phase pit feature and a smaller earth oven (Ward and Davis 1993:257). The large pit feature revealed an astounding array of ceramics.

Hairston (31Sk1)

Also known as the Early Upper Saratown site, Hairston is located just upstream from Upper Saratown. The site had been looted and plowed before the RLA conducted excavations in 1981. Archaeologists identified three distinct periods the site was occupied, including late Dan River (AD 1250-1450), Early Saratown (1450-1607), and Middle Saratown phase (1607-1650) occupations. Postholes identified during excavations suggest the village may have featured a palisade (Wilson 1983:379). Archaeologists identified two circular structures and mapped over 100 postholes. Additionally, six burials and 40 pit features were found. A large population lived at the settlement during the Early Saratown phase and likely had indirect contact with Europeans (Ward and Davis 1993:440). Only a few trade goods were recovered from excavations.

Upper Saratown (31Sk1a)

First recorded in 1963, Upper Saratown was excavated between 1972 and 1981 by the RLA (Eastman 1999:14). The site suffered from extensive looting, but archaeologists were able to document much of the site during their decade conducting excavations there. The site is associated primarily with the Middle Saratown (AD 1650-1670) and Late Saratown phases (AD 1670-1710). From one-quarter of the site, over 100 burials, 200 pits, and 500 postholes were excavated. The settlement featured multiple palisades and circular structures. The estimated population was greater than 200 individuals (Ward and Davis 2002:176). The graves and the large assortment of trade items indicate the inhabitants were directly involved in trade relations with the English (Eastman 1999:16).

The Eno River Drainage

The Jenrette, Wall, and Fredricks sites are all located within the same bend of the Eno River (see Figure 1). Native groups occupied the 25-acre floodplain for more than a millennium (Ward and Davis 1993). The proximity of the sites and their nearly consecutive occupations makes these sites ideal for investigating culture change (Dickens et al. 1987:1). Today, this area is a part of the Hillsborough Archaeological District. Since the first half of the twentieth century, this area has been of interest to archaeologists.

Wall (31Or11)

The Wall site was first investigated in the late 1930s and early 1940s by Joffre Coe and Robert Wauchope (Ward and Davis 1993:9). Coe and Wauchope believed they had found the remains of the historic settlement of the Occaneechi mentioned by John Lawson when he explored the area in 1701 (Dickens et al. 1987). After RLA archaeologists returned to the site in the 1980s, this interpretation was challenged. Instead, the archaeologists concluded the Wall site predates the Contact period with occupation dates between AD 1400-1600. The RLA conducted additional excavations in 1983, 1984, 1997, 2001, 2002, 2015, 2016, and 2019. Excavations have uncovered pit features, postholes, structural features, and midden layers. The village included circular houses arranged around an open plaza. Multiple palisades were identified encompassing the site. Most of the identified burials are placed in shaft-and-chamber pits (Ward and Davis 1993:113). The palisaded site was occupied by as many as 100-150 individuals and is believed to have had a low crude mortality rate (Ward and Davis 1991:175). Due to the nucleated community pattern and the ceramic assemblages, scholars have suggested the Wall site may have been established by a group that moved into the Eno valley and interacted with local groups (Ward and Davis 1999:115).

Jenrette (31Or231a)

The Jenrette site was identified in 1989 and excavated in 1989, 1990, 1992, 1995, 1996, 1997, and 1998 (Ward and Davis 1993). Excavations exposed palisade walls, pit features, structural remains, and multiple burials. Two different palisades were discovered, including one with the entrance concealed by a parallel wall (Ward and Davis 1993:346). The site is associated with two archaeological phases. The earliest evidence at the site is attributed to the early Haw River phase (AD 1000-1200). The later cultural component is associated with the Jenrette phase (AD 1660-1680). The Jenrette site features some of the earliest evidence for substantial contact with the English (Ward and Davis 1993:383). Little evidence exists for the presence of epidemic disease or rebuilding at the site, the latter indicating a shorter occupation than the one represented by the nearby Wall site (Ward and Davis 1993). European goods, including brass bells and other metal artifacts, are believed to have arrived at the site via indirect and direct trade networks. Ethnohistoric evidence indicates the Jenrette site was likely inhabited by the Shakori, a group visited by explorer John Lederer in 1670 (Ward and Davis 1993:143, 414). The Jenrette site provides evidence that cultural traditions represented at the earlier Wall site were still being practiced (Ward and Davis 1993:838).

Fredricks (31Or231)

The Fredricks site is associated with the Occaneechi occupation of the Eno River drainage in the late seventeenth and early eighteenth centuries. Both ethnohistoric accounts and archaeological evidence attest to European interaction at Fredricks. In 1701, John Lawson likely visited the site, then known as Occaneechi Town (Davis and Ward 1991:45). UNC archaeologists excavated the site between 1983 and 1986. The village was briefly occupied and was small compared to earlier occupations at the Jenrette and Wall sites. It likely housed a population of less than 75 individuals (Davis and Ward 1991:45-46; Driscoll et al. 2001:150). A variety of European trade goods were recovered, including but not limited to beads, alcohol bottles, and metal tools (Carnes 1987:142). At least 11 houses arranged in a circular were identified. The site included a central plaza, a sweat lodge, and was surrounded by a single palisade wall. During excavations, archaeologists identified three separate cemeteries, that contained the remains of at least 25 individuals, outside of the palisade (Driscoll et al. 2001; Ward and Davis 1991:180). The crude mortality rate calculated from an admittedly small and potentially biased skeletal population, indicates the few residents of Fredricks lived there during a time of precarity (Hogue 1988:99; Ward and Davis 1991:180). The Fredricks phase (AD 1680-1710) is thought to represent a time of dramatic disruption (Ward and Davis 1999:244).

The Haw River Drainage

The Haw River drainage was home to the Saxapahaw, or Sissipahaw, and potentially other Native people in the seventeenth century (Dickens et al. 1987:5). Archaeology conducted in the region has revealed small dispersed settlements (see Figure 1) that are believed to have been abandoned shortly after the arrival of the English to the Piedmont (Ward and Davis 1993:3). Only the Mitchum site has revealed strong evidence of European contact and interaction within the Haw River drainage. Although natural resources were abundant and the land was considered rich, the Haw River drainage lacks well-developed floodplains, like those located along the Dan and Eno rivers (Lefler 1967; Ward and Davis 1993). Ward and Davis (1993:5) credit this factor for the small and dispersed population living within the Haw River drainage.

Edgar Rogers (31Am167, RLA-Am162)

The Edgar Rogers site is associated with the Hillsboro phase (AD 1400-1600). It is located along a terrace on Cane Creek at the foot of a steep ridge and overlooks a narrow floodplain (Ward and Davis 1993:29). Plowing has exacerbated the effects of erosion on the site. UNC conducted auger testing and excavations at the site in 1987. Excavated features included storage pits, a single isolated human burial, and a shallow basin containing pottery and charred floral and faunal remains. Only a handful of historic artifacts were recovered, including bottle glass, unidentifiable iron fragments, and a square-cut nail (Ward and Davis 1993:48). No structures patterns were discernible. It is possible that the site was a component of a hamlet community and a manifestation of population dispersion that occurred before European contact (Ward and Davis 1993:54).

Mitchum (31Ch452)

The Mitchum site is an exception to the general trends seen in the Haw River drainage. The Mitchum site located along a narrow floodplain along the Haw River and is across the river from the Webster site (31Ch463), a dispersed settlement occupied from the Middle Archaic until the Late Prehistoric period (Ward and Davis 1993:161). The site was reported to the RLA in 1982 and was excavated in 1983 and 1986 (Ward and Davis 1993:109). The site has been interpreted as a nucleated historic village (Ward and Davis 1993:143). Despite looting in the 1980s, the palisaded village site revealed evidence of European trade artifacts, oval and circular houses, storage pits, and two burial pits. The lack of iron tools, firearm components, and evidence for disease indicates European contact likely was indirect (Ward and Davis 2002:131).

The Mitchum site is attributed to the Mitchum phase (AD 1600-1670) and was likely occupied after 1650 (Davis and Ward 1991:45). It is probable the Mitchum site is a Sissipahaw village mentioned in John Lawson’s accounts (Ward and Davis 1993). Although archaeologists have only identified two burial pits nearby, they have hypothesized the site was home to the Sissipahaw after their numbers were reduced by disease (Davis and Ward 1991:45). Ward and Davis (1993:143) propose that by 1701, the Sissipahaw were no longer a viable social entity since Lawson opted not to visit the village.

Historical Background

It was not until the 1890s that anthropologists classified the indigenous Piedmont populations as probable speakers of Eastern Siouan dialects (Mooney 1894). James Mooney (1894) placed this distinction on the more than 40 separate tribes that inhabited the Piedmont from north-central Virginia to central South Carolina. Despite the distinctions made by Mooney and later by Swanton (1924), the linguistic affiliations and migratory histories of these groups are not well understood. Frequent population movements, few historical accounts, and little linguistic evidence have made assessing ethnic affiliation a complicated endeavor. According to Daniel Simpkins (1985:48), none of the Piedmont groups, apart from the Saxapahaw, were indigenous to the region. Nevertheless, James Merrell (1987, 1989) explains that language, marriage, and trade connected Siouan groups. While “Siouan” is perhaps not the most accurate label, this grouping has proved useful in previous studies and is used here.

Although Native groups living in the pre-Contact Piedmont may appear to have been socially decentralized, they were not disconnected. Native groups had relationships and histories with one another long before Europeans arrived. These relationships include long-standing alliances and rivalries. The recurring presence of Europeans likely further complicated these existing relationships by disrupting indigenous political and socioeconomic systems.

Despite the Spanish entradas through the western Piedmont in the mid-sixteenth century, led first by Hernando de Soto and later by Juan Pardo, Siouan groups were relatively isolated from European contact for another century. There is no evidence that contact with the Spaniards, if it indeed occurred, drastically influenced Siouan lifeways. Furthermore, there is no evidence that epidemic disease accompanied the Spanish to the region. Evidence for epidemic diseases in the North Carolina Piedmont does not appear until the mid-seventeenth century, corresponding with recurrent interaction with English traders (Ward and Davis 1991). In essence, there is little evidence for cultural change among Siouan groups due to external forces until mid-seventeenth century.

The first successful effort at colonization by the English occurred in 1607 at Jamestown and was facilitated by the Virginia Company of London. For the first several years of the colony's existence, it struggled immensely. The English quickly realized the way to profit was through exporting natural resources, including tobacco, timber, and furs, to the Old World. Before the mid-seventeenth century, most of the trade occurring in the colony of Virginia between Europeans and Native Americans happened around the Chesapeake Bay (Davis 2002:139). It was not until after the Second Pamunkey War of 1644-1645 that the English were able to travel farther west and establish forts. Forts, like Fort Henry located near the falls of the Appomattox River, served as starting points for trading expeditions (Davis 2002:139).

Over time as Native trading partners dispersed and tobacco became more lucrative than furs, European traders in Virginia and the Carolinas refocused their attention on managing their plantations and acquiring enslaved Africans. Until about 1740, the European settlement of the North Carolina Piedmont was minimal (Ward and Davis 1991:180). Historical accounts reveal Europeans at that time found the North Carolina Piedmont to be sparsely inhabited.

The Ethnohistorical Record

Despite misconceptions, biases, and missing details, the ethnohistorical record, authored solely by European explorers and traders, provides an account of Siouan life worth examining. It is crucial to analyze these historical accounts with an understanding of the chaos, motivations, and uncertainty that accompanied this era. The lack of extensive historical accounts is likely related to the absence of sustained mission work in the region, and because Europeans did not consider Siouan groups politically relevant (Mooney 1894;

Davis 2002:138). Nevertheless, Europeans were eager to establish trading alliances and relationships with Native Piedmont groups.

Much of what is known about the seventeenth-century cultural landscape of the North Carolina Piedmont comes from the writings from Edward Bland, John Lederer, and John Lawson (Davis 2002). One of the first accounts of the Piedmont comes from Edward Bland in 1650. Bland led an expedition out of Fort Henry with the intent to establish trade with the Tuscarora. Bland's account provides an early look at the relationships between various Piedmont groups and traders (Bland 1651). John Lederer journeyed through the area between 1669-1670 in search of a route across the Appalachian Mountains, while spending time with various groups and recording his observations of Native resource selection and practices (Cumming 1958). John Lawson's *A New Voyage to Carolina* is one of the most comprehensive historic accounts of Native American culture and plant use due to his background as an amateur botanist and surveyor (Bellis 2009; Mathewes 2011). Lawson's 1701 journal includes details of New World flora, fauna, geography, climate, and Native practices. Lawson observed that the indigenous population of Carolina had dwindled to one-sixth of what the population had been fifty years prior (Lefler 1967:232).

By the 1730s, European colonists observed that Native groups had largely abandoned the central North Carolina Piedmont. During William Byrd II's 1728 survey to define the North Carolina and Virginia boundary line, and in his 1733 survey of the "Land of Eden" the 20,000 acres he purchased in current-day Rockingham County after the 1728 survey, he described a mostly vacant land (Wright 1966). Before the surveys, Byrd's great-uncle and father established their family fortune by operating a successful trading network with the Sara. Additional accounts from the region come from botanist William Bartram, who traveled through the Southeast in the 1770s, after Europeans had begun aggressively settling in the region (Van Doren 1928). Bartram was especially interested in the plants and natural resources used by Native peoples. Although significantly later than the previously mentioned traders and explorers, Bartram's account is referenced as it provides insight into Native practices after most Siouan groups had left the Piedmont. Although their attention to detail, backgrounds, motivations, and experiences differed, these explorers generated records that describe Native agricultural practices and land use that are immensely valuable for scholars working to understand Native lifeways.

Trade

Over time, trade goods turned from maize and beads to furs, tools, weapons, and slaves (Lapham 2005:25; Miller 2005). For English colonists, the seventeenth century was a time of opportunity and death. Many saw trade as a vehicle for upward mobility. Native peoples were eager consumers, and both groups acknowledged the potential for profit in establishing commercial relationships. Native men embraced roles in trade as hunters and middlemen and fulfilled English desires for access to resources from non-coastal areas. By the mid-seventeenth century, beaver was mostly absent from the Chesapeake Bay area, and other prime fur sources had dwindled in number (Miller 2005:240). Piedmont groups acquired European goods directly and indirectly. Before 1670, most European trade goods recovered from the Piedmont had arrived there via Native trade networks. Trade networks allowed for increased contact between populations and generated sociopolitical power. Archaeological evidence of trade often corresponds to the accumulation of European trade goods. Historian Paul Kelton has argued that trade was a significant factor in the destabilization of Native lifeways and generated dependency upon the English (2007:101). While trade likely contributed to the sociopolitical and environmental instability of the Contact period, Native populations were not entirely dependent upon the English for commodities. However, trade did tie Native populations to Anglo-Americans (Merrell 1989:91). Material culture recovered from archaeological sites in the Piedmont suggest European technology was used alongside traditional methods (Ward and Davis 2002:137). Ward and Davis (2002) argue the peltry trade likely had a larger impact on Siouan social structure than it did on technology. Mortuary evidence indicates that as the English gained access to the central Piedmont after 1650 young adult males may have occupied positions of prestige previously held by adult females (Ward 1987; Ward and Davis 2002:139).

The deerskin trade was especially important in the Piedmont. Archaeologists have argued that hunting practices were modified to procure more deer (Waselkov 1978). From her analysis of faunal remains, Heather Lapham (2005) found Native Virginian groups over time showed a preference for larger, male deer. Lapham's findings are corroborated by a distinction made by John Lawson that "large" deerskins were a preferred commodity (Lefler 1967:129). As deer populations declined, competition for favorable hunting grounds increased, contributing to tensions between Native groups. Native people did not desire firearms for hunting, but for warfare (Snyder 2010:53-54).

The commodification of enslaved Native Americans proved to be just as profitable as furs (Gallay 2002; Snyder 2010:48-49; Wilson 1983:108-109). The practice of taking captives was an element of warfare established long before the arrival of Europeans. During the Contact period, raiding with the intent of capturing people to adopt, enslave, and sell intensified (Gallay 2002; Snyder 2010). The Indian slave trade was lucrative and poorly regulated by the English, and no attempts were made to regulate the practice until 1671 (Wilson 1983:108-110,115). Unsurprisingly, involvement in the Indian slave trade further deteriorated relations between Native groups and the English (Wilson 1983:115). In the Southeast, the Indian slave trade lost momentum around 1715 just as ships carrying enslaved Africans arrived regularly in Charleston (Voyages Database). Approximate estimates reveal that the black population of North Carolina increased from 900 or 6% of the state's population in 1710 to 3,000 or 14% of the colony's population by 1720 (Purvis 1999:128).

Intertribal Conflicts

Trade and sociopolitical instability undoubtedly contributed to intertribal conflicts. Competition and technology influenced warfare and slave raiding. Although Native groups had established relationships, and practiced captive taking and warfare, long before the arrival of Europeans, competition for trade markets and hunting grounds intensified new and pre-existing hostilities among Siouan groups.

Warfare and intimidation were vital in maintaining control over trade in the region (Dickens et al. 1987:2). Bacon's Rebellion in 1676 dramatically altered access to trade economies (Davis 2002; Ward and Davis 1993). After helping Nathaniel Bacon and his men defeat the Susquehannock, the Occaneechi were attacked and driven from their island village located on the Roanoke River (Ward and Davis 1993:430). Occaneechi Island was located directly along the Great Trading Path and had provided an ideal location for the Occaneechi to operate as middlemen. That status was precarious after the heavy losses in 1676. Previously, the Occaneechi had developed a formidable reputation among both Europeans and other Native groups for their use of intimidation and their supply of European weaponry

(Bland 1651; Merrell 1987; Ward and Davis 2002:137). After Bacon's Rebellion, the Occaneechi lost their monopoly and eventually retreated south to the Eno River drainage, which allowed for other Siouan groups, like the Sara, to gain political power through direct access to European traders and their wares (Ward and Davis 1993:430). The aftermath of Bacon's Rebellion also included intensified raiding by the Seneca in the region (Ward and Davis 1993:441).

The concept that warfare could be used to acquire people did not arrive in the New World with Europeans (Snyder 2010:48). People were viewed as a resource necessary for building and maintaining communities. Prior to the seventeenth century, Iroquois raiding parties attacked Siouan groups and collected captives. Mourning wars occurred throughout the Eastern Woodlands. Young men raided their enemies to procure war captives to adopt, enslave, or ritually sacrifice to combat their grief (Richter 2001:64). Natives viewed enslavement as an appropriate fate for conquered enemies (Snyder 2010:4, 56). Episodic raiding continued into the Historic period and is well documented in the ethnohistoric record.

Intertribal hostilities or competition may have led to the development of nucleated, fortified settlements in the Piedmont (Davis and Ward 1991:52). Palisade walls can be viewed as evidence for intertribal tension. According to Kelton (2007:102), raiding had such an effect on Native populations during the Contact period that thousands of Natives were unable to hunt or harvest their crops as they sought sanctuary in fortified, but cramped and unsanitary, towns. A situation like the one described by Kelton would have facilitated the spread of epidemic diseases.

Disease

Scholars consider disease to be one of the most devastating components of European contact (Purdue 1985; Richter 2001:59; Taylor 2001:39; Ward and Davis 1999). As virgin populations, Native American populations were susceptible to introduced diseases, including smallpox, influenza, measles, and yellow fever, among others (Crosby 1986). Diverse and repeated epidemics prevented populations from recovering to pre-Contact sizes. While disease did not immediately wipe out settlements and populations, cyclical waves of disease contributed to the depopulation of Native groups.

The specifics regarding the exact diseases and their trajectories are widely debated (Hutchinson and Mitchem 2001; Hutchinson 2016). While it is unclear just how many perished and which diseases were responsible, it is apparent from historical and archaeological evidence that introduced diseases dismantled communities and contributed to instability across North America. Still, many survived (Kelton 2004).

The timing and effects of epidemic disease in the Southeast depended upon multiple cultural, social, and biological variables (Ward and Davis 1991:180). In the central North Carolina Piedmont, it appears that disease affected most late seventeenth-century groups and coincided with the arrival of English traders (Ward and Davis 1991). Ward and Davis (2001:125) credit small populations and the dispersed settlement locations for Siouan groups escaping the initial occurrences of European disease. Some archaeologists have proposed that settlement type and location influenced the susceptibility of a population to disease (Ramenofsky 1987). People living in dispersed and mobile settlements, like those found within the Haw River drainage, were less likely to acquire or transmit diseases among their group members than occupants of more densely populated villages like those identified along the Dan River.

Unfortunately, archaeological evidence of disease epidemics is often indirect and rarely straightforward (Hutchinson and Mitchem 2001:59). Marvin Smith finds little evidence of epidemic disease in the sixteenth century but assumes it must have occurred (Smith 1987). Ethnohistoric accounts from the seventeenth and eighteenth centuries contain pertinent information regarding when and how Native populations experienced disease. Written accounts acknowledge a particularly devastating smallpox epidemic that crossed the Southeast between 1696 and 1700 (Hutchinson 2016:77). In 1701, John Lawson wrote “The Pox is frequent in some of these Nations” (Lefler 1967:226). Lawson recognized smallpox as one of the main factors responsible for the depopulation of the Piedmont (Lefler 1967:10, 28, 218, 223). Additionally, Lawson reported that Natives “cure the Pox, by a Berry that salivates, yet they use Sweating and Decoctions very much with it” (Lefler 1967:129, 218). These writings from Lawson support assertions from ethnohistorians that Native people used traditional practices to treat newly encountered diseases.

Responses to epidemic disease can encompass a wide variety of individual or group activities. The most common responses to epidemic disease include migration, extraordinary preventative or therapeutic measures, scapegoating, acceptance or resignation, ostracism of the ill, and intra-group conflict (McGrath 1991:409). Eastman (1999:232) has suggested that the removal and rebuilding of Sara homes and settlements can be understood within the context of disease as perhaps a therapeutic, ritual, or preventative measure. Native Americans worked to treat and prevent the spread of diseases from within their belief systems, even though some practices exacerbated conditions or facilitated the spread of viruses (Kelton 2004; Richter 2001:61).

Fragmentation and Depopulation

When Europeans settled the Piedmont in the 1740s, they encountered few Native peoples (Ward and Davis 1991:180). Even earlier in the eighteenth century, explorers and traders had noticed the decline in the Piedmont's Native population. Historical accounts reference the abandonment of villages, the depopulation of the region, and the amalgamation of various Native groups. Europeans believed that alcohol, disease, and slave raiding mostly contributed to the depopulation of the region (Lefler 1967; Wright 1966). Ward and Davis (1991) note that documentary and archaeological data show no evidence for depopulation until after 1650 when regular contact with the English was established.

Archaeological evidence for settlement abandonment and reconstruction dates to periods with high mortality rates in the later phases of the Contact period. While not mentioned in historical accounts, climate change may have contributed to the decision of Siouan groups to leave the region. North Carolina experienced some of its most severe droughts between AD 1691-1700 and 1705-1714 and a period of extreme wetness between AD 1716-1720 (Stahle et al. 2013). Native groups were likely aware of the cyclical climatic changes that had been ongoing for centuries, but the extreme fluctuations during the sixteenth and seventeenth centuries likely contributed to the instability that plagued the Contact period. Environmental conditions and unpredictability should be factors considered by scholars engaging with the shatter zone.

Robbie Ethridge's (2009:2) Mississippian shatter zone frames the Southeast from the sixteenth to the early eighteenth centuries as a region of instability. Ethridge's (2006) model builds off Eric Wolf's (1982) definition of the "shatter zone" as a tumultuous cultural landscape resulting from trans-Atlantic European economies incorporating indigenous populations. Ethridge (2006) argues the destabilization and reformation of Native societies during this period was a result of the many elements of colonialism. By the mid-eighteenth century, many Native polities were dramatically transformed or dissolved. However, contact with Europeans did not leave Native lives utterly destroyed (Ethridge 2009: 39-40). Between unfamiliar epidemic diseases, intergroup conflicts, and changing environmental conditions, Native Piedmont groups experienced decades of precarity.

Human-Environmental Interactions and Subsistence Patterns

Multiple scholars have investigated Piedmont subsistence patterns and plant use using data collected from the Siouan Project (Graham 2018; Gremillion 1985, 1989, 1993a, 1993b; Holm 1994; Longo 2018; Melton 2014, 2018; VanDerwarker et al. 2007; Wilson 1977, 1983). For the most part, scholars tend to agree that while the instability that stemmed from factors related to contact undoubtedly disrupted Native Piedmont lifeways, it did not necessarily disrupt subsistence practices or resource collection. However, some more recent interpretations do challenge this interpretation (Melton 2018; VanDerwarker et al. 2013).

Jack Wilson completed the first archaeobotanical analysis of the Piedmont. Wilson (1977) analyzed 12 features from Upper Saratown as a part of his master's thesis. He examined remains from soil samples taken from shallow basins, pits, hearths, a midden, and a collapsed burial chamber. Most soil samples were waterscreened, resulting in a bias against small seeds. The samples from Upper Saratown revealed a mixture of cultigens, fruits, nuts, and miscellaneous taxa and established a baseline for Siouan botanical assemblages.

Kristen Gremillion produced the most comprehensive work in the region to date. In her master's thesis and dissertation, Gremillion (1985, 1989) analyzed samples from Fredricks, Wall, Mitchum, George Rogers, Edgar Rogers, Holt, Webster, Guthrie, William Kluttz, Upper Saratown, Lower Saratown, Hairston, and Powerplant. George Rogers (31Am220), Holt (31Am168), Webster (31Ch463), and Guthrie (31Am148) are sites located in the Haw River drainage and are not included in this study.

Gremillion found that Siouan groups in the Dan, Eno, and Haw River drainages utilized a diverse set of plant resources and maintained a high level of consistency over time (Gremillion 1989:234). Gremillion identified several trends, including a decrease over time in acorn and small grains and the adoption of peach and cowpeas, beginning before the arrival of the English to the Piedmont (1989). Additionally, she found some evidence for a decline in species richness over time but could not directly attribute this phenomenon to a decline in population. Depopulation and changes in population demographics may have conflicted with indigenous grain collection, altered priorities in collection, or resulted in a loss of knowledge. Gremillion (1993b:459) maintains the disruption of agricultural activities during the Contact period is plausible but unsupported.

VanDerwarker, Scarry, and Eastman examined archaeobotanical samples from Upper Saratown for features that ranged in dates from AD 1650-1710. Using principal components analysis, they identified two features as special refuse deposits due to the type and quantity of macrobotanical remains recovered. The authors concluded that the Sara consumed similar foods in feasting and everyday domestic contexts (VanDerwarker et al. 2007:45). Despite the turmoil of the Contact period, the Sara maintained their identity through the consumption and preparation of traditional foods.

Native Carolinians held ceremonies to purify a group, honor a particular spirit, and to restore balance to a community (Hudson 1976; Purdue 1985:16). Feasting was a crucial component of Native ceremonies and diplomatic events, both of which likely became more common in the second half of the seventeenth century, corresponding with European access to the Carolina Piedmont. Ward (1993) and Eastman (1996, 1999) have separately proposed that increased instances of death and social disruption during the Contact period resulted in an intensification of ceremonies that included feasting. VanDerwarker, Scarry, and Eastman (2007) also found evidence for the intensification of feasting activities and the destruction of consumables during the later portion of the Contact period. The authors suggest the Sara may have intensified their attempts at community and household purification by ritually destroying food and utilitarian items in response to population loss associated with illness and raiding (VanDerwarker et al. 2007:44).

In her undergraduate honors thesis, Mallory Melton (2014) analyzed macrobotanical assemblages recovered from postholes and pit features at the Wall and Jenrette sites. She found changes in maize use and maize cupule density at the two sites. Maize cupule density was higher, and maize was more abundant at the pre-Contact Wall site, leading Melton (2014:69) to propose that the inhabitants of the Wall site had a greater dependence on maize agriculture. Melton (2018) interpreted the trend in maize cupule density to indicate maize processing occurring in fields away from the Jenrette site. Melton (2018:205) hypothesized residents of the Eno River valley altered agricultural practices to circumvent attacks from slave raiders. She suggested that by the mid-seventeenth century, practices, including field scattering, had reconfigured the daily life of the inhabitants at Jenrette.

Anna Graham (2018) analyzed wood charcoal from the nearly consecutively occupied Wall, Jenrette, and Fredricks sites for her master's thesis. Her study investigated human-environmental relations and the creation of landscapes via daily practices. Graham did not find strong evidence that contact-related factors impacted fuelwood collection. Instead, the identified changes in fuelwood more likely reflected the long-term use of the area surrounding the sites (Graham 2018:55).

Wilson, Gremillion, Melton, and VanDerwarker and collaborators characterize Siouan subsistence to include a diverse array of cultigens, fruits, nuts, and miscellaneous taxa. Siouan groups utilized wild resources while cultivating indigenous and introduced taxa. Gremillion attributes changes in foodways to factors unrelated to contact, while Melton (2018) and VanDerwarker and coauthors (2013) argue that agricultural practices were altered as a response to contact. Gremillion, Melton, and VanDerwarker and collaborators discuss risk-averse strategies. For Gremillion (1989:235), this means maintaining a varied diet without too much dependence upon any one plant resource. To Melton (2018:215), risk-averse strategies encompass the intensification of foraged resources and field scattering as a response to raiding. VanDerwarker and coauthors (2013:73, 83) argue diversification should be viewed as a correlate of a risk-averse strategy and that small changes in subsistence practices should not be overlooked. Overall, archaeobotanical investigations have found that European contact resulted in little variation in the taxa used by Piedmont groups. The maintenance of traditional foodways should be viewed as a process and as a display of Native agency.

Multiple scholars have investigated the faunal assemblages from Siouan sites (Holm 1994; Longo 2018; VanDerwarker 2002). In her dissertation, Mary Ann Holm (1994) found minimal changes in faunal assemblages and did not observe an increased emphasis on white-tailed deer over time. Julia Longo (2018:113-114), in her master's thesis, argued that Native groups altered their subsistence strategies at the sub-regional level by increasing their emphasis on white-tailed deer from the Late Woodland to the Historic period, likely reflecting the importance of hides for the deerskin trade. However, Longo noted that the most radical shifts occurred between 1450-1620 and that communities located along major waterways already practiced distinct subsistence patterns from communities located near minor waterways. In her analysis of subsistence practices in the Roanoke River valley, Amber VanDerwarker (2002) found an increase in fur-bearing mammals and an increase in assemblage richness. These changes likely reflect the intensification of trade and Piedmont groups hunting more types of animals over time. Interestingly, there is no evidence that European animals played a role in Siouan diets (Holm 1994). Overall, zooarchaeological analyses illustrate the resiliency of Native groups.

Old World Taxa in the New World

Although there is some debate between scholars regarding what Old World plants and plant foods Native Americans adopted, Piedmont groups rejected most Old World taxa, with the exception of peach, cowpea, and watermelon (Gremillion 1993a). Of those three cultigens, cowpea is the only plant not recovered from any Siouan archaeobotanical assemblage. Gremillion (1993a) argues peach, cowpea, and watermelon fit well into existing foodways as dietary supplements rather than dietary staples. Her model for crop introduction emphasizes the high-yield and low-risk characteristics of these plants. It is unclear if Siouan groups were aware of the plants' Old World origins. For instance, peach traveled north from Florida in the sixteenth century and were so abundant throughout the Southeast that Europeans believed the species to be indigenous (Van Doren 1928). Most Old World taxa were rejected because they were ill-suited for the environments of the Southeast, but it is also possible that Native groups were actively rejecting taxa associated with Europeans. While Gremillion (1993a) has suggested that these crops traveled independently and were not recognized by Native groups to be foreign, memories of their introduction to the Piedmont may have existed among Siouan groups.

Examples from the Chesapeake

Similar responses to contact have been seen archaeologically with other Native groups. Maryland Algonquians at the Posey and Camden sites selectively adopted or substituted European commodities into their culture (Galke 2004). Archaeologists recovered only a few European artifacts from the mid-to-late seventeenth-century sites. Galke explains that a limited number of European items does not equal limited contact. Archaeologists also consider the Nanticokes and Choptanks from the Eastern Shore of Maryland to have remained culturally conservative by retaining pre-Contact lifeways on reservations in the early eighteenth century (Roundtree and Davidson 1997:156-159). Furthermore, there is little evidence that Native dietary patterns changed during the Contact period. Faunal analysis from the Posey and Camden sites found almost no evidence of domesticated species (Landon and Shapiro 1998:17; MacCord 1969). Native populations were not abandoning their ways of life.

Various articles, reports, theses, and dissertations of the Siouan project and other comparable archaeological projects have revealed complicated tales of cultural continuity and change, leaving behind a paradoxical portrayal of the Contact period. The effects of colonialism undoubtedly disrupted Native polities and lifeways, yet it did not affect every group or individual in the same manner. Moreover, not every aspect of Native life was disrupted. Subsistence patterns and plant resources appear to have largely remained consistent over time, but other practices, including mortuary patterns, ceramic traditions, and settlement organizations, changed. These results have been interpreted as evidence of resilience and adaptation. Native Piedmont groups were responding to a tumultuous era by exercising their agency as communities and as individuals. In the next few chapters, I explore whether it is possible to detect subtle variation over time or across the sites from these similar patterns of plant use.

CHAPTER 4: METHODS

This study includes macrobotanical remains analyzed from 580 individual samples from 265 features across 10 sites and nine different archaeological phases (Tables 3 and 4). I include data used in previous analyses as well as 143 additional samples. Previously published data includes 312 samples considered in Gremillion's (1989) dissertation, 56 Upper Saratown samples reported in Jack Wilson's (1977, 1983) master's thesis and dissertation, 72 Upper Saratown samples analyzed by Amber VanDerwarker, C. Margaret Scarry, and UNC students (VanDerwarker et al. 2007), and 23 samples from the Wall and Jenrette sites analyzed by Mallory Melton (2014). Anna Graham has completed the most recent analysis of samples from the Upper Saratown, Hairston, and Wall sites as a part of a recent NSF project. For logistical reasons, I include only the remains analyzed by Graham from Upper Saratown and Hairston in this study. I completed the analyses of some samples and collated the data.

Since techniques and taxon names vary from analyst to analyst, the data were standardized to allow for more direct comparisons. RLA archaeologists sampled a variety of features, including human burial pits, middens, storage pits, earth ovens, basins, postholes, and smudge pits. The selected features represent behavior related to everyday domestic activities, communal food processing, and potentially ritual practices. Samples were selected to provide a comprehensive depiction of Siouan plant usage across time and river drainage.

Table 3. Distribution of Sample Types and Associated Analysts.

Site	River Drainage	Number of Features Analyzed	Flotation	Waterscreen	Analysts
Lower Saratown (31Rk1)	Dan	28	28	0	Gremillion
Powerplant (31Rk5)	Dan	22	22	0	Gremillion
William Kluttz (31Sk6)	Dan	12	12	0	Gremillion
Hairston (31Sk1)	Dan	12	0	12	Graham
Upper Saratown (31Sk1a)	Dan	43	0	43	Graham, Wilson, VanDerwarker
Jenrette (31Or231a)	Eno	42	42	0	Gremillion, Melton
Wall* (31Or11)*	Eno	18	18	4	Gremillion, Melton
Fredricks (31Or231)	Eno	48	48	0	Gremillion
Edgar Rogers (31Am167)	Haw	10	10	0	Gremillion
Mitchum (31Ch452)	Haw	30	30	0	Gremillion
Totals		265	210	59	

*Certain features were sampled by both flotation and waterscreening.

Table 4. Distribution of Analyzed Samples by Associated Archaeological Phase.

Archaeological Phase	Date	Number of Features Analyzed	Flotation	Waterscreen
Fredricks	1680-1710	48	48	0
Late Saratown	1670-1710	26	4	22
Middle Saratown	1607-1670	51	24	27
Jenrette	1600-1680	36	36	0
Mitchum	1600-1670	30	30	0
Early Saratown	1450-1620	9	5	4
Hillsboro*	1400-1600	28	28	4
Dan River	1000-1450	31	29	2
Haw River (Early)	1000-1200	6	6	0
Totals		265	210	59

*Several features were sampled for both flotation and waterscreening.

Recovery

The type of recovery method used by a project's archaeologists is especially relevant to the types and proportions of plant remains recovered from a site. Tables 3 and 4 contain information regarding the analysts, number of features, and the distribution and types of samples. The macrobotanical remains analyzed in this study were extracted via flotation and waterscreening. Only samples from the Wall site were processed using both recovery methods. Flotation samples were taken from the Lower Saratown, Powerplant, William Kluttz, Jenrette, Wall, Fredricks, Edgar Rogers, and Mitchum sites. Flotation was conducted using a modified SMAP-style system. Light fractions were collected using 0.71 mm mesh, and 1.56 mm mesh was used to collect the heavy fractions. Most flotation samples were taken in 10-liter increments. For features and zones containing less than 10 liters of fill, the entire fill was collected for processing. Soil samples were measured using a calibrated bucket and dried after flotation. At the Hairston and Upper Saratown sites, fill samples were waterscreened. Waterscreened samples were taken using 6.35 mm, 1.59 mm, and 0.79 mesh. The finest mesh was only used with 32 waterscreened samples from Hairston. Using such very fine mesh is not typical with waterscreening.

Laboratory Analysis

Jack Wilson, Kristen Gremillion, Anna Graham, Mallory Melton, and Amber VanDerwarker at the Research Laboratories of Archaeology's Yarnell Paleoethnobotany Laboratory at the University of North Carolina at Chapel Hill analyzed the macrobotanicals identified in this study. Additional samples from the Wall site have since been analyzed but are not included in this study.

Wilson

Working under the direction and supervision of Richard Yarnell, Jack Wilson was the first to analyze archaeobotanical remains from the Piedmont. Wilson examined waterscreened samples from 12 features from Upper Saratown. RLA archaeologists used 1.59 mm mesh for waterscreening and took two one-liter soil samples. The one-liter samples were collected to provide a representative sample of the fill and are excluded from this study. Using protocols established by Yarnell, Wilson divided each sample using geological sieves before sorting the material. Material larger than 2.38 mm was completely sorted into its various components. The fractions smaller than 2.38 mm were scanned for seeds and plant materials absent from the larger fraction.

Gremillion

Also using procedures outlined by Yarnell (1974), Kristen Gremillion analyzed many of the samples featured in this study. In total, Gremillion analyzed 312 individual samples. Gremillion incorporated both recovery methods but placed a greater emphasis on recovery via flotation than Wilson. Samples were weighed and sieved using U.S. standard geological sieves. The sieves varied in size from 6.25 mm to 0.21 mm. A riffle splitter was used to subsample extremely large samples. In the heavy fractions and the waterscreened samples, only carbonized plant remains were sorted. Heavy fractions were only sorted for nuts, seeds, and seed fragments, which were then removed and identified by taxon. In the light fraction, material larger in size than 2.00 mm was sorted and weighed. The material in the 1.4 mm and smaller fractions were scanned for seeds, cultigen remains, and other macrobotanical remains not identified in the larger fractions.

Weights were recorded for all taxa and wood, but counts were only recorded for seeds and fruits. Gremillion (1989:44) extrapolated weights when certain remains were notably abundant. Maize cob fragments were not separated from maize cupules. In order to compare the data, I used ratios to extrapolate counts from the weights reported by Gremillion (Table 5). These ratios were calculated using data from the Wall, Jenrette, and Upper Saratown sites, and data collected from sites across the Eastern Woodlands (Melton 2014; Scarry 2003; VanDerwarker et al. 2007).

Table 5. Ratios Used to Extrapolate Counts.

Taxon	Ratio (grams/fragment)	Source
Acorn	0.0026	Scarry 2003
Hazelnut	0.013	Scarry 2003
Chestnut	0.013	Scarry 2003
Hickory	0.015	Scarry 2003
Walnut	0.029	Scarry 2003
Peach	0.0159	Melton 2014
Maize (cupules and kernels)	0.0114	Scarry 2003
Gourd rind	0.01	Melton 2014

Graham, Melton, and VanDerwarker

Anna Graham, Mallory Melton, and Amber VanDerwarker followed standard procedures used by UNC's RLA for plant assemblages from the Eastern Woodlands to sort and identify macrobotanical remains (Melton 2014; VanDerwarker et al. 2007). These analyses include samples recovered by flotation and waterscreening. Light and heavy fractions of each sample were analyzed, and summed counts were recorded for each taxon. The light fractions were weighed and separated using U.S. standard geological sieves in 2.0 mm, 1.4 mm, and 0.7 mm. The material smaller than 0.7 mm was also analyzed. In the 2.0

mm fraction, wood charcoal and contaminants were removed and weighed separately. The smaller fractions were scanned for seeds and seed fragments. Heavy fractions were also weighed and separated using a U.S. standard geological sieve 2.0 mm in size. Each size fraction was analyzed with the aid of a stereoscopic microscope (10-40X magnification).

Like Gremillion, the analysts used a riffle splitter to subsample large samples. Graham, Melton, and VanDerwarker made identifications, which were verified by C. Margaret Scarry. Graham and Melton weighed and counted seeds, while VanDerwarker only recorded seed counts. Seeds and other non-wood plant parts were classified to the lowest level of taxonomic certainty. The analysts made identifications using morphological characteristics, including size, shape, and surface texture. Identifications were assisted by the comparative collections housed by the RLA and by seed manuals (Martin and Barkley 1961; Schopmeyer 1974).

Although various archaeobotanists analyzed the samples included in this study over the past few decades, the methods used were similar enough to warrant comparison. As part of a National Science Foundation grant awarded to investigate cultural accommodation and change in the Contact period North Carolina Piedmont (Hutchinson et al. 2015), the macrobotanical data were compiled into a Microsoft Access database. The data were checked for consistent use of taxonomic names and the formatting was standardized. The aggressive sampling strategy and the sheer number of samples taken as a part of the Siouan Project have allowed for a unique investigation into Contact period plant use. In the next chapter, I discuss the recovered plants and broad patterns of Siouan plant use.

CHAPTER 5: RESULTS

The collated data for this study are presented in several appendices and tables. The 265 features from 10 sites that are considered in this study are listed in Appendix 1. Raw counts for nut and seed remains in each analyzed feature are found in Appendix 2. Table 6 contains a complete list of all identified taxa. The taxa recovered from each archaeological phase of the three drainage systems are listed in Tables 7, 8, and 9.

A broad range of taxa have been recovered and identified. The properties of the taxa recovered vary widely. These taxa indicate trends in the environment, subsistence patterns, medicinal or therapeutic strategies, and practical uses. Table 6 provides a glimpse at the variety of plants used by Piedmont groups, but by no means do the recovered taxa represent all the plants utilized by Siouan groups. All the macrobotanical remains recovered were carbonized by either accidentally or deliberately burning. Variability in preservation conditions and processes impacts the macrobotanical remains recovered.

Table 6. List of Taxonomic Names for Plants Identified at the Investigated Sites.

Common Name	Taxonomic Name
Cultigens	
Bean	*Phaseolus vulgaris*
Bottle gourd	*Lagenaria vulgaris*
Maize	*Zea Mays*
Squash	*Cucurbita* sp.
Tobacco	*Nicotiana* sp.
Starchy and Oily Seeds	
Chenopod	*Chenopodium berlandieri*

Table 6 Continued.

Common Name	Taxonomic Name
Knotweed	*Polygonum* sp.
Little Barley	*Hordeum pusillum*
Maygrass	*Phalaris caroliniana*
Sumpweed	*Iva annua*
Sunflower	*Helianthus annuus*
Fruits	
Blackberry/raspberry	*Rubus* sp.
Blueberry	*Vaccinium* sp.
Elderberry	*Sambucus* sp.
Grape	*Vitis* sp.
Hawthorn	*Crataegus* sp.
Huckleberry	*Gaylussacia* sp.
Maypop	*Passiflora incarnata*
Mulberry	*Morus rubra*
Peach	*Prunus persica*
Persimmon	*Diospyros virginiana*
Plum	*Prunus americana*
Plum/cherry	*Prunus* sp.
Strawberry	*Fragaria* sp.
Sumac	*Rhus* sp.
Viburnum	*Viburnum* sp.
Watermelon	*Citrullus vulgaris*
Grape family	Vitaceae
Nuts	
Acorn	*Quercus* sp.
Hazelnut	*Corylus* sp.
Hickory	*Carya* sp.
Walnut	*Juglans nigra*
Butternut	*Juglans cinerea*
Chestnut	*Castanea dentata*
Beech	*Fagus grandifolia*
Miscellaneous	
Amaranth	*Amaranthus* sp.
Barnyard grass	*Echinochloa* sp.
Bearsfoot	*Polymnia uvedalia*
Bedstraw	*Galium* sp.

Table 6 Continued.

Common Name	**Taxonomic Name**
Blackgum	*Nyssa sylvatica*
Bulrush	*Scripus* sp.
Carpetweed	*Mollugo* sp.
Cheno/am	Chenopodium/Amaranthus
Cleaver	*Galium* sp.
Copperleaf	*Acalypha virginica*
Dogwood	*Cornus* sp.
Groundcherry	*Physalis* sp.
Horse Gentian	*Triosteum* sp.
Morning glory	*Ipomoea*/*Convolvulus* sp.
Nightshade	*Solanum* sp.
Peppervine	*Nekemias arborea*
Pine cone	*Pinus* sp.
Pokeweed	*Phytolacca americana*
Purslane	*Portulaca* sp.
Ragweed	*Ambrosia* sp.
Sedge	*Scripus* sp.
Spurge	Euphorbiaceae
Tick clover	*Desmodium* sp.
Wood sorrel	*Oxalis* sp.
Composite family	Compositae
Grass family	Poaceae
Nightshade family	Solanaceae
Pink family	Caryophyllaceae

It is clear from the identified plant remains that Siouan groups cultivated and gathered a diverse array of plants. The identified taxa represent distinct places of origin and environmental settings. The cultivated crops listed above are indigenous to North America, Europe, and Mesoamerica. The identified macrobotanical remains reveal diversity regarding seasonality and environmental habitats. In order to more easily discuss the plants, I have separated them into taxonomic groups, including cultigens, starchy and oily seeds, fruits, nuts, and miscellaneous. These groupings are typical for discussing plant assemblages from the Eastern Woodlands (Scarry 2003:55). Likewise, previous studies using assemblages from the Siouan Project have utilized these categories (Gremillion 1985, 1989; Melton 2014; Wilson 1977).

Table 7. Taxa Present at the Archaeological Phases of the Dan River Sites.

Common Name	Dan River (AD 1000-1450)	Early Saratown (AD 1450-1620)	Middle Saratown (AD 1607-1670)	Late Saratown (AD 1670-1710)
Cultigens				
Bean	X		X	X
Bean cf.			X	X
Bean family	X		X	
Bottle gourd			X	
Cucurbit rind	X	X	X	X
Maize cupule	X	X	X	X
Maize kernel	X	X	X	X
Squash			X	X
Squash/gourd cf.			X	
Tobacco	X	X	X	X
Nuts				
Acorn	X	X	X	X
Acorn meat	X	X	X	X
Butternut			X	
Chestnut	X		X	
Hazelnut	X			X
Hazelnut meat				X
Hickory	X	X	X	X
Hickory meat cf.			X	
Walnut	X	X	X	X
Fruit				
Blackberry/raspberry	X		X	X
Blueberry	X		X	
Elderberry			X	X
Grape	X	X	X	X
Grape family			X	X
Hawthorn	X	X	X	X
Hawthorn cf.		X		
Maypop	X	X	X	X
Mulberry cf.				X
Peach			X	X

Table 7 Continued.

Common Name	Dan River (AD 1000-1450)	Early Saratown (AD 1450-1620)	Middle Saratown (AD 1607-1670)	Late Saratown (AD 1670-1710)
Peach cf.				X
Persimmon	X	X	X	X
Persimmon cf.			X	
Plum/cherry	X	X	X	X
Plum/cherry cf.	X		X	
Sumac	X	X	X	X
Sumac cf.	X		X	
Watermelon				X
Miscellaneous				
Amaranth		X	X	
Barnyard grass		X	X	
Barnyard grass cf.			X	
Bean/persimmon			X	X
Bearsfoot		X		
Bedstraw	X	X	X	
Blackgum	X	X	X	X
Bulrush		X	X	X
Carpetweed		X		
Cheno/am	X	X	X	X
Cleaver			X	X
Composite family		X		
Composite family cf.	X		X	
Copperleaf	X			
Dogwood	X			
Dogwood cf.			X	
Grass family	X	X		
Groundcherry	X	X	X	X
Groundcherry cf.			X	X
Morning glory	X	X	X	X
Nightshade	X	X	X	X
Nightshade family	X	X	X	
Nightshade family cf.	X			
Peppervine			X	
Pine cone		X	X	
Pink family cf.	X			
Pokeweed	X		X	
Pokeweed cf.			X	
Purslane		X		
Ragweed			X	X

Table 7 Continued.

Common Name	Dan River (AD 1000-1450)	Early Saratown (AD 1450-1620)	Middle Saratown (AD 1607-1670)	Late Saratown (AD 1670-1710)
Sedge			X	X
Spurge		X	X	X
Tick clover			X	
Wood sorrel		X		
Oily and Starchy Seeds				
Chenopod	X	X	X	
Knotweed	X	X	X	X
Little barley		X	X	
Maygrass	X	X	X	
Sumpweed	X	X	X	X
Sumpweed cf.		X		
Sumpweed/sunflower	X		X	
Sumpweed/sunflower cf.		X		
Sunflower	X		X	X
Sunflower cf.		X		

Table 8. Taxa Present at the Archaeological Phases of the Eno River Sites.

Common Name	Early Haw River (AD 1000-1200)	Hillsboro (AD 1400-1600)	Jenrette (AD 1660-1680)	Fredricks (AD 1680-1710)
Cultigens				
Bean		X	X	X
Bean cf.		X		
Bean family		X	X	X
Cucurbit rind		X		
Cucurbit rind cf.		X		
Maize cupule	X	X	X	X
Maize kernel	X	X	X	X
Squash		X	X	X
Squash/gourd cf.		X		
Nuts				
Acorn	X	X	X	X
Acorn meat		X	X	X
Beech		X		
Hickory	X	X	X	X
Hickory meat		X		
Hickory/walnut				X
Walnut	X	X	X	X

Table 8 Continued.

Common Name	Early Haw River (AD 1000-1200)	Hillsboro (AD 1400-1600)	Jenrette (AD 1660-1680)	Fredricks (AD 1680-1710)
Fruit				
Blackberry/raspberry			X	X
Blueberry		X		X
Elderberry				X
Grape	X	X	X	X
Grape family		X		
Hawthorn		X	X	X
Hawthorn cf.		X		
Huckleberry				X
Maypop		X	X	X
Maypop cf.		X		
Mulberry		X		
Peach			X	X
Persimmon		X	X	X
Plum/cherry		X		
Strawberry				X
Sumac				X
Viburnum				X
Watermelon				X
Miscellaneous				
Amaranth				X
Bean/persimmon		X	X	
Bearsfoot	X	X	X	X
Bedstraw	X	X	X	X
Blackgum		X	X	X
Bulrush			X	
Carpetweed		X		
Cheno/am		X		
Dogwood		X		
Grass family		X		X
Horse Gentian		X		X
Morning glory				X
Nightshade family		X	X	X
Pink family		X		
Pokeweed		X	X	X
Purslane		X		
Sedge		X		
Spurge				X
Tick Clover			X	

Table 8 Continued.

Common Name	Early Haw River (AD 1000-1200)	Hillsboro (AD 1400-1600)	Jenrette (AD 1660-1680)	Fredricks (AD 1680-1710)
Oily and Starchy Seeds				
Chenopod		X	X	X
Knotweed		X		X
Maygrass		X		
Sumpweed		X	X	
Sunflower		X		

Table 9. Taxa Present at the Archaeological Phases of the Haw River Sites.

Common Name	Hillsboro (AD 1400-1600)	Mitchum (AD 1600-1670)
Cultigens		
Bean	X	X
Bean family	X	
Maize cupule	X	X
Maize kernel	X	X
Squash	X	
Nuts		
Acorn	X	X
Acorn meat	X	
Hickory	X	X
Walnut	X	X
Fruit		
Blackberry/raspberry		X
Grape	X	X
Hawthorn		X
Maypop		X
Peach		X
Persimmon	X	
Plum/cherry	X	
Miscellaneous		
Bearsfoot	X	
Bedstraw		X
Blackgum	X	X
Grass family		X
Horse Gentian	X	

Table 9 Continued.

Common Name	Hillsboro (AD 1400-1600)	Mitchum (AD 1600-1670)
Oily and Starchy Seeds		
Chenopod	X	
Knotweed		X
Little barley		X
Maygrass	X	X
Sunflower		X

The presence and absence data reveal broadly similar subsistence patterns across the river drainages. Although I would argue all the assemblages are rich, data from the Eno River drainage appear to be the least diverse, as the fewest taxa were recovered from the Early Haw River phase samples. However, this trend could be a result of sampling bias due to the number and types of features sampled. Only six features were sampled that date to the Early Haw River phase. Moreover, those features include a tree disturbance and pits, instead of food preparation facilities or burial pits. The richest assemblage is associated with the Middle Saratown phase. The 51 features associated with that particular phase include storage pits, roasting pits, basins, and food preparation facilities. Plant diversity will be further address in section 6.

The Recovered Plants

Cultigens

This category contains a variety of crops, including maize, beans, squash, gourd, and tobacco. Many of these cultivated plants were domesticated in Mesoamerica and later adopted by Native groups across North America. These plants played important roles in Southeastern foodways and ceremonial contexts.

Maize and squash were likely dietary staples for Siouan groups. The genus *Cucurbita* contains numerous domesticated lineages. One lineage *Cucurbita pepo ssp. ovifera* was domesticated in the Eastern Woodlands at least 4,500 years BP (Smith and Cowan 2003). Maize is believed to have become a dietary staple in the Eastern Woodlands around AD 1000, while beans did not arrive until after AD 1200 (Hart et al. 2002; Scarry 2003).

Since these plants were especially visible in the daily life of Native groups, they frequently appear in historical accounts. European records largely reference maize, or "Indian corn," when discussing Native foodways. John Lawson referred to maize as "the most useful Grain in the World" and accredited the success of Europeans in the New World to it (Lefler 1967:81). Especially in the earliest years of contact, European colonists relied heavily upon maize much of which was obtained from Native groups. Europeans soon cultivated maize across North America and transported it to the Old World. European colonists readily adopted maize and incorporated it into traditional European foodways. Likewise, Europeans quickly adopted tobacco and often reference it in their accounts. Lawson mentions encountering both Native men and women smoking tobacco regularly (Lefler 1967:172). Southeastern groups also used tobacco medicinally and ritually. Tobacco was often used as an offering or shared in a ceremonial setting (Erichsen-Brown 1989:421-426; Richter 2001:14,139). Although Lawson and other early reporters were often ethnocentric or misinformed, their accounts provide important details regarding Native plant use.

Archaeological features from each investigated archaeological phase revealed maize cupules and kernels. Previous analyses have found consistently high ubiquity rates of maize across the majority of Siouan sites (Gremillion 1985, 1989; Wilson 1986). Maize remains can reflect behavior associated with processing or consumption. Kernels represent the edible portion of the plant, while cupules represent the inedible portion of the plant. An abundance of cupules and cobs in a feature indicate processing activities, while features containing an abundance of kernels can represent consumption. Native Americans also used maize cobs as a fuel source and for smudging pots. Beans were recovered from every phase except the Early Haw River and Early Saratown phases. While the arrival of beans to the Piedmont post-dates the earlier portion of the Early Haw River phase, beans should be present in the Piedmont during the Early Saratown phase.

As with Gremillion, I observed an increase over time in beans, squash, and gourd remains in the contexts from the Dan River drainage. Samples reveal squash and gourd seeds and rinds were in archaeological contexts that post-date AD 1400. Since the rind is relatively fragile, such remains of squash and gourd are not commonly recovered. Tobacco is another taxon infrequently recovered due to the small size of the seeds. Interestingly, the tobacco seeds were recovered from waterscreen samples. Typically, waterscreening does not capture small seeds very reliably. It is likely the very fine 0.79 mm mesh facilitated the recovery of the tobacco and other small seeds. At the investigated sites, tobacco was only recovered from Upper Saratown and Early Upper Saratown, and is represented in all of the archaeological phases of the Dan River. The narcotic has several varieties; unfortunately, the tobacco seeds recovered were not sufficiently preserved to be identified to a species.

Starchy and Oily Seeds

This taxonomic category comprises cultigens that predate the introduction of maize agriculture in eastern North American, and includes chenopod, knotweed, maygrass, little barley, sumpweed, and sunflower. In the literature, these taxa are often referred to as "Eastern Agricultural Complex" plants. Many of these indigenous cultigens first appear during the Late Archaic Period, more than 3,000 years ago. Native cultigens are recovered less frequently in later archaeological phases of the Piedmont. The archaeobotanical analysis of samples from the Mitchum site revealed an abundance of maygrass seeds. Their presence potentially indicates pre-maize subsistence strategies persisting after the adoption of maize. A noticeable decline is present in the number of Native cultigen taxa recovered in the Eno and Dan River drainages between the Hillsboro and Jenrette phases and the Middle Saratown and Late Saratown phases.

Fruits

A diverse array of fruit seeds and pits were recovered from each of the drainages. This category includes blackberry/raspberry, blueberry, elderberry, grape, hawthorn, maypop, mulberry, peach, persimmon, plum/cherry, sumac, and watermelon. These fruits were foraged, encouraged, and grown. Many of these fruits grow in disturbed edge areas or in orchards. Fruits were utilized by Native groups for subsistence and medicinal purposes. Fruits often contain important vitamins, but can lack important fats and are typically low in carbohydrates. Lawson mentions encountering a myriad of different fruits and discusses how Native peoples preserved and stored these resources (Lefler 1967:217). Fruits were eaten fresh or dried. William Bartram witnessed Native peoples drying grapes in great quantities (Van Doren 1928:321).

Fruit remains were recovered in samples from all the analyzed sites and phases. Two Old World taxa, watermelon and peach, were identified among Siouan contexts. Peach and watermelon traveled independently from the Spanish across the Eastern Woodlands and were quickly incorporated into preexisting foodways (Gremillion 1989, 1993a). Watermelon seeds were only found in the Dan and Eno River drainages after 1660. Peach is notably absent from the Late Saratown component of the William Kluttz site, although this is potentially the result of sampling bias. The presence/absence data indicate peach was not present in the Piedmont until after at least AD 1600.

Nuts

Nuts were one of the most critical plant foods to groups located throughout the Eastern Woodlands (Scarry 2003). Scarry (2003:57) elaborates that while varieties of nuts differ substantially in nutritional composition, processing and collection practices, and culinary uses, all ripen during the Autumn and require processing before the nutmeat can be consumed. Therefore, I include acorn, beech, hickory, chestnut, hazelnut, butternut, and walnut in the same taxonomic category. European explorers and traders recorded Native processing, storage, and consumption of nuts. John Lederer carefully documented Siouan methods for storing maize and mast resources together above ground (Cumming 1958:22). In his journal, Lawson describes a multitude of various nuts he consumed among Piedmont groups (Lefler 1967:104-109). Although Lawson acknowledges the utility of chestnuts and hickory nuts as hog fodder, he does admit to enjoying their flavors (Lefler 1967:105-106).

Nuts are represented in every archaeological phase of the study sites. More specifically, walnut, hickory, and acorn were identified in each archaeological phase (Tables 7, 8, and 9). Acorn and hickory are two of the most abundant remains recovered. Acorn meat is occasionally recovered, but less frequently than acorn nutshell. Like maize, acorns are high in carbohydrates, which could explain acorn declining in importance after the arrival and establishment of maize agriculture. Unlike maize or hickory, acorns must be leached of tannins before consumption. Leaching tannins is time-consuming and increases the investment necessary before consumption. Hickory nuts are high in fat and protein and can be quickly processed by crushing and boiling. Walnuts are costly to acquire and process (Gremillion 1989:249). Hickory nuts are simpler to process and fill nutritional needs similar to walnuts. Chestnuts, hazelnuts, butternuts, and beechnuts were recovered less frequently and appear to be less important mast resources.

Miscellaneous

The analyzed samples yielded many additional taxa. These include amaranth, barnyard grass, bearsfoot, bedstraw, blackgum, bulrush, carpetweed, chenopodium/amaranth, cleaver, copperleaf, dogwood, groundcherry, horse gentian, morninglory, nightshade, peppervine, pine cone, pokeweed, purslane, ragweed, sedge, spurge, tick clover, viburnum, and wood sorrel, as well as members of the composite, grass, nightshade, and pink families. While some of these taxa likely were not utilized, others had functional, nutritional, or medicinal properties. Medicinal resources will be explored in the next section. Many of these plants thrive in disturbed ecological patches and have seeds that are numerous and easily distributed. Due to their mysterious origins and fragmentary nature, much of what is published regarding miscellaneous taxa is speculative. Overall, the Eno and Dan drainages revealed a wider variety of these miscellaneous taxa compared to the Haw drainage.

In the next section, I analyze the samples by site, phase, and feature type in order to explore relationships among the data. I then discuss the identified patterns to evaluate their contributions to understanding Siouan practices and responses to contact.

CHAPTER 6: ANALYSIS AND DISCUSSION

In this chapter, I investigate whether plant use differs across time and space. I look for further evidence of abundance, risk-averse strategies, and trends in the appearance of taxa with known medicinal applications.

Analysis Methods

My investigation uses statistical analyses and visual aids to explore these trends. I utilize box plots, correspondence analysis, ubiquity, and diversity indices to examine relationships among the data. In general, counts used in the analyses are standardized by total plant weight to allow for comparison (Miller 1988). Plant weight was selected instead of volume because soil volumes were not recorded for some waterscreen samples. The methods outlined in the next few pages were selected with the intent to construct a firm understanding of what botanical assemblages included over time and across the different sites and river drainages.

Box Plots

This study includes box plots, also known as box and whisker plots, generated using R. The box displays the interquartile range or the range between the 25th and 75th percentiles. The whiskers contain 99.3% of the data assuming a normal distribution (Chambers et al. 1983). A bold line indicates the median toward the center of the box, and the notches in the box plot indicate a confidence interval around the median. If two boxes' notches do not overlap, there is a 95% chance that the difference between medians are significant (Chambers et al. 1983:62). Hollow circles represent outliers outside of the whiskers range. If more than one outlier overlaps, the circles appear shaded. I have standardized the data by plant weight to allow for comparisons. Additionally, most graphs included in this study are logarithmically transformed to aid in readability.

Correspondence Analysis

I also employ multivariate statistics in this study, as they are an appropriate method for identifying relationships between samples and summarizing datasets (Smith 2015:182). Correspondence analysis (CA) is a multivariate statistical technique especially well-suited for archaeobotanical data as it works well with large sets of data, abundance and presence/absence data, and zero values (Smith 2015:188). Useful for identifying and visualizing variation, CA depicts relatedness with two-dimension spatial proximity. For this analysis, I did not use standardized counts as CA uses raw counts. Stata, a general-purpose statistical software package, calculates the chi-squared distance between the actual and expected values and measures the correspondence between the actual and expected values. Stata can then generate a biplot displaying the variance of those values. I use CA to identify similarities and differences among the macrobotanical assemblages of each archaeological phase of the 10 sites.

Ubiquity

Ubiquity ratios calculate the percentage of samples in which a taxon appears and are used with archaeobotanical data as they standardizes presence/absence data instead of count data, allowing for increased comparability between samples (Marston 2015:164; Pearsall 1989:203). Ubiquity is simple to calculate; however, it can be misleading when comparing samples from diverse contexts, analyzing ubiquitous macrobotanical remains, and when recovery strategies vary (Pearsall 1989:201-203). While I am cautious about using ubiquity, I chose to do so in this study because of its utility in identifying trends regarding the presence/absence of medicinal taxa, which, because they are often sparse, can be challenging to analyze using count data.

Diversity Indices

The diversity index (H) is a measure of variability in a frequency distribution (Shannon and Weaver 1949). Species diversity measures consider both total number of species or taxa present in a population and the abundance of each species or taxa (Pearsall 1989:211). Samples with an even distribution of abundance between taxa have a higher diversity than samples with the same number of taxa but with high abundance of a few taxa (Reitz and Wing 2008:111-113). For samples with identical values of equitability in abundance, the sample with a higher diversity value will be the sample that contains more taxonomic categories. Although there are other diversity indices used in archaeology, I elected to use the Shannon-Weaver index, which incorporates measures of evenness and richness when calculating diversity between samples (Marston 2015:168). Higher numeric values for H signify higher species diversity. Equitability, or E_H, values range from 0 to 1, indicating evenness (Reitz and Wing 2008). A E_H value of 0 represents an extremely uneven, or skewed, distribution of taxa, while a E_H value of 1 indicates an even distribution of taxa. I used Microsoft Excel to generate graphs and calculate the diversity indices.

Food-to-Nonfood Ratios

To begin untangling general trends from the data, I generated box plots depicting a food-to-nonfood ratio. Plotting the ranges of the ratios allows for assessing the contribution of food relative to fuel recovered from each drainage and then within each archaeological phase. I calculated ratios by adding all the raw counts of the edible remains recovered and dividing that value by the feature's carbonized wood weight. The data are log-transformed to aid in readability. When comparing the ratio of plant food to wood weight, the Dan and Haw River drainages yielded comparable ratios (Figure 4). The features from the Eno River drainage revealed a statistically significant difference of slightly more food remains or less wood than the other two drainages. It is unlikely the disparity between the Dan and Eno River drainage is related to the types of features excavated, as both revealed a similar number of features identified as pits, basins, and depressions. However, archaeology in the Haw River drainage has identified less than half of the number of features designated as pits, middens, and basins compared to the results of excavations in the Dan or Eno River drainages.

The ratios of plant food to nonfood plants across archaeological phases depicted in box plots overlap signaling no statistical difference, except for the Hillsboro phase (Figure 5). The Hillsboro phase will be addressed later in this thesis, but it is likely what is contributing to the higher ratio for the Eno River drainage seen in Figure 4. Since the notches of the box plot do not overlap, the groups can be considered significantly different at a 95% confidence interval, meaning, there is a 5% chance the observed relationship is random. Outliers in both graphs indicate features that fall outside of the expected ratio range.

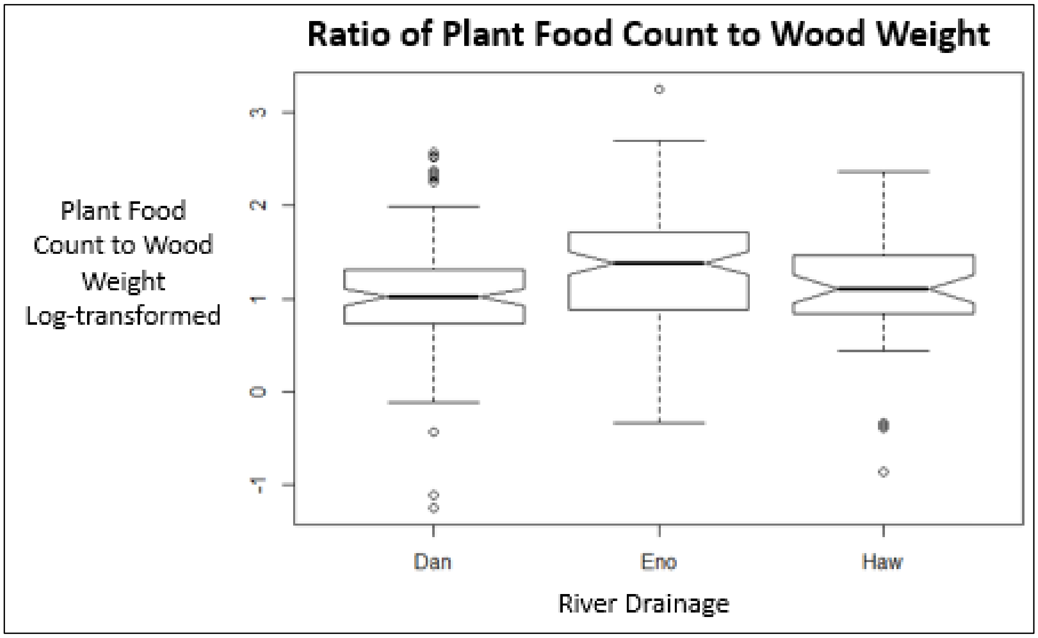


Figure 4. Comparison of plant food to wood recovered across the river drainages.

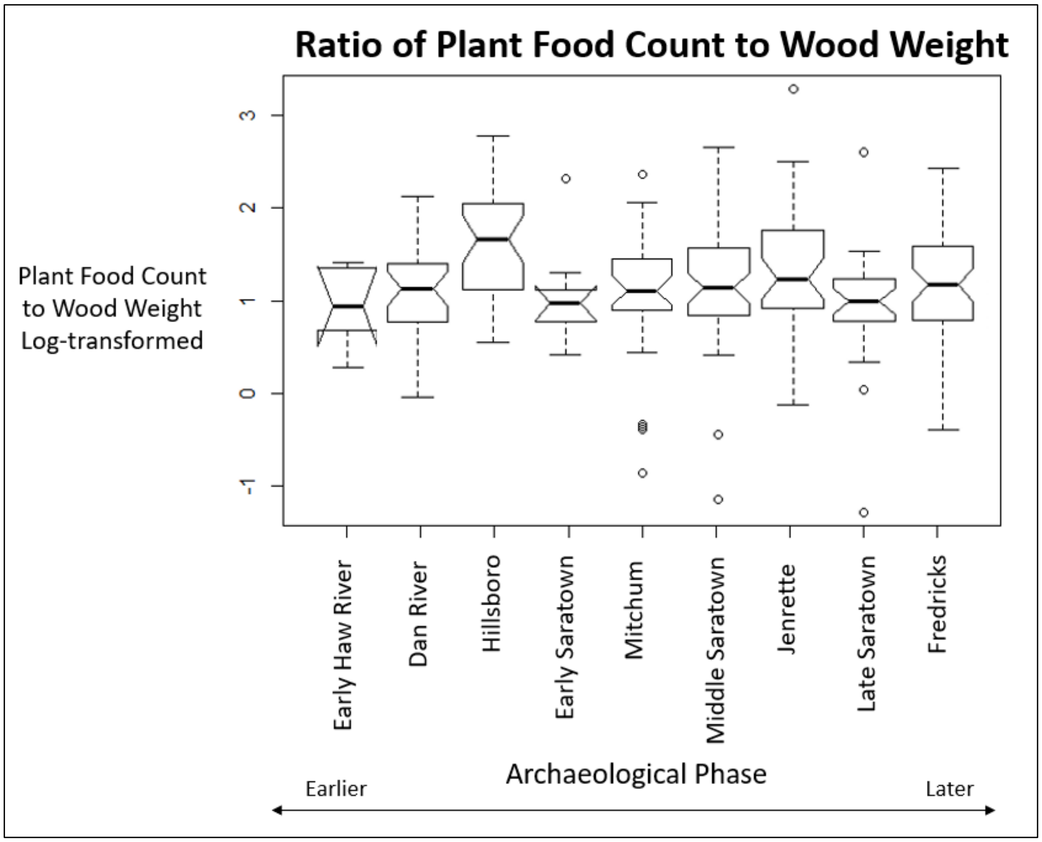


Figure 5. Comparison of the ratios of plant food to nonfood across the investigated archaeological phases.

Subsistence Box Plots

Acorn, hickory, and maize were three of the most important plant foods across the Eastern Woodlands and are three of the most ubiquitous plant remains recovered from the investigated sites. To identify if statistically significant differences are present in the recovered quantities of these taxa, I use box plots to compare the data across the archaeological phases and consider the plant remains recovered from all features apart from human burial pits and probable burial pits. I expect to find continuity, as previous studies indicate Piedmont subsistence patterns demonstrate considerable continuity. Gremillion (1989:258) believes subsistence strategies remained similar despite contact-related factors, although she did note a decline in the importance of acorn. I use the larger dataset now available to look for patterns of change or continuity across the river drainages and over time.

Acorn

In the Dan River, a decline over time in acorns is apparent in the box plots (Figure 6). This pattern does not exist in either the Eno or Haw drainages. The Eno does show some decrease in acorn over time, but the notches of the box plots overlap, indicating the difference is not significant at a 95% confidence level (Figure 7). The Haw River sites display nearly identical amounts of acorn (Figure 8). When comparing all the drainages, it appears the temporal pattern of acorn decreasing in appearance is present only at the Dan River sites (Figure 9). While this trend could be the result of variability in acorn use by site that reflects ecological change, I propose it results from changing preferences or decreased availability of laborers due to disease, raiding, or conflict.

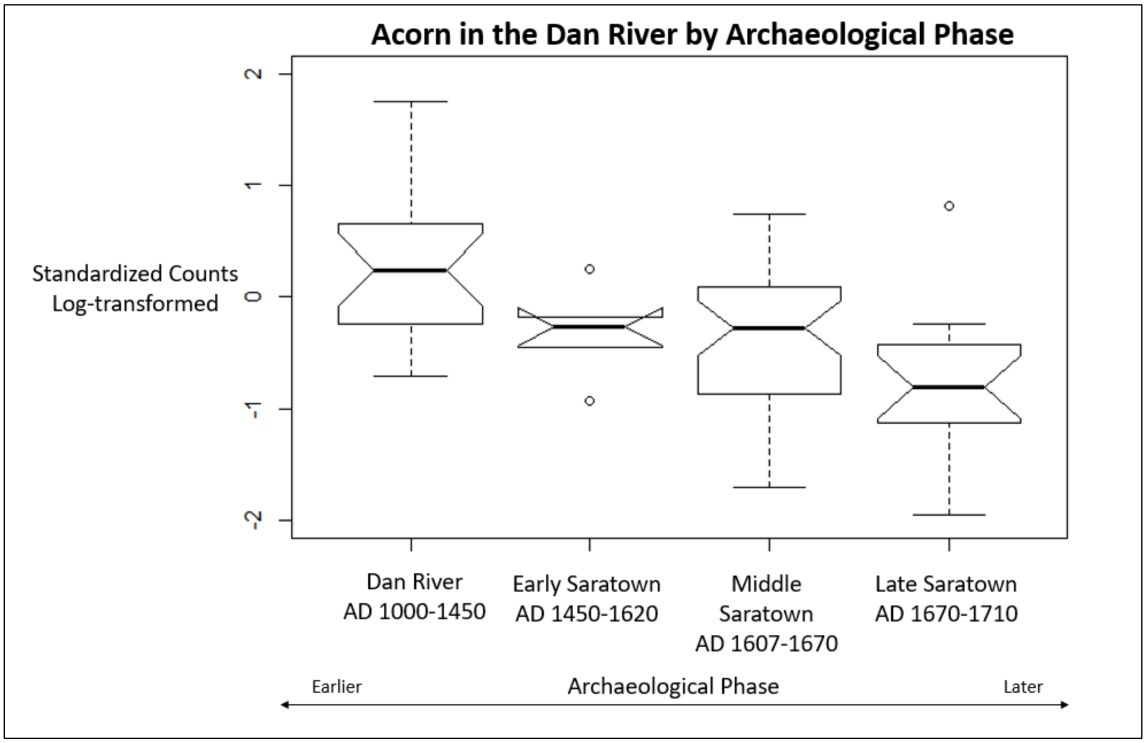


Figure 6. Counts of acorn recovered from Dan River sites.

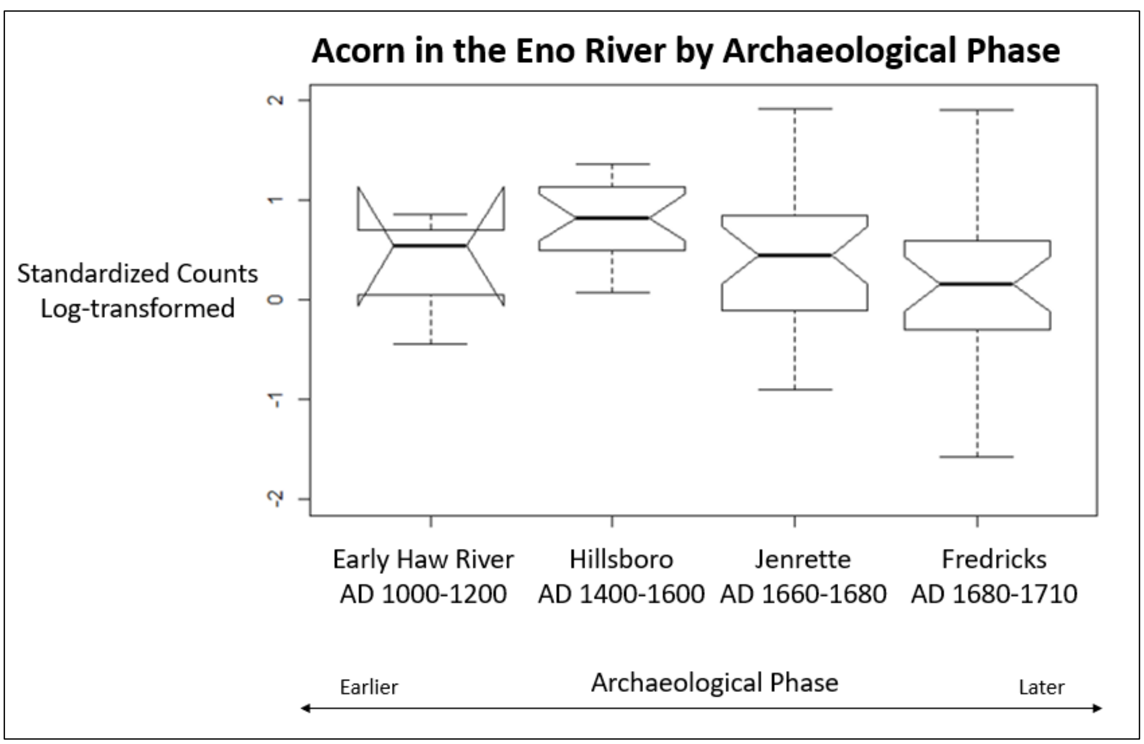


Figure 7. Counts of acorn recovered from Eno River sites.

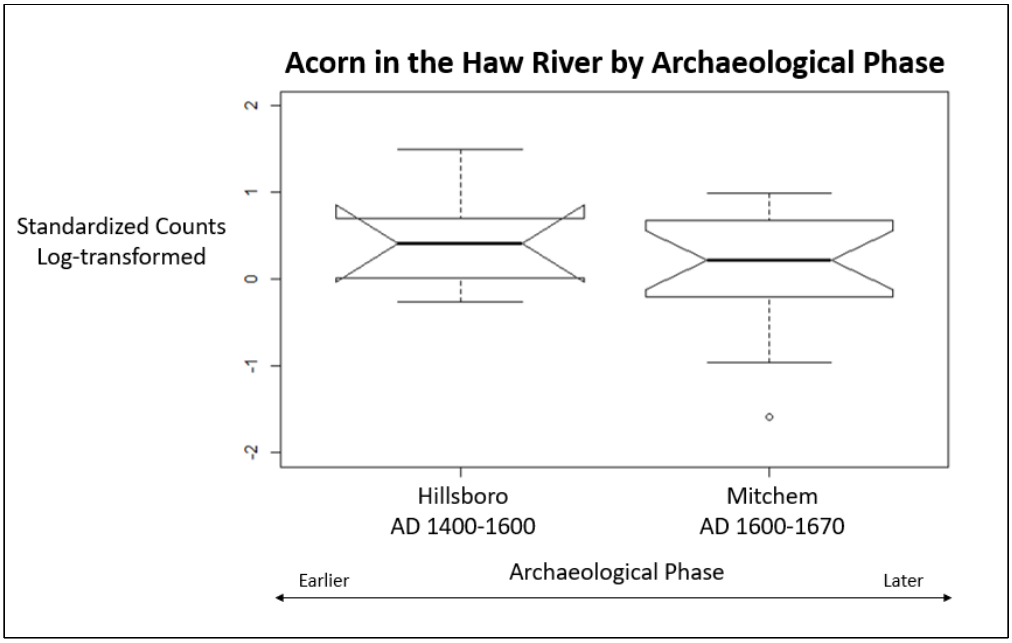


Figure 8. Counts of acorn recovered from Haw River sites.

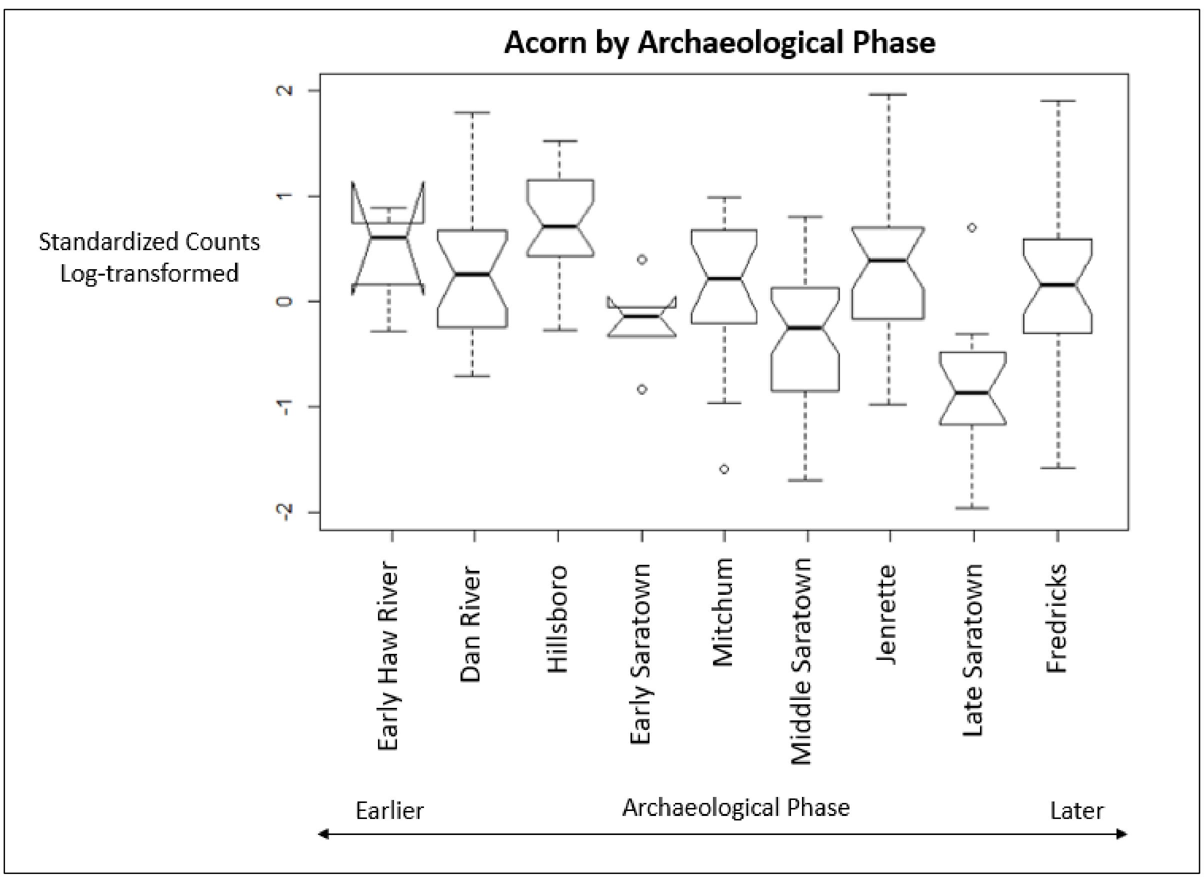


Figure 9. Counts of acorn segregated by archaeological phase.

Hickory

The box plots reveal hickory occurs at similar rates across time within the Dan River drainage (Figure 10). The recovered quantities of hickory do not follow the same pattern as the recovered quantities of acorn within the Dan River drainages. Perhaps Siouan groups living within the Dan River drainage prioritized hickory food products over acorn because of labor constraints or for dietary diversity. Recovered quantities of hickory appear to increase after the Early Haw River phase in the Eno River drainage, but this is likely a reflection of sample size bias, as there are relatively few samples from the Early Haw River phase, several of which are not interpreted to be cultural contexts (Figure 11). The Haw River sites display nearly identical amounts of hickory nutshell (Figure 12). The box plots indicate that hickory was recovered in similar amounts across time and river drainage (Figure 13).

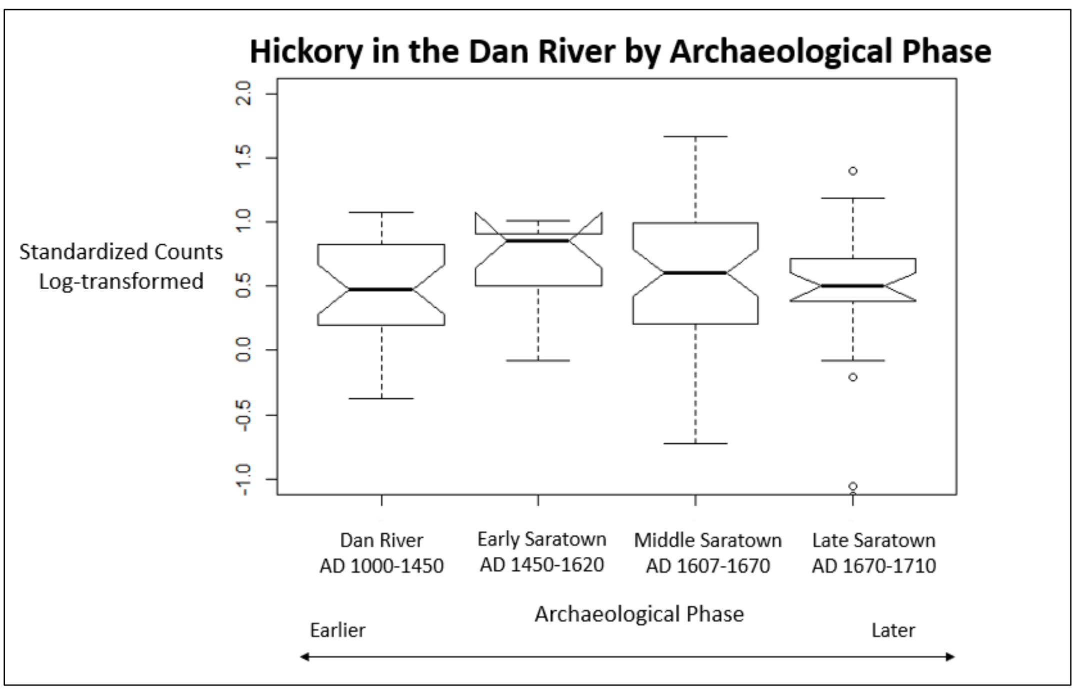


Figure 10. Counts of hickory recovered from Dan River sites.

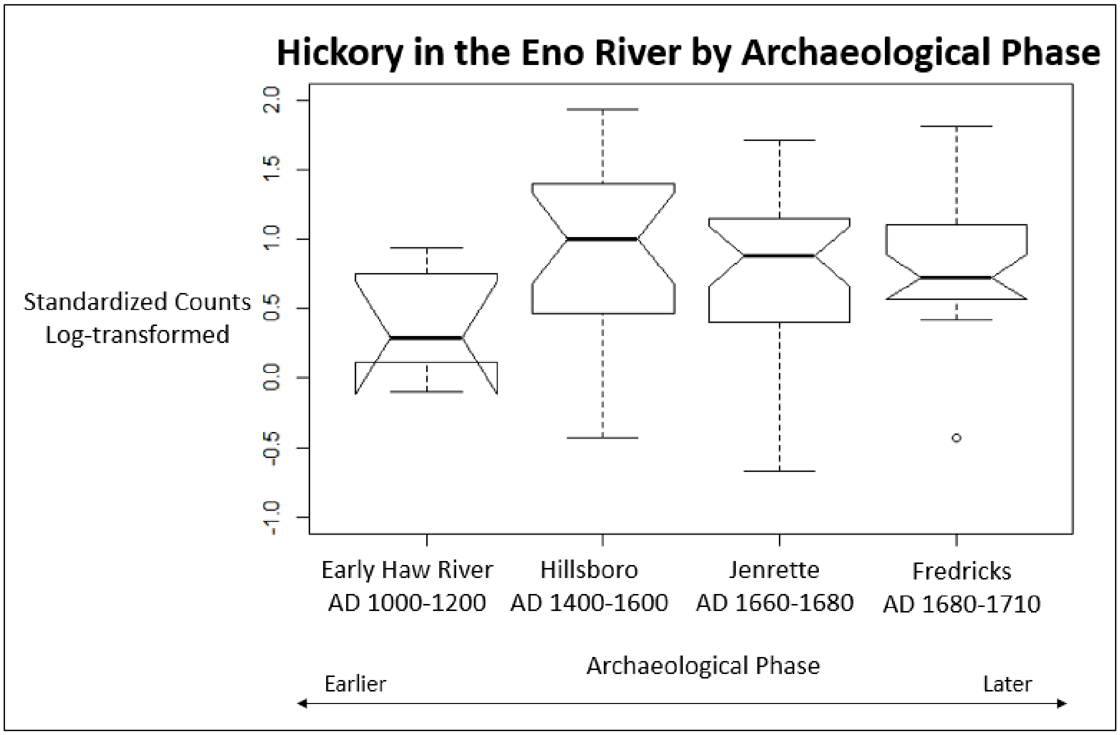


Figure 11. Counts of hickory recovered from Eno River sites.

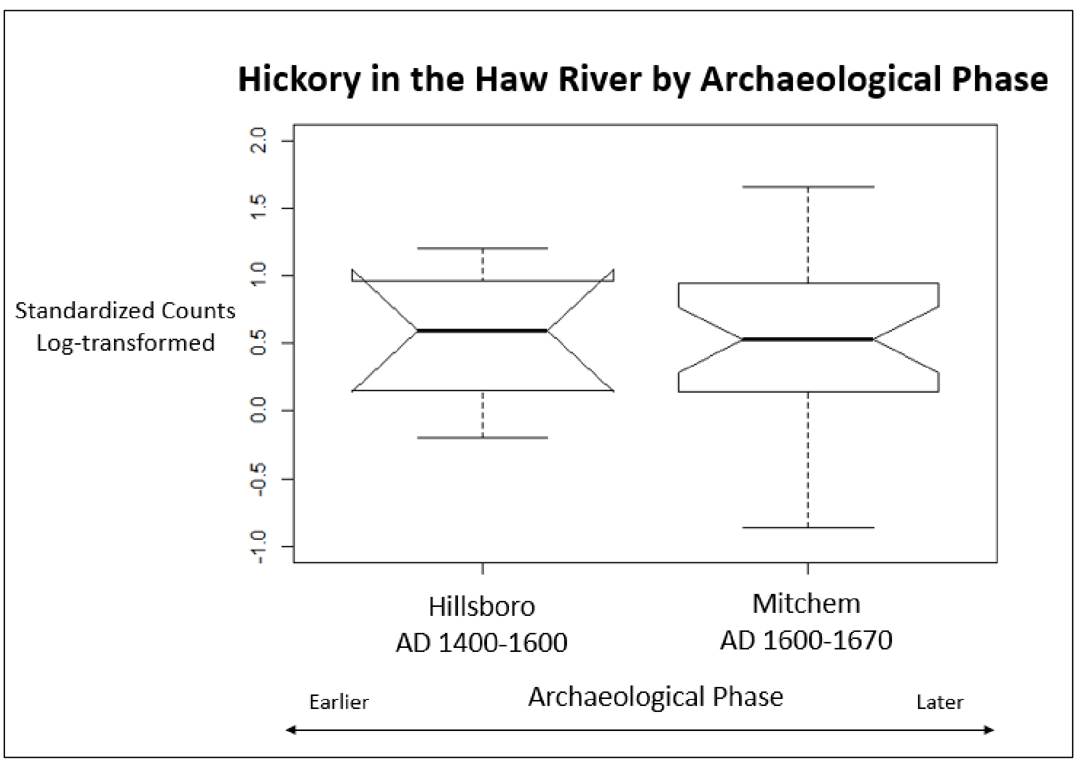


Figure 12. Counts of hickory recovered from Haw River sites.

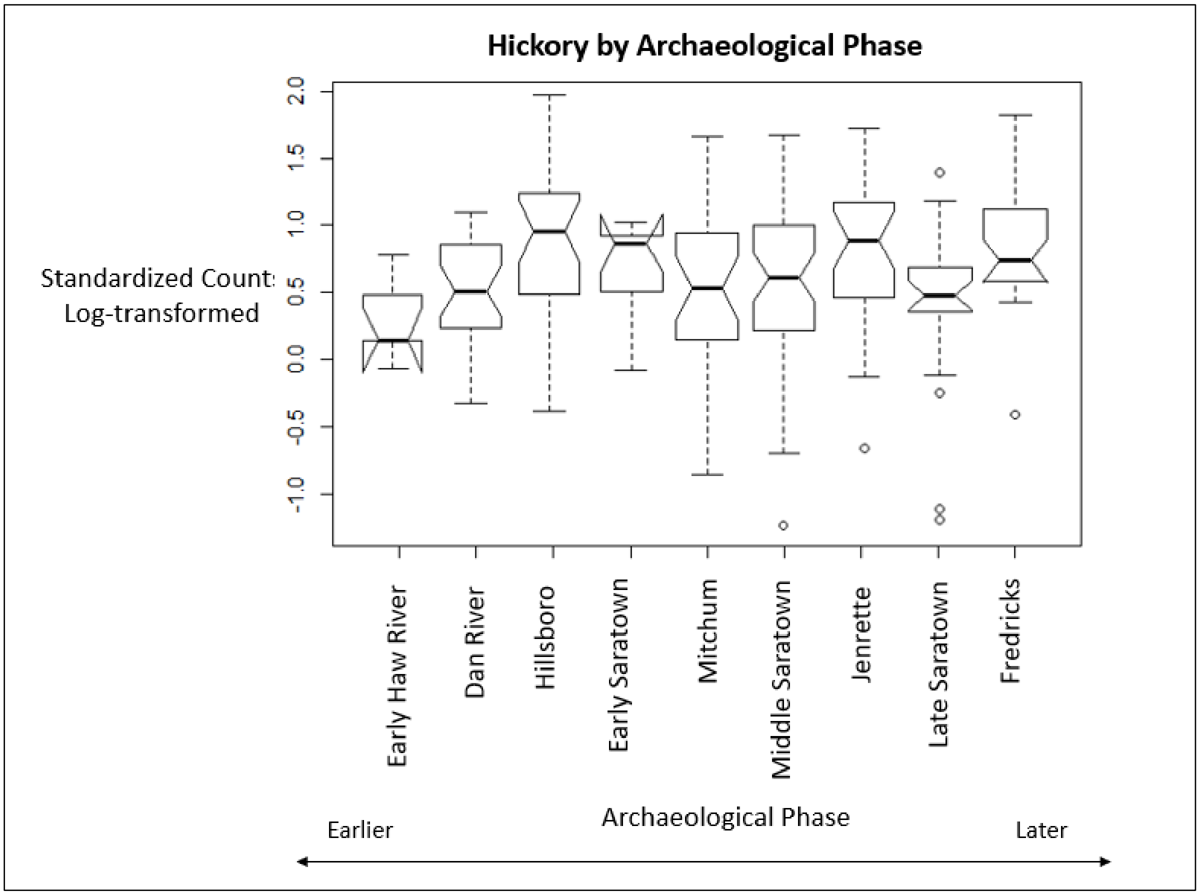


Figure 13. Counts of hickory segregated by archaeological phase.

Maize

Like acorn and hickory, maize was recovered at each site. In the Dan River drainage, there is a statistically significant increase in the appearance of maize cupules from the Dan River phase to the Late Saratown phase, but the phases yield similar quantities of maize kernels (Figures 14 and 15). Siouan groups living within the Dan River drainage may have substituted maize for acorn, either due to labor constraints, reduced mobility, or changing preferences. Among the Eno River sites, the Hillsboro phase contains significantly more cupules and kernels than any other phase (Figures 16 and 17). The difference is less drastic when looking at maize kernels (Figures 17). Additionally, the Fredricks phase yielded fewer cupules and kernels than the Early Haw River or Jenrette phases (Figures 16 and 17). In the Haw River drainage, the amounts of maize kernels and cupules stay consistent over time (Figures 18 and 19). In the box plots, the Hillsboro phase stands out as having significantly higher amounts of maize cupules and kernels. This could be a result of the Wall site's greater dependence on maize agriculture or more favorable growing conditions.

Maize remains found in archaeological contexts can represent several types of activities. Kernels represent the part of the plant meant for consumption and cupules represent maize processing. Archaeobotanists interpret kernels as evidence for behaviors associated with cooking and consumption, while cupules indicate people used discarded cobs as fuel for burning and for smudging pots. Using maize kernel and cupule ratios from the Wall and Jenrette sites, Mallory Melton (2018) has proposed Native Americans living within the Eno River drainage during the later portions of the Contact period scattered their fields and processed maize away from their settlements in an attempt to protect crop yields and avoid ambushes from raiding parities. This proposed example of outfielding will be discussed in greater depth later in the chapter.

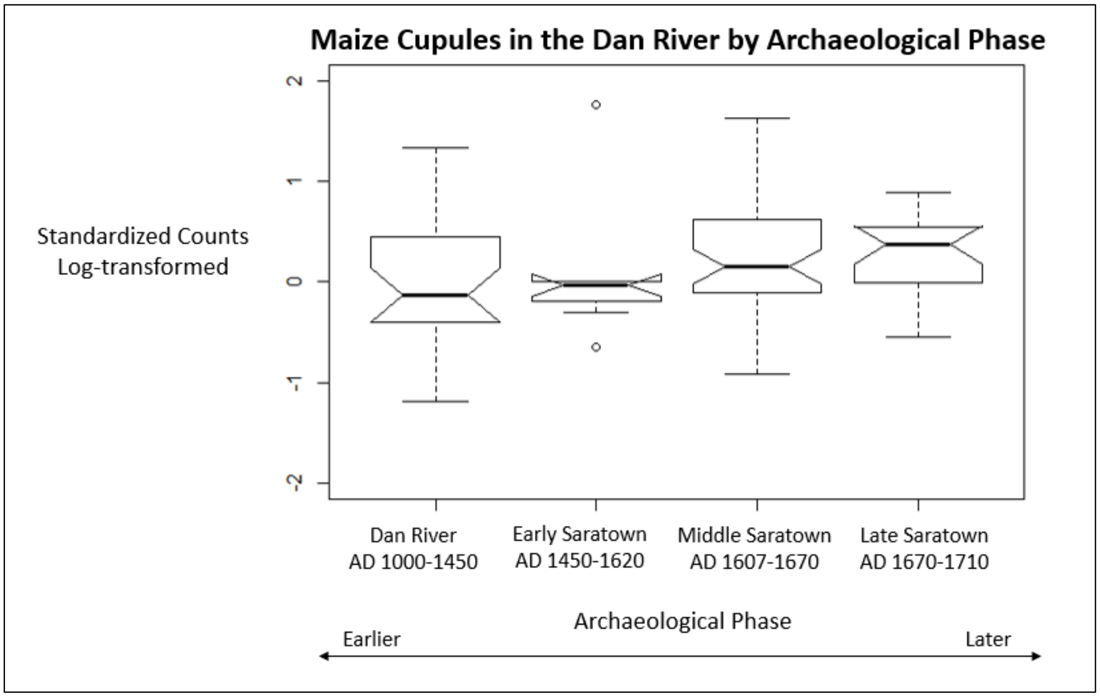


Figure 14. Counts of maize cupules recovered from Dan River sites.

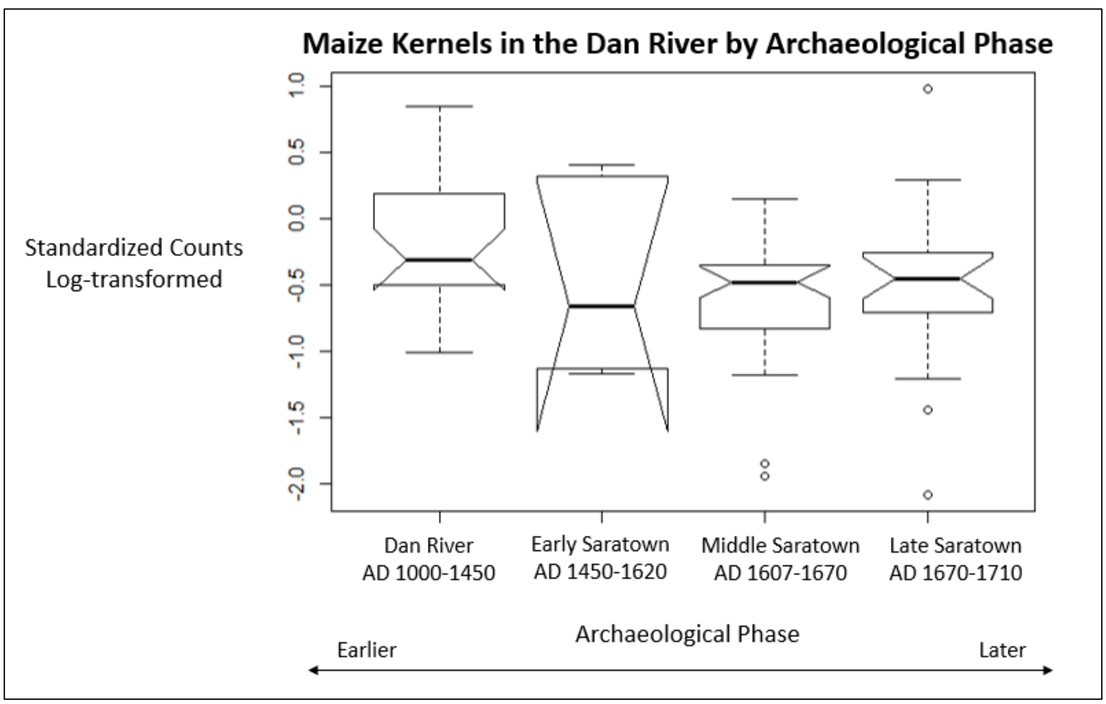


Figure 15. Counts of maize kernels recovered from Dan River sites.

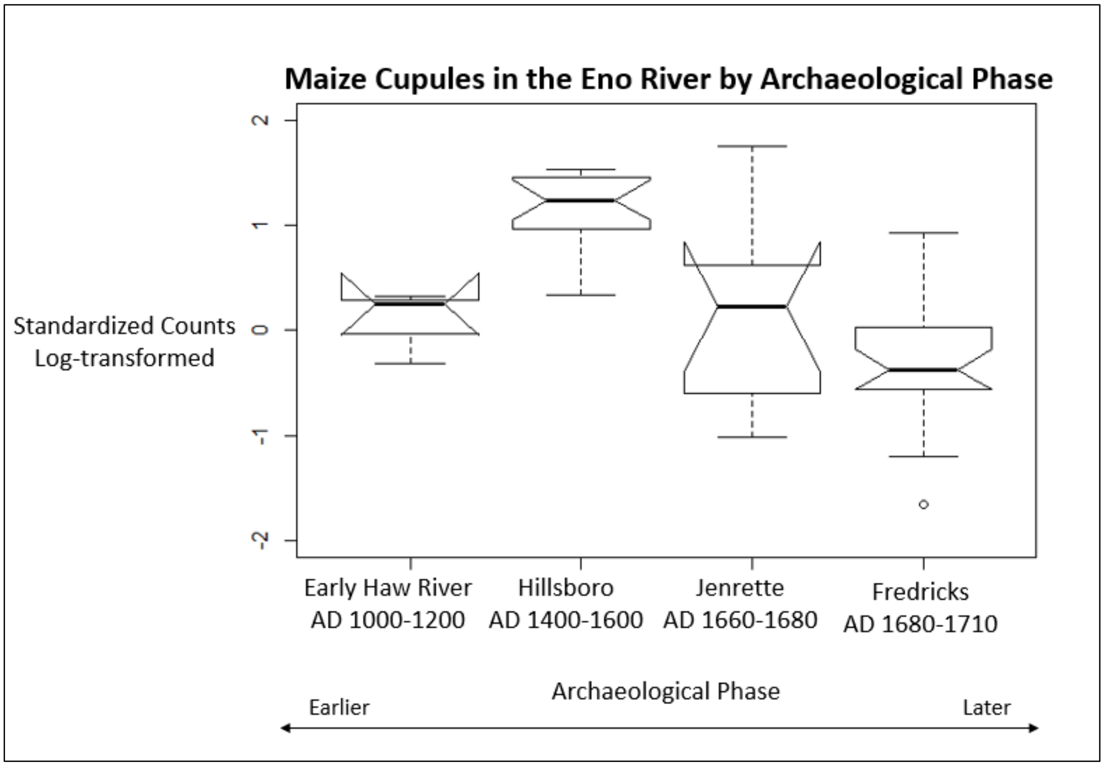


Figure 16. Counts of maize cupules recovered from Eno River sites.

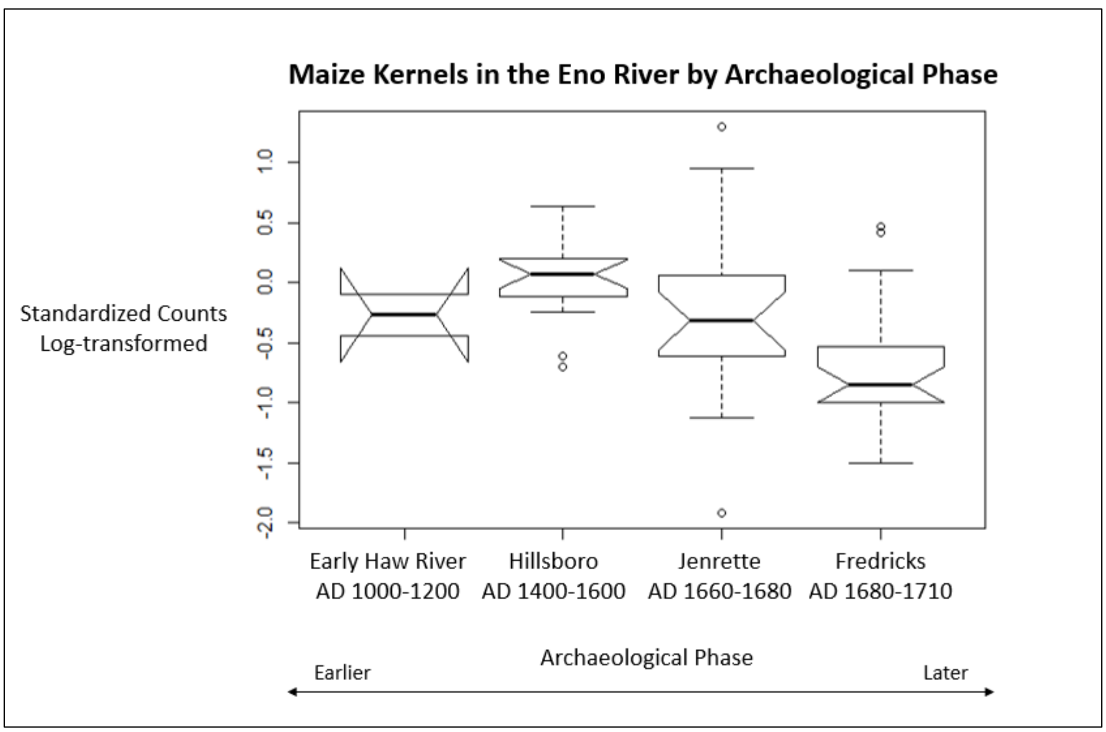


Figure 17. Counts of maize kernels recovered from Eno River sites.

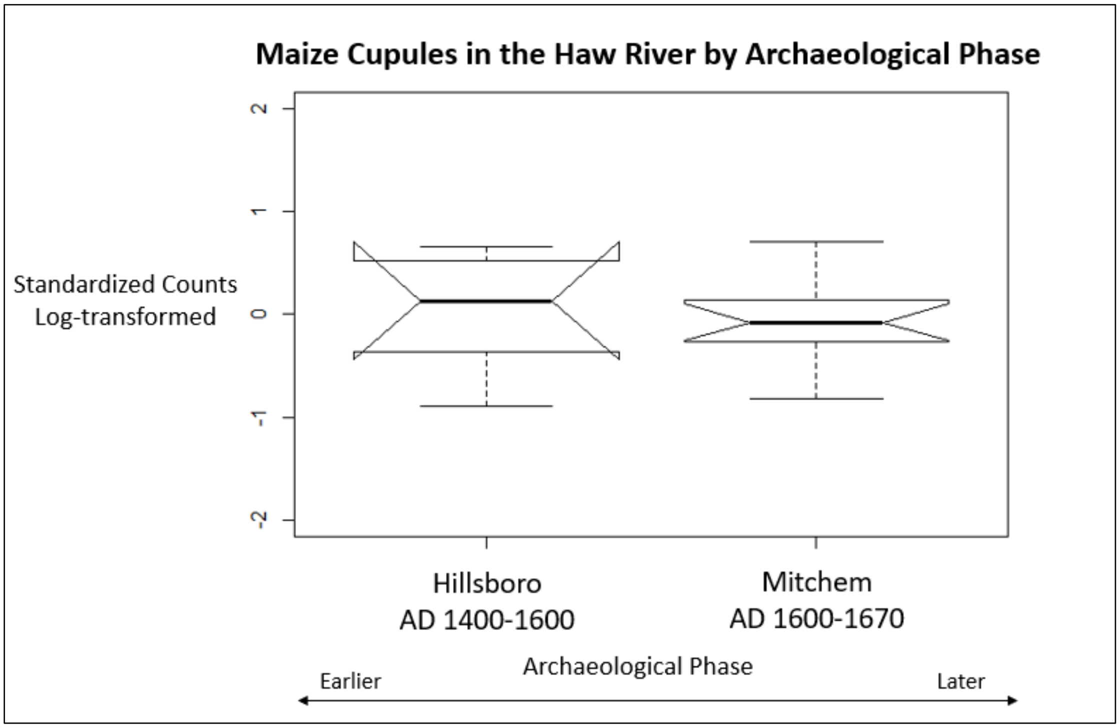


Figure 18. Counts of maize cupules recovered from Haw River sites.

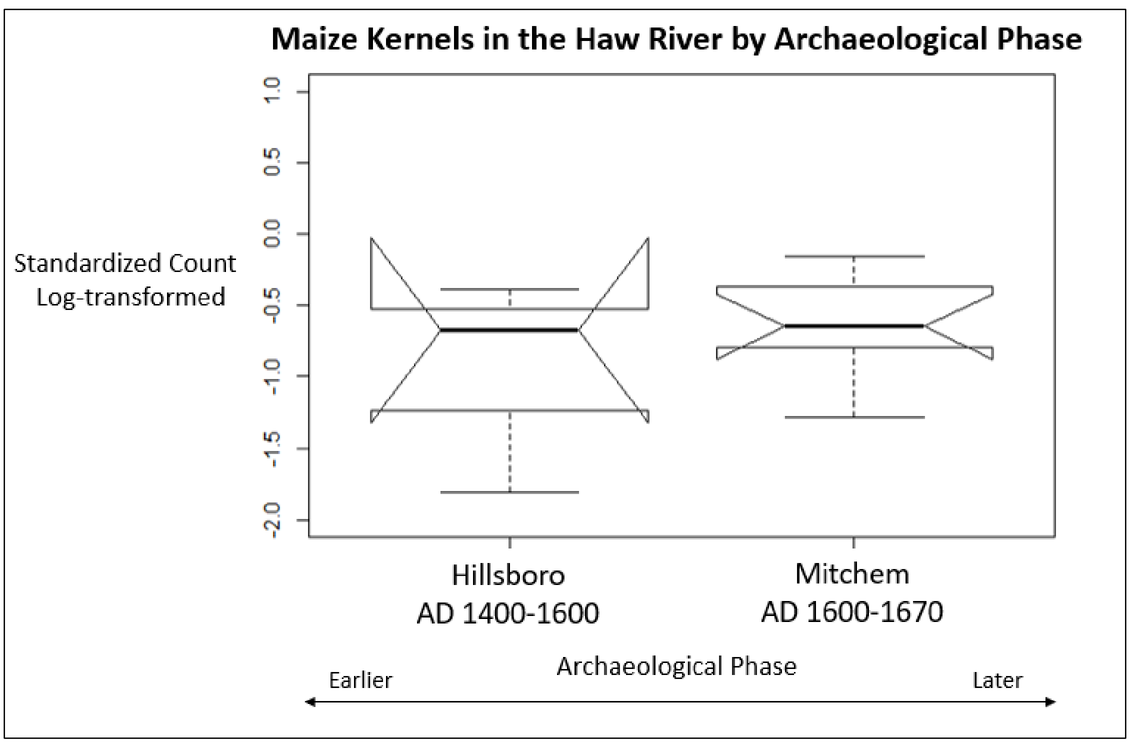


Figure 19. Counts of maize kernels recovered from Haw River sites.

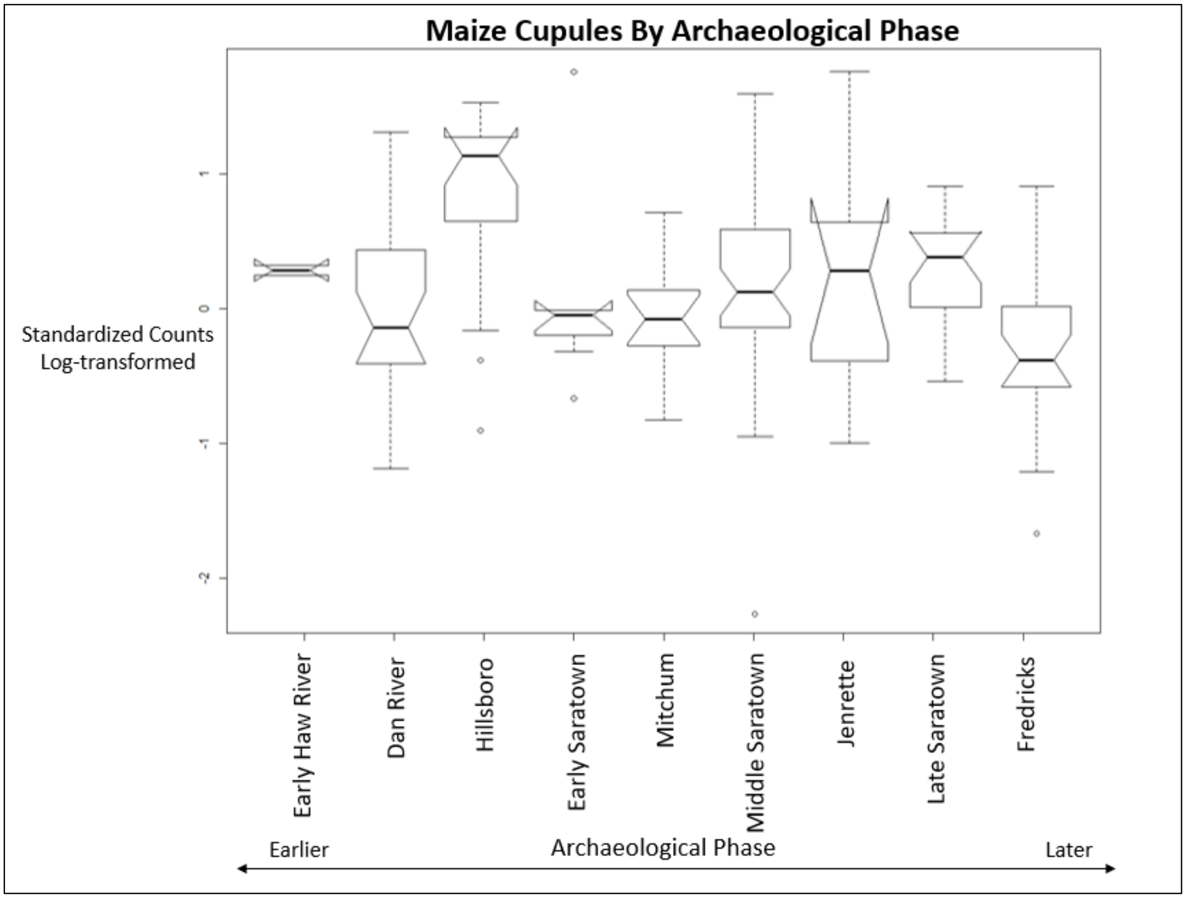


Figure 20. Counts of maize cupules segregated by archaeological phase.

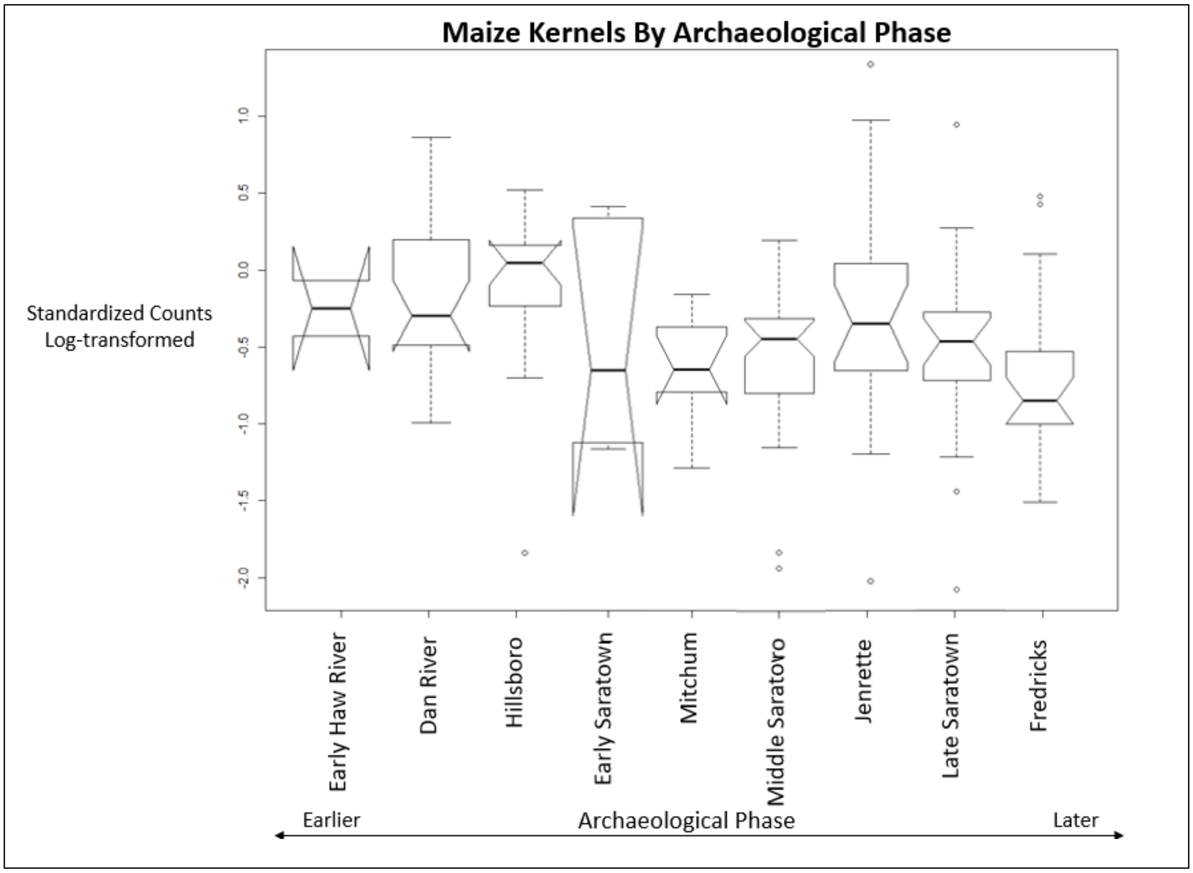


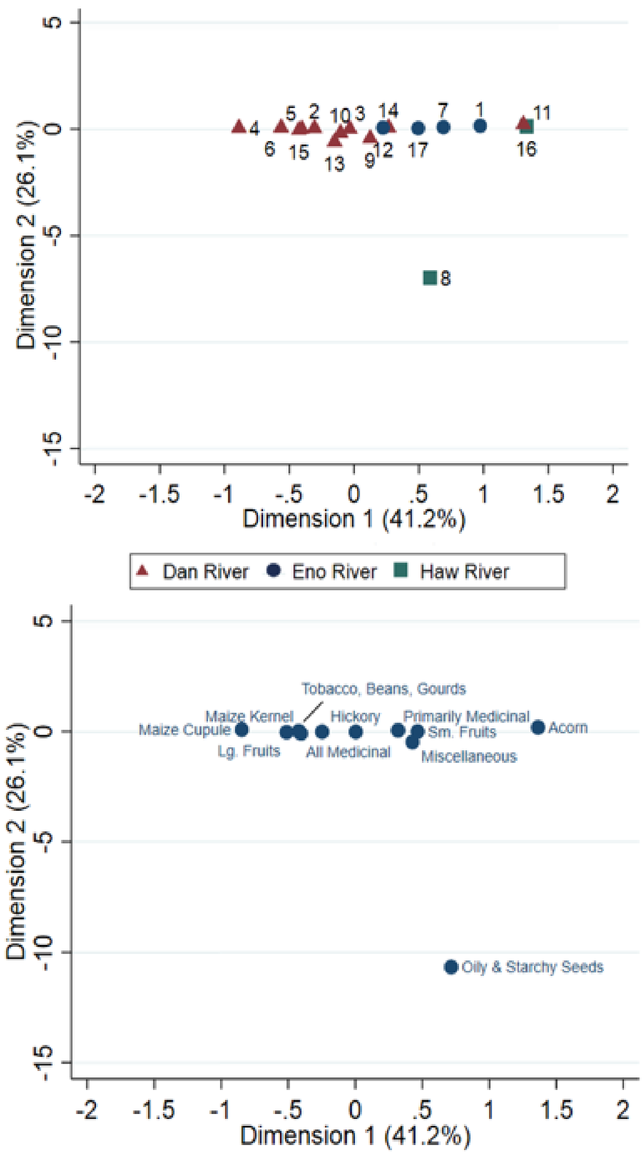
Figure 21. Counts of maize kernels segregated by archaeological phase.

It is important to consider environmental conditions and stability when interpreting evidence of subsistence. Environmental reconstructions portray the period of the Hillsboro phase (AD 1400-1600) to have more stable precipitation levels than before AD 1400 or after 1600 (Stahle et al. 2013:1349). The later Fredricks phase (AD 1680-1710) stands out as containing significantly fewer maize cupules and kernels (Figures 18 and 19). Interestingly, the Fredricks phase exhibited a comparatively average amount of acorn (Figure 7), even though the dates of the Fredricks site occupation fall during two of the most extreme droughts experienced in North Carolina (AD 1691-1700 and AD 1705-1714) (Stahle et al. 2013:1349). While it is not recommended to predict crop yields from the dendrochronology and PDSI or PDHI estimates, it is reasonable to assume an extreme drought would have negatively affected crop yields and perhaps encouraged a greater reliance on acorns or other foraged plant foods. Similar drops in maize are not present during the contemporaneous Late Saratown phase although regional variation in drought conditions could be possible. Additionally, lower quantities of maize could also be explained by the inhabitants of the Fredricks suffering from disease, pests, or intertribal conflict.

Correspondence Analysis

Using Stata, I performed a correspondence analysis of plant categories and sites separated by archaeological phase. This analysis included all the analyzed features. Figure 22 displays the separated biplots produced by CA. The top biplot depicts the sites segregated by archaeological phase. The key located immediately to the right of the biplot decodes the numbers located next to the points. A colored shape codes the different river drainages. Each number represents a specific site and archaeological phase. The lower biplot lists the plant resource categories used for CA. Appendix 3 contains the tabular results of the analysis. Combined, both dimensions explain 78.5% of the variation in the assemblage. In the upper biplot, Dimension 1 represents a relationship between acorn and maize that is connected to the river drainages. Oily and starchy seeds contribute heavily to Dimension 2 (Appendix 3). In the upper biplot, a clear division between the river drainages exists. The Dan River sites and phases are pulled to the left by maize cupule and kernel values, while the Eno and Haw sites and phases are pulled to the right by acorn. However, there is an exception to this pattern. The Dan River component of the Powerplant site is more closely associated with acorn and generated similar values to the later Hillsboro phase of the Edgar Rogers site. This observation supports the trend expected by Gremillion that acorns decreased in importance as

Piedmont groups invested more heavily in maize agriculture (1989:259). Although, incorporating more Haw River drainage samples would strengthen this conclusion. Gremillion has noted that the botanical assemblages from other Haw River drainage sites are similar to the macrobotanical remains recovered from the Edgar Rogers site (1993b:143). Therefore, I would expect that the division between maize and acorn is more apparent between the Dan and Haw River drainages, while sites located within the Eno drainage exhibit more variation. I suspect this difference in the emphasis of maize and acorn is most directly connected to settlement size and location.

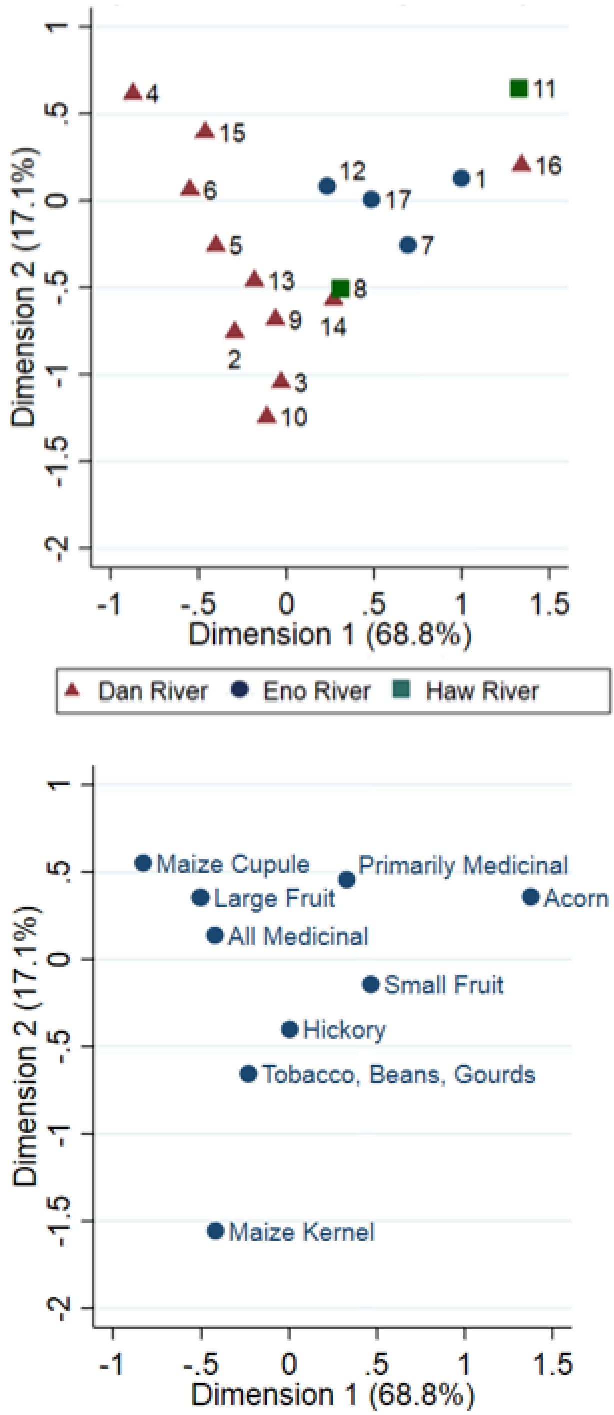


Key	Site	Phase
1	31Or231	Fredricks
2	31Sk1a	Late Saratown
3	31Sk6	Late Saratown
4	31Sk1a	Middle Saratown
5	31Sk1	Middle Saratown
6	31Rk1	Middle Saratown
7	31Or231a	Jenrette
8	31Ch452	Mitchum
9	31Sk1	Early Saratown
10	31Rk5	Early Saratown
11	31Am167	Hillsboro
12	31Or11	Hillsboro
13	31Sk6	Dan River
14	31Rk1	Dan River
15	31Sk1	Dan River
16	31Rk5	Dan River
17	31Or231a	Early Haw River

Figure 22. Correspondence analysis of the sites and archaeological phases.

The Mitchum site immediately appears to be an outlier from the other sites and archaeological phases. In the lower biplot, it becomes clear that Mitchum's quantity of oily and starchy seeds is what sets it apart. This reliance on indigenous cultigens is potentially a strategy to mitigate risk. Gremillion believed the abundance of maygrass represented a response to an unanticipated food shortage at Mitchum (1989:289). The wet conditions of the first half of the Little Ice Age may have promoted the incorporation of indigenous cultigens in Siouan foodways as drought conditions are not conducive for maygrass or sumpweed production (Mueller 2018). The drier conditions experienced during the Contact period may have discouraged Siouan groups from relying too heavily on indigenous seed crops and instead encouraged a stronger dependence on maize.

To see if other patterns were being masked by dimension 2 in Figure 22, I reran CA without the categories of oily and starchy seeds and miscellaneous. Figure 23 displays the resulting biplots produced in Stata. There is still a division between the maize and acorn and the Dan and Eno River. The Eno River sites are centrally located, indicating diverse plant resource strategies that incorporate cultivated and foraged plants. The Haw River drainage sites again exhibit differences. The Edgar Rogers site highlights an association with acorn, while the Mitchum site produced similar values to the Lower Saratown site's Dan River phase, indicating a reliance on cultigens and foraged resources. Even after dropping the categories of oily and starchy seeds and miscellaneous taxa, the Dan River phase of the Powerplant site and the Hillsboro phase of the Edgar Rogers site appear to be similar. I hypothesize this similarity is due to a lack of plant taxa richness observed in the macrobotanical assemblages recovered from the sites.



Key	Site	Phase
1	31Or231	Fredricks
2	31Sk1a	Late Saratown
3	31Sk6	Late Saratown
4	31Sk1a	Middle Saratown
5	31Sk1	Middle Saratown
6	31Rk1	Middle Saratown
7	31Or231a	Jenrette
8	31Ch452	Mitchum
9	31Sk1	Early Saratown
10	31Rk5	Early Saratown
11	31Am167	Hillsboro
12	31Or11	Hillsboro
13	31Sk6	Dan River
14	31Rk1	Dan River
15	31Sk1	Dan River
16	31Rk5	Dan River
17	31Or231a	Early Haw River

Figure 23. Correspondence analysis of the sites and archaeological phases without the categories of oily and starchy seeds and miscellaneous.

Correspondence analysis highlights the subtle similarities and differences between the macrobotanical assemblages from the various sites and phases. Overarching similarities of Siouan plant usage are visible. Subtle difference across time does exist. Moreover, the trends appear to support the observations recorded by Gremillion (1985, 1989). The differences between the Dan and Eno River drainages are more apparent than temporal trends, indicating the arrival of Europeans did not trigger a drastic change in foodways but did likely influence the implementation of different strategies. The differences between river drainages show a division of reliance upon maize and acorn. The similar nutritional and culinary roles of maize and acorn likely contribute to this pattern.

Indigenous Medicine

Native groups used a variety of natural resources to address ailments. In this section, I examine whether plants with medicinal properties increase in appearance over time. Although European-introduced diseases and their severity were at first unfamiliar, Native groups had previously encountered many of their symptoms. Furthermore, the cyclical nature of epidemics allowed for experimentation with treatments. Pulling from ethnographic and historic evidence, I assume Native Americans used traditional knowledge and practices to treat European-introduced diseases and hypothesize an increase in the appearance of taxa with known medicinal properties will have a positive relationship with evidence of direct contact between European and Native Piedmont groups.

Historical and ethnographic accounts provide sporadic and often vague details of indigenous medicine. William Bartram described Native peoples fasting, praying, and taking medicines to avoid sickness (Van Doren 1928:318). Seventy years prior, Lawson discussed several encounters with Native doctors or healers. Lawson wrote that Natives “cure the Pox, by a berry that salivates" (Lefler 1967:218). While these accounts are no *materia medica*, they do reveal that Native Americans were actively addressing and treating disease with traditional methods. However, Native peoples kept some healing practices away from European eyes (Kelton 2004:62). While, it is clear from ethnographic and historical records that Native populations reacted to epidemic disease, I intend to see if it is possible to identify changes in plant-based medicine using macrobotanical assemblages.

Archaeobotanical analyses primarily investigate the use of plants as food or raw materials. The remains of plant-based medicines are rarely identified. These recipes were likely crafted in small batches and were made infrequently. Medicinal recipes often require components, like stems or leaves, that preserve poorly even when carbonized. Therefore, archaeobotanists have difficulty addressing medicinal strategies without ethnographic or textual evidence. Although the presence of a particular taxon does not confirm it was used medicinally, its presence allows for the consideration that it was a medicinal resource. Due to the intensive sampling strategy and quantity of analyzed botanical samples, the Siouan Project is a suitable context for attempting to identify changes in medicinal strategies through an analysis of the appearance and quantity of recovered plant taxa with medicinal properties.

Relying heavily upon the work of Michele Williams (2000) and Daniel Moerman (1998), I created a list of 26 documented taxa with medicinal properties (Table 10). I included known medicinal uses associated with Southeastern and Mid-Atlantic tribes. An additional column includes some examples of medicinal uses from outside of these two regions. Both Moerman and Williams highlight the variety of roles that plant-based medicines occupied in Native American societies. Moerman (1998) covers indigenous plant use across North America. In her synthesis of medicinal plants in archaeological assemblages from the American Bottom, Moundville, and the Central Tombigbee regions, Williams discusses many of the taxa identified in this study. Williams created four categories of medicinal plants based on their relative importance, which are applied to these data and included in Table 10.

Table 10. List of Medicinal Plant Taxa and Described Uses.

Common Name	Native Medicinal Uses from the Southeast and Mid-Atlantic	Additional Medicinal Uses	Category Defined by Williams (2000)
Bedstraw	Dermatological aid, kidney and urinary aid, venereal aid, emetic and laxative, eye medicine	Diaphoretic, spasmolytic, healing external wounds	Primarily medicinal
Blackberry/raspberry	Antidiarrheal, astringent, anesthetic, abortifacient, cold and cough remedy, general tonic, tuberculosis, and blood medicine		Food with secondary medicinal purpose
Blueberry	Dermatological, gastrointestinal, and respiratory aid	Treatment for capillary fragility, antidiarrheal	Food with secondary medicinal purpose
Cleaver	Laxative and dermatological aid	Love medicine, emetic	Primarily medicinal
Elderberry	Cathartic, dermatological ailments, emetic, gastrointestinal aid, and infection	Cold treatment	Equal uses as food or medicine
Grape & Grape family	Gastrointestinal, oral, and kidney aid	Antidiarrheal, gynecological aid, pediatric aid, urinary aid, Snakebite remedy	Food with secondary medicinal purpose
Groundcherry		Analgesic, dermatological, gastrointestinal aid	Food with secondary medicinal purpose
Hawthorn	Gastrointestinal aid	Analgesic, gynecological aid, tuberculosis remedy	Food with secondary medicinal purpose
Huckleberry	Gastrointestinal and psychological aid, sedative	Antidiarrheal, blood medicine, dermatological, liver, and kidney aid	Not included in Williams 2000
Maypop	Dietary, dermatological, and liver aid, ear medicine, and blood tonic	Sleep aid	Equal uses as food or medicine
Morning glory	Cathartic qualities, diuretic, tuberculosis remedy	Hallucinogen	Ritual
Mulberry	Anthelmintic, antidiarrheal, cathartic, laxative, stimulant, dermatological and urinary aid		Food with secondary medicinal purpose
Nightshade & Nightshade family	Disrupts the autonomic nervous system	Tonic, tuberculosis remedy, and heart medicine	Equal uses as food or medicine
Peach	Anthelmintic, antiemetic, cathartic infusion, febrifuge, dermatological, gastrointestinal, kidney, and orthopedic aid	Pediatric aid	Not included in Williams 2000

Table 10 Continued.

Common Name	Native Medicinal Uses from the Southeast and Mid-Atlantic	Additional Medicinal Uses	Category Defined by Williams (2000)
Persimmon	Antidiarrheal, dermatological, gastrointestinal, liver, oral, throat, and venereal aid. Remedy for toothaches and hemorrhoids		Food with secondary medicinal purpose
Plum	Anthelmintic, cough medicine, kidney and urinary aid, disinfectant and antibiotic source, remedy for dermatological ailments and general infection	Antidiarrheal, anthelmintic, disinfectant, ceremonial medicine, oral and respiratory aid	Food with secondary medicinal purpose
Plum/cherry	Antidiarrheal	Burn dressing, gastrointestinal, gynecological, and dermatological aid	Food with secondary medicinal purpose
Pokeweed	Antidiarrheal, internal or external antirheumatic, febrifuge, blood treatment, dermatological and kidney aid, cathartic aid, and hemorrhoid remedy	Love medicine, witchcraft medicine, analgesic, hemostat, orthopedic and liver aid, cold remedy, stimulant	Equal uses as food or medicine
Purslane	Dermatological and gastrointestinal aid	Burn treatment, analgesic, ear and blood medicine	Food with secondary medicinal purpose
Spurge	Oral aids, purgative, dermatological aid, cough suppressant, emetic, laxative	Diabetes treatment, febrifuge, and venereal aid	Primarily medicinal
Strawberry	Remedy for diarrhea, toothache, cholera, and abortifacient	Toothache aid	Food with secondary medicinal purpose
Sumac	Cold remedy, cough medicine, dermatological aid, antibiotic source	Abortifacient, analgesic, anthelmintic, carminative, cathartic, dietary aid, expectorant, febrifuge, gastrointestinal aid, gynecological aid, oral aid, orthopedic aid, pediatric aid, pulmonary aid, throat aid, smallpox and tuberculosis remedy, urinary aid, and venereal aid	Equal uses as food or medicine
Tick clover	Analgesic, emetic, cold remedy, pulmonary and oral aid		Primarily medicinal

Table 10 Continued.

Common Name	Native Medicinal Uses from the Southeast and Mid-Atlantic	Additional Medicinal Uses	Category Defined by Williams (2000)
Tobacco	Analgesic, antispasmodic, cathartic, ceremonial medicine, emetic, diuretic, expectorant, dermatological aid, gastrointestinal aid, and kidney aid, misc. disease remedy, vertigo medicine, snakebite and bodily ache remedy	Hemostat, tuberculosis remedy, gynecological aid, psychological aid, sedative	Ritual
Viburnum	Contraceptive		Equal uses as food or medicine
Wood sorrel	Anthelmintic, antiemetic, blood medicine, cancer treatment, dermatological aid, oral aid, pediatric aid, throat aid		Equal uses as food or medicine

Presence and absence data of medicinal plant taxa by site and archaeological phase are presented in Table 11. Table 12 contains the ubiquity values of medical taxa present for each site by archaeological phase. While various accounts acknowledge the medicinal properties of plants like acorn, hickory, and maize, they are excluded from this analysis as they are ubiquitous. Tables 11 and 12 depict a higher diversity in medicinal plant taxa later in time across the Dan and Eno River drainages. The recovery methodologies, sample sizes, and the types of features excavated could affect these data; however, a distinct pattern is visible. Later sites contain more plant taxa with known medicinal applications. The pre-Contact phases revealed few medicinal taxa and overall lower ubiquity scores. Small sample sizes are potentially affecting some of the results. For instance, the Late Saratown phase of the William Kluttz site does display a decrease in ubiquity, but this could also be due to the feature types of the site and archaeological phase. The two features from William Kluttz that do not contain medicinal taxa include a human burial pit and a food preparation facility.

Between those two features, only carbonized wood and a single fragment of hickory nutshell were recovered (Appendix 2).

Despite some deviations from the pattern, it does appear that taxa with medicinal properties increase in presence over time. The bar graph in Figure 24 shows a strong positive relationship between the median number of medicinal plant taxa and time. While this pattern does not definitively confirm that medicinal practices increased because of direct contact with Europeans, it is compelling that the highest ubiquity of plant taxa with medicinal applications were recovered from periods associated with disease, recurring contact, and migration.

Table 11. Presence and Absence Data for Medicinal Plant Taxa by Site and Archaeological Phase

	Haw River (Early)	Dan River			Hillsboro		Early Saratown	Early Saratown	Mitchum	Middle Saratown			Jenrette	Late Saratown		Fredricks
Plant Taxa	(1000-1200)	(1000-1450)			(1400-1600)		(1450-1607)	(1450-1620)	(1600-1670)	(1650-1670)			(1660-1680)	(1670-1710)		(1680-1710)
(Common Name)	31Or231a	31Rk5	31Rk1	31Sk6	31Or11	31Am167	31Sk1	31Rk5	31Ch452	31Rk1	31Sk1	31Sk1a	31Or231a	31Sk6	31Sk1a	31Or231
Bedstraw	X	-	X	-	-	-	-	-	X	X	-	X	X	-	-	X
Blackberry/raspberry	-	-	-	-	X	-	X	-	X	X	X	-	X	X	X	X
Blueberry	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	X
Cleaver	-	-	-	-	X	-	-	-	-	-	X	X	-	-	X	-
Elderberry	-	-	-	-	-	-	-	-	-	-	X	-	-	-	X	X
Grape	X	X	X	-	-	-	-	-	X	X	X	X	X	X	X	X
Grape family	-	-	-	-	X	X	X	-	-	-	-	X	-	-	X	-
Groundcherry	-	-	-	-	-	-	-	-	-	-	X	X	-	-	X	-
Hawthorn	-	-	-	-	-	-	X	-	X	-	X	X	X	-	X	X
Huckleberry	-	-	-	-	X	-	X	-	-	-	-	-	-	-	-	X
Maypop	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X
Morning glory	-	-	-	-	X	-	X	-	-	-	-	X	-	-	X	X
Mulberry	-	-	-	-	-	-	X	-	-	-	-	X	-	-	X	-
Nightshade	-	-	-	-	X	-	X	-	-	-	X	-	-	-	X	-
Nightshade family	X	X	X	X	X	-	X	-	-	X	-	-	X	-	-	X
Peach	-	-	-	-	-	-	-	-	X	-	-	X	X	-	X	X
Persimmon	-	-	-	X	X	X	X	-	-	X	X	X	X	X	X	X
Plum	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-
Plum/cherry	-	-	-	-	X	-	X	-	-	-	X	X	-	X	X	-
Pokeweed	-	-	-	-	X	-	-	-	-	X	X	X	X	-	-	X
Purslane	-	-	-	-	X	-	X	-	-	-	-	-	-	-	-	-
Spurge	-	-	-	-	-	-	X	-	-	X	X	X	-	-	X	X
Strawberry	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X
Sumac	-	X	-	-	-	-	X	-	-	-	X	X	-	-	X	X
Tick clover	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-
Tobacco	-	-	-	-	-	-	X	-	-	-	X	-	-	-	X	-
Viburnum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X
Wood sorrel	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-

Table 12. Ubiquity Values of Medicinal Taxa Recovered from Piedmont Siouan Sites.

Site	Archaeological Phase	Dates (AD)	Present in Number of Features	Total Number of Features	Ubiquity Score %	Number of Medicinal Taxa Present
31Or231	Fredricks	1680-1710	38	48	79.2%	17
31Sk1a	Late Saratown	1670-1710	21	21	100%	16
31Sk6	Late Saratown	1670-1710	2	4	50%	5
31Or231a	Jenrette	1660-1680	23	36	63.8%	10
31Sk1a	Middle Saratown	1650-1670	17	22	77.3%	17
31Rk1	Middle Saratown	1620-1670	14	24	58.3%	8
31Sk1	Middle Saratown	1607-1650	6	6	100%	15
31Ch452	Mitchum	1600-1670	10	30	33.3%	6
31Rk5	Early Saratown	1450-1620	0	5	0%	0
31Sk1	Early Saratown	1450-1607	4	4	100%	16
31Am167	Hillsboro	1400-1600	5	10	50%	3
31Or11	Hillsboro	1400-1600	13	22	59.1%	11
31Sk6	Dan River	1100-1450	3	8	37.5%	3
31Rk1	Dan River	1100-1450	2	4	50%	3
31Rk5	Dan River	1000-1450	2	17	11.8%	3
31Or231a	Early Haw River	1000-1200	2	6	33.3%	2

* Not including 31Sk1 Dan River phase due to feature type bias and sample size.

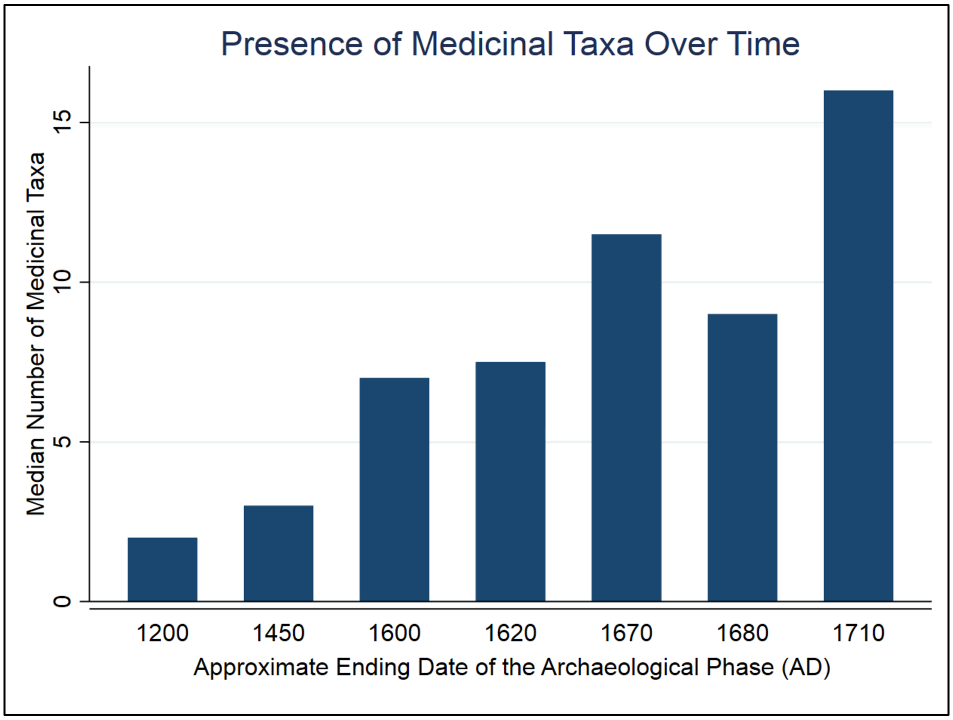


Figure 24. Bar chart depicting the median number of medicinal taxa by archaeological phase ending date.

Subsistence Risk Mitigation in the Piedmont

Native groups during this period were vulnerable to more than just epidemic disease. Aside from destruction by animals or extreme weather, food stores and fields could be seized or destroyed by enemies. Archaeological and historical evidence reveal that Native populations were concerned with raiding and food insecurity. Scholars disagree to what extent Siouan groups were mitigating subsistence risk. I use this dataset to reanalyze the patterns described by Gremillion (1989), Melton (2018), and VanDerwarker et al. (2013) that have been interpreted as behaviors associated with risk mitigation.

In this section, I analyze archaeobotanical evidence to search for patterns of risk-averse behavior. I use Bruce Winterhalder's (1986:374) definition of subsistence risk as the probability of failing to meet a minimum nutritional requirement. Gremillion (1989), Melton

(2018), and VanDerwarker et al. (2013) used portions of the macrobotanical data included in this study to address risk-averse strategies. Although Gremillion (1989:235) acknowledges that the maintenance of a diversified diet without too much dependence upon any one crop could serve to mitigate risk, she did not find evidence that Siouan groups significantly changed their practices as a response to contact. Vanderwarker et al. (2013) and Melton (2018) using more robust archaeobotanical datasets interpret changes in Siouan behavior as responses to subsistence risk.

Outfielding

Melton (2018) combines archaeobotanical and architectural evidence to argue that in the Eno River drainage coalescent communities of the late Contact period intensified foraging and scattered their fields in order to protect crop yields. Melton (2018:212) first identified the pattern using box plots that illustrate standardized counts of maize cupules and kernels from 50 distinct features from the Wall and Jenrette sites. Melton’s box plots revealed similar quantities of maize kernels, differing quantities of maize cupules from the two sites, and a decline in maize cupule density at Jenrette. Melton (2018:241) argues this difference reflects Native people altering the location of fields and processing maize off-site. She argues that by practicing outfield strategies and scattering maize fields, the residents of Jenrette reduced location-specific threats to their food supply and minimized the number of people abducted.

Using the data analyzed by both Gremillion and Melton as well as additional samples, I reconsider Melton’s hypothesis. I incorporated data from 202 features from the 10 study sites to investigate the proposed pattern. The counts were standardized by the total plant weight of the feature, instead of sample volume. The selected features include storage pits, basins, depressions, middens, refuse pits, food processing facilities, and smudge pits.

If Melton's hypothesis is correct, I would expect to see similar amounts of maize kernels across time with significantly fewer maize cupules in the later phases. Melton's hypothesis assumes a lack of maize cupules and cobs indicates that people were processing maize in fields away from the Jenrette site. Instead, it appears that the Hillsboro phase revealed a significantly higher quantity of maize cupules than other Piedmont phases (Figure 20). Additionally, the Hillsboro phase contains significantly higher counts of maize kernels than some of the other Siouan sites, but not all (Figure 21). When looking at the Eno River segregated by site, the Wall site has significantly more cupules and kernels than the Jenrette site (Figures 25 and 26). Furthermore, the Wall site has a significantly larger ratio of plant food to nonfood remains (Figure 27). These results direct me to an interpretation that the inhabitants of the Wall site more heavily invested in maize agriculture than other Siouan groups. While I agree with Melton that Native groups living in the Eno River drainage implemented strategies for minimizing subsistence risk, I disagree that Melton's evidence represents practices of outfielding.

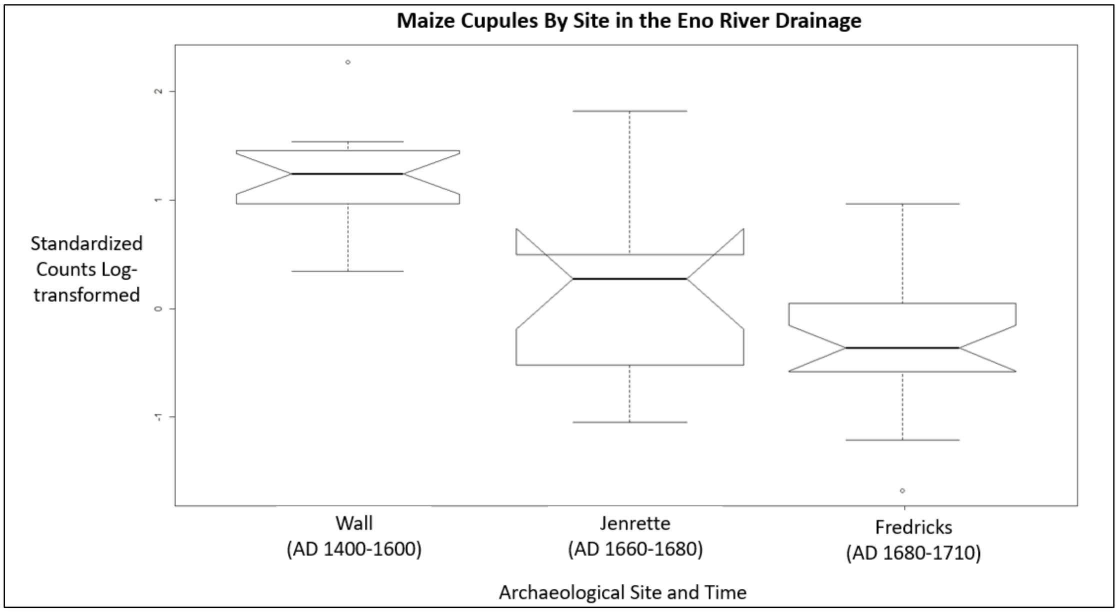


Figure 25. Maize cupules by archaeological site in the Eno River drainage.

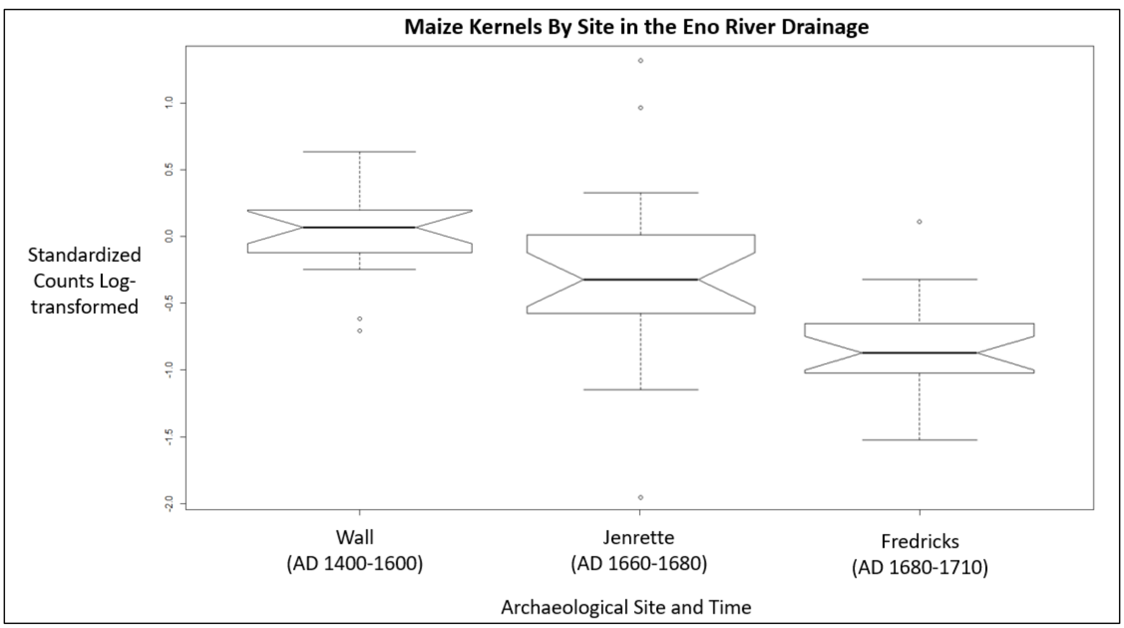


Figure 26. Maize kernels by archaeological site in the Eno River drainage.

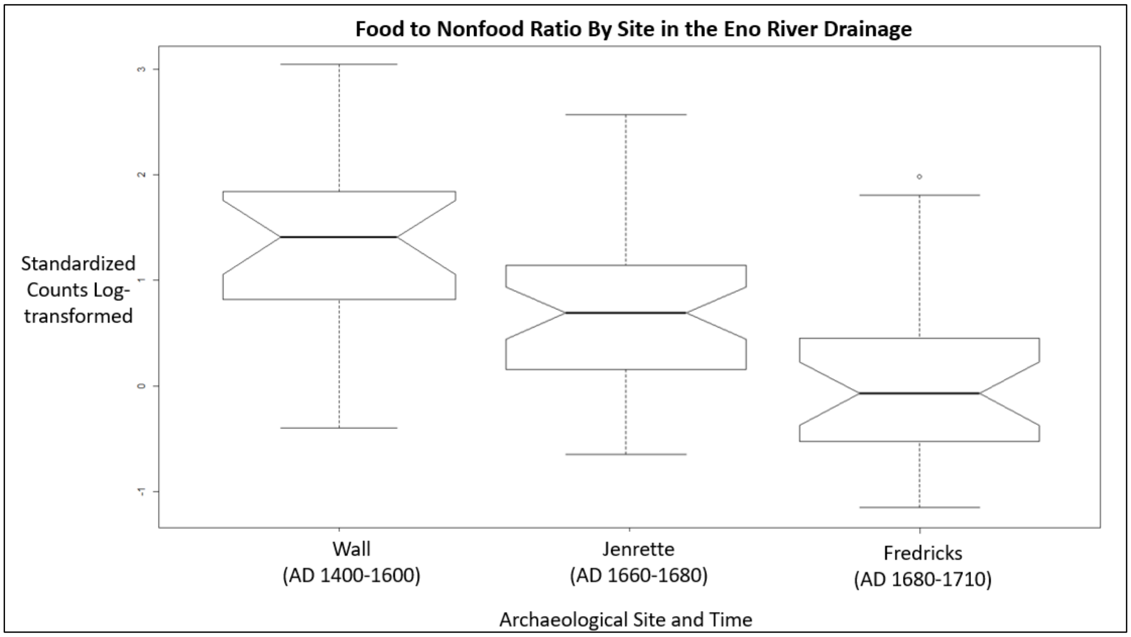


Figure 27. Food to nonfood ratio by archaeological site in the Eno River drainage.

Diversity

Diversification is a flexible strategy used to address loss and risk. People choose to implement diversification of food resources in various ways, including mixed subsistence strategies and mixed staple production (VanDerwarker et al. 2013:71-72). As previously discussed, multiple scholars have hypothesized Siouan populations responded to the instability of the Contact period by employing mixed subsistence strategies (Gremillion 1989; Melton 2018; VanDerwarker et al. 2013). An increased reliance on foraging is sensible if a labor shortage is present or if agriculture is perceived for whatever reason to be less reliable.

VanDerwarker and coauthors (2013), using data from Gremillion's contribution to Ward and Davis (1993) and from VanDerwarker et al. (2007), calculated Shannon-Weaver diversity and equitability values over time for Cherokee and Siouan sites, including George Rogers, Powerplant, Edgar Rogers, Upper Saratown, Lower Saratown, William Kluttz, and

Jenrette. They found mean diversity rates increased through time and argued that shifts in plant and animal diversity represent a response to the instability and uncertainty of the Contact and Colonial periods (VanDerwarker et al. 2013:73). They assert that Native populations kept farming but relied more heavily upon foraged foods during periods of instability.

Also using the Shannon-Weaver diversity index and the same plant taxa, I calculated diversity and equitability values for each site and archaeological phase (Tables 13 and 14) to see if the pattern identified by VanDerwarker and coauthors (2013) persisted when considering additional sites and samples. The macrobotanical assemblages were standardized to allow for comparability. Additionally, data recovered from burial pits and probable burial pits were not included in this analysis. For archaeological phases represented at more than one site, I generated a mean diversity and equitability value. Higher numeric values for H signify higher species diversity. Equitability, or E_H, values range from 0 to 1, indicating evenness. A E_H value of 0 represents an extremely uneven, or skewed, distribution of taxa, while a E_H value of 1 indicates an even distribution of taxa.

Values were first segregated by river drainage (Table 13 and 14). The Eno River and Haw River drainages are lumped together because of shared archaeological phases and proximity. Just looking at the initial values, there does not seem to be a strong negative or positive relationship between plant taxa diversity and time. However, it does appear that the Dan River drainage sites yielded lower diversity and equitability values (Figures 28 and 29). Using R, I created box plots to identify whether a significant difference was present between the river drainages (Figures 30 and 31). Although the Dan River drainage sites consistently yielded lower values than the macrobotanical assemblages recovered within the Eno River and Haw River drainages, this difference is most likely not meaningful as the boxes overlap, indicating no statistical difference in the assemblages.

Three outliers are identified in Figures 32 and 33. The Late Saratown phase of the William Kluttz site is likely skewed by sample size, as data from only two features were used to calculate diversity and equitability. The Early Saratown phase of the Powerplant site is represented by the botanical assemblages of five features, which are comprised of mostly sturdy macroremains, like hickory and walnut nutshell instead of small seeds. The plant remains from the Jenrette site's Jenrette phase display higher taxa diversity than the other sites. This is likely due to the availability of labor necessary to produce and collect plant resources.

Table 13. Shannon-Weaver Diversity (H) and Equitability (E_H) Values by Site and Archaeological Phase in the Dan River drainage.

Site	Dates of Occupation	Archaeological Phase	Diversity Score	Equitability Score
Powerplant	1000-1450	Dan River	1.17	.33
Lower Saratown	1100-1450	Dan River	1.16	.33
William Kluttz	1100-1450	Dan River	1.20	.34
		Dan River Mean Value	**1.18**	**.33**
Hairston	1450-1607	Early Saratown	1.38	.39
Powerplant	1450-1620	Early Saratown	.81	.23
		Early Saratown Mean Value	**1.10**	**.31**
Hairston	1607-1650	Middle Saratown	1.18	.33
Lower Saratown	1620-1670	Middle Saratown	1.22	.35
Upper Saratown	1650-1670	Middle Saratown	1.11	.31
		Middle Saratown Mean Value	**1.17**	**.33**
Upper Saratown	1670-1710	Late Saratown	1.14	.32
William Kluttz	1670-1710	Late Saratown	.59	.17
		Late Saratown Mean Value	**.87**	**.25**

Table 14. Shannon-Weaver Diversity (H) and Equitability (E_H) Values by Site and Archaeological Phase in the Eno and Haw River drainages.

Site	Dates of Occupation	Archaeological Phase	Diversity Score	Equitability Score
Jenrette	1000-1200	Early Haw River	1.34	.38
Edgar Rogers	1400-1600	Hillsboro	1.50	.43
Wall	1400-1600	Hillsboro	1.18	.33
		Hillsboro Mean Value	**1.34**	**.38**
Mitchum	1600-1670	Mitchum	1.26	.36
Jenrette	1660-1680	Jenrette	1.68	.48
Fredricks	1680-1710	Fredricks	1.14	.32

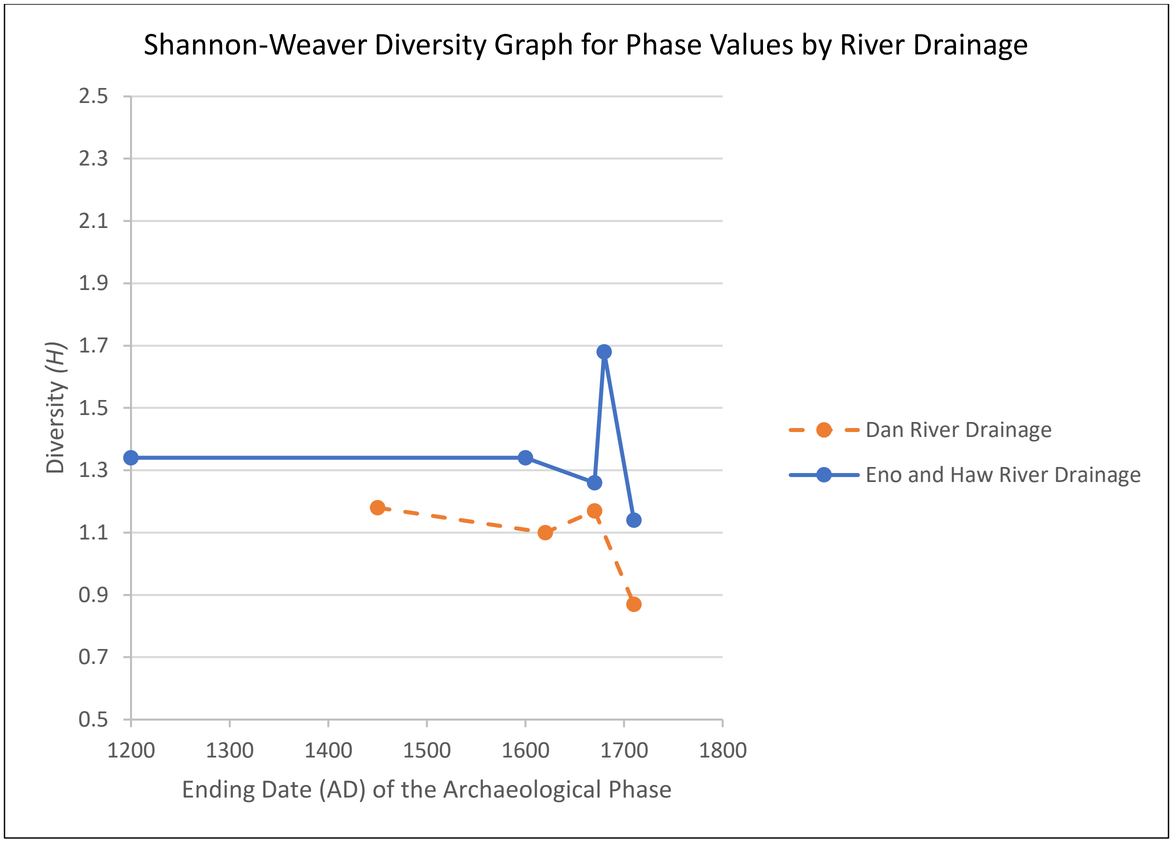


Figure 28. Diversity graph for values over time segregated by river drainage.

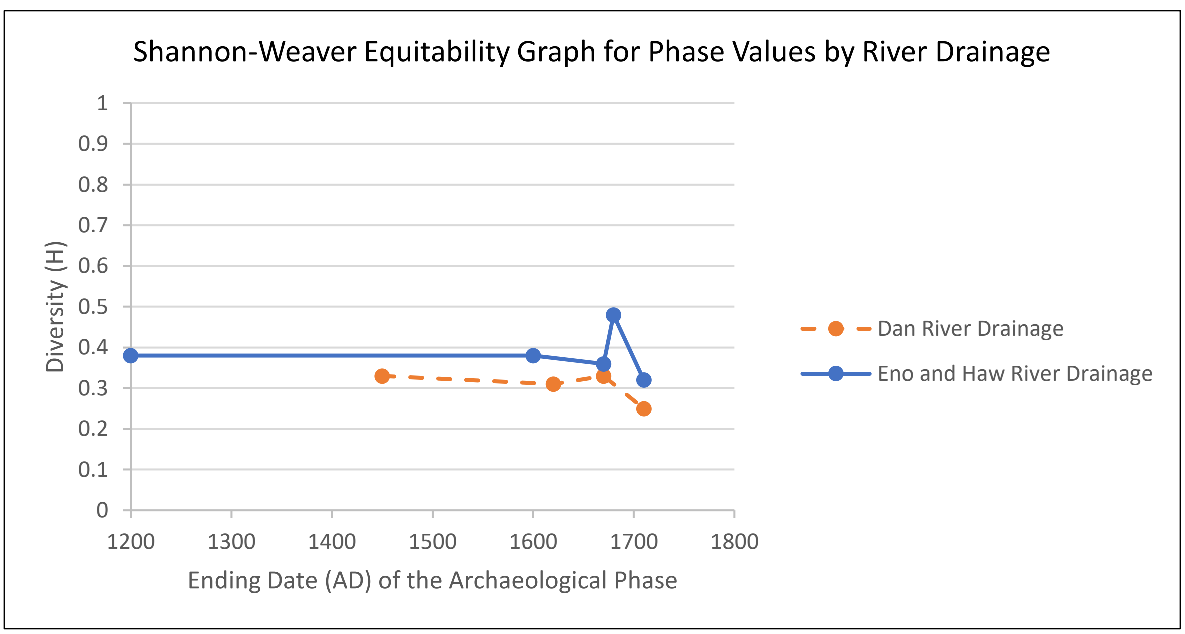


Figure 29. Equitability graph for values over time segregated by river drainage.

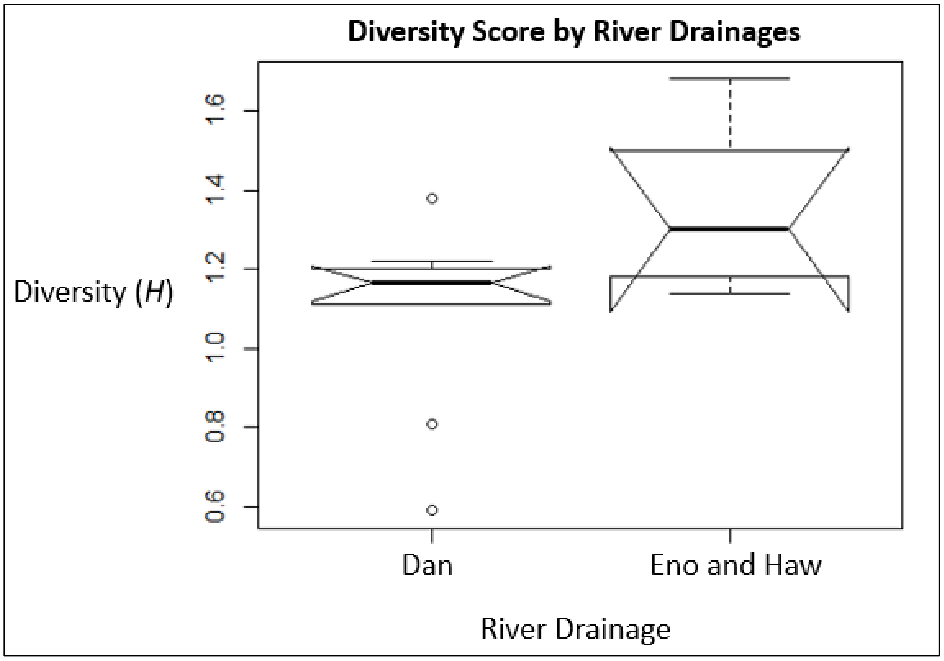


Figure 30. Box plot of each the diversity scores by river drainage.

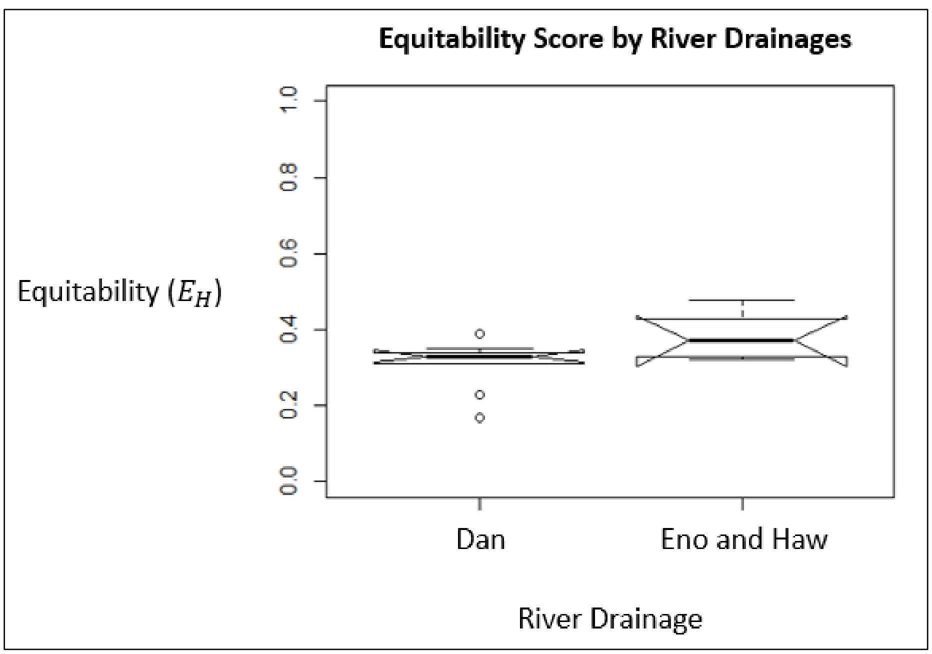


Figure 31. Box plot of each the equitability scores by river drainage.

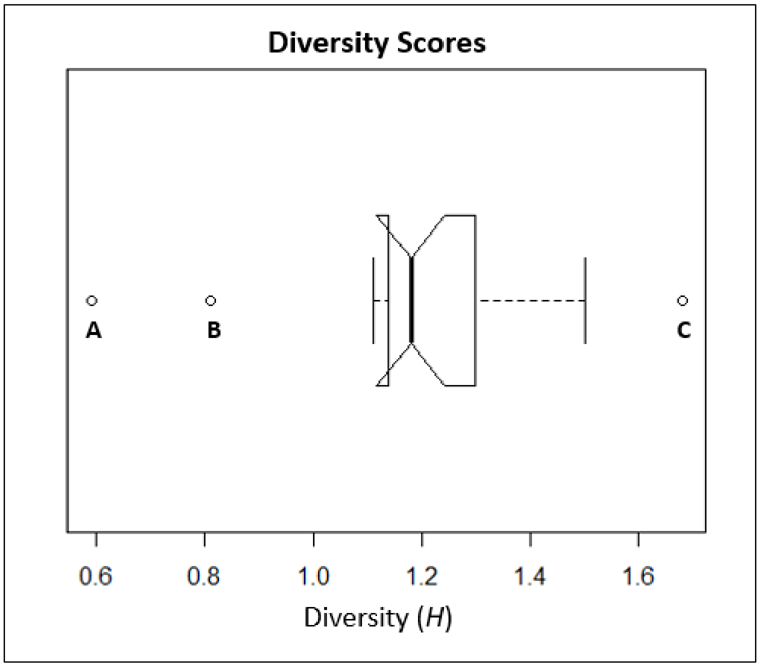


Figure 32. Box plot of each individual diversity score. The identified outliers include: (A) William Kluttz site, Late Saratown phase; (B) Powerplant site, Early Saratown phase; and (C) Jenrette site, Jenrette phase.

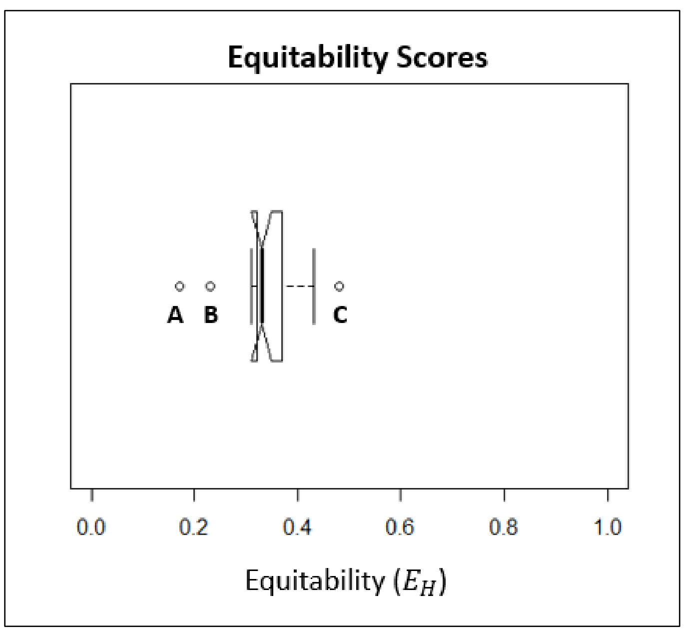


Figure 33. Box plot of each individual equitability score. The identified outliers include: (A) William Kluttz site, Late Saratown phase; (B) Powerplant site, Early Saratown phase; and (C) Jenrette site, Jenrette phase.

Diversity and equitability scores were also segregated by time in periods similar to the distinctions used in VanDerwarker et al. (2013) (Table 15). Although there is some overlap the periods represent eras before contact with Europeans, protohistory, irregular contact with European explorers and traders, and recurring contact with Europeans. Analyzing each period's mean diversity and equitability values, it appears that plant taxa are similar in terms of diversity and evenness across time.

Although it is plausible that Siouan groups increased foraging activities during times of uncertainty, the trends in diversity and equitability calculated here do not support the hypothesis described in VanDerwarker et al. (2013). It is possible the values generated by VanDerwarker et al. (2013) were affected by the Shannon-Weaver diversity index's sensitivity to the presence of rare taxa (Marston 2015:168**).** I agree with their assertion that Native farmers did not stop farming; however, these data do not strongly indicate a change in practices.

Table 15. Shannon-Weaver Diversity (H) and Equitability (E_H) Values by Site and Period.

Site	Dates of Occupation	Archaeological Phase	Diversity (H) Score	Equitability (E_H) Score
Jenrette	1000-1200	Period I	1.34	.38
Powerplant	1000-1450	Period I	1.17	.33
Lower Saratown	1100-1450	Period I	1.16	.33
William Kluttz	1100-1450	Period I	1.20	.34
		Period I Mean Value	**1.22**	**.35**
Edgar Rogers	1400-1600	Period II	1.50	.43
Wall	1400-1600	Period II	1.18	.33
Hairston	1450-1607	Period II	1.38	.39
Powerplant	1450-1620	Period II	.81	.23
		Period II Mean Value	**1.22**	**.35**
Mitchum	1600-1670	Period III	1.26	.36
Hairston	1607-1650	Period III	1.18	.33
Lower Saratown	1620-1670	Period III	1.22	.35
Upper Saratown	1650-1670	Period III	1.11	.31
		Period III Mean Value	**1.20**	**.34**
Jenrette	1660-1680	Period IV	1.68	.48
Upper Saratown	1670-1710	Period IV	1.14	.32
William Kluttz	1670-1710	Period IV	.59	.17
Fredricks	1680-1710	Period IV	1.14	.32
		Period IV Mean Value	**1.14**	**.32**

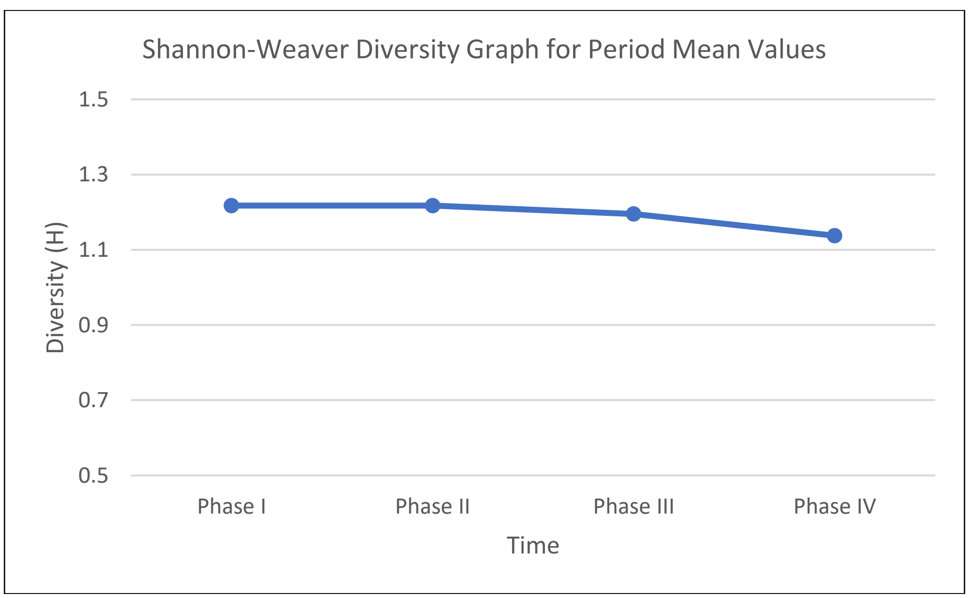


Figure 34. Shannon-Weaver diversity graph comparing plant taxa diversity over time.

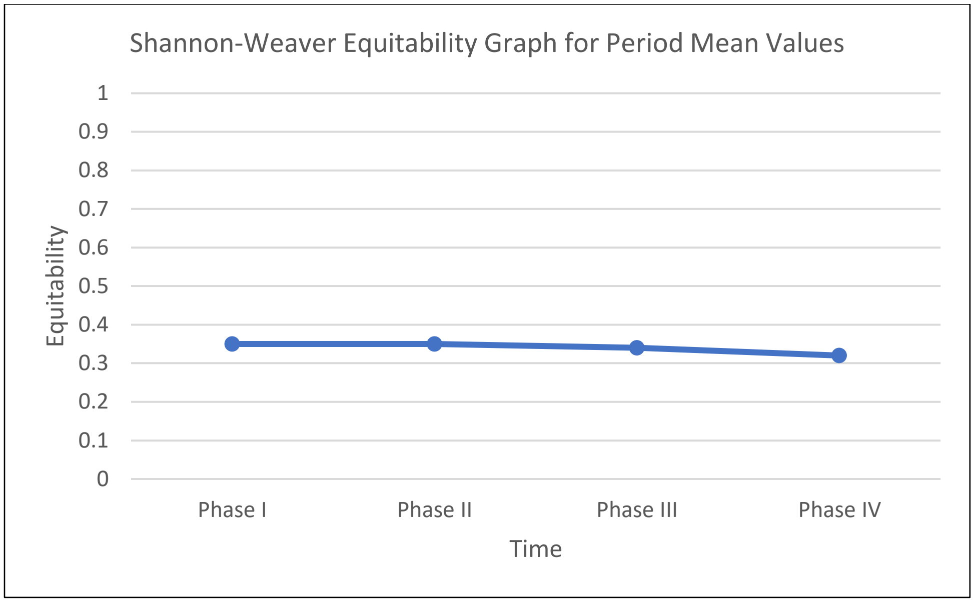


Figure 35. Shannon-Weaver equitability graph comparing plant taxa equitability over time.

Summary

I will now return to my original research questions. First, I asked if evidence for change is present regarding plant foods across time and river drainage. Although the data highlight continuity across time and space in the Piedmont, some patterns do appear. In the Dan River drainage, there is a stronger emphasis on maize agriculture over time which is related to a decrease in the recovered counts of acorn. Acorn was more strongly associated with the Eno and Haw River drainages. An astounding quantity of starchy seeds were recovered from the Mitchum site. Apart from peach and watermelon, Siouan assemblages display considerable continuity. Maize, hickory, and acorn maintained important roles in Siouan foodways across time and drainage system.

My findings largely corroborate patterns observed by Gremillion. Although they may not be directly related to the factors of the Contact period, differences between the emphasis on maize and acorn in the drainages are apparent from correspondence analysis. Siouan groups utilized a diverse variety of plant foods in their diets.

My next question asked if an intensification of taxa with medicinal properties could be seen among the analyzed macrobotanical assemblages. Archaeobotanical investigations are often unable to address the use of plants as medicine directly. These remains are found infrequently, are unlikely to preserve, and can be difficult to distinguish from unintentional seed dispersal. Utilizing ubiquity ratios and calculating the number of taxa used in plant-based medicines at each site and archaeological phase, I observed a steady increase in medicinal taxa in the Protohistoric and Historic periods.

Finally, I analyzed previously proposed evidence for risk-averse subsistence strategies. My findings contradict Melton's interpretation of field scattering. Instead, my analysis showed the Hillsboro phase as containing significantly more maize and food remains than other archaeological phases. Even when looking at all the Eno River sites, this pattern held true. Furthermore, when calculating diversity and equitability, I found no evidence Siouan populations diversified their diets to mitigate subsistence risk, leading me to disagree with the hypothesis proposed by VanDerwarker and collaborators (2013). I believe climatic fluctuations led to mild environmental unpredictability during the Jenrette phase and other later phases of the Contact period which further contributed to an already precarious period.

Overall, Siouan subsistence traditions appear to remain largely consistent. This evidence of cultural continuity should be viewed as an active process and manifestation of cultural identity, instead of a lack of exposure or innovation. Native Piedmont groups actively decided to maintain traditional lifeways despite the effects of contact and colonialism.

CHAPTER 7: CONCLUSION

The observed trends indicate that Siouan populations created and maintained their own distinct cultural identities and traditions that varied slightly between groups. Native peoples collected plant resources through a combination of gathering, hunting, and agriculture. Subsistence strategies were largely similar across time and space for Siouan groups. While the arrival of Europeans did alter some Native lifeways, it is unwarranted to assume contact affected every aspect of Native life in the Piedmont. The Contact period is paradoxical. Disease and warfare transpired as a result of European arrival and did cause instability, but Native groups had already experienced similar phenomena in different contexts.

The practices associated with Native subsistence changed before and after the arrival of Europeans, but not directly on their behalf. The observed changes began prior to direct European contact and likely were not overly influenced by contact-related factors. At sites within the Dan River drainage, archaeobotanical assemblages reveal an increased reliance on maize and decreased appearance of acorn over time. This is a trend that had been ongoing for several centuries by the seventeenth century (Gremillion 1989).

Additionally, climate change influenced Native subsistence strategies. Dramatic fluctuations in precipitation created conditions that were disadvantageous to particular plants. Other lines of evidence suggest the Contact period brought about severe economic and sociopolitical instability to the region, but this is not apparent through the archaeobotanical record. Despite cultural change appearing in other facets of Native life, Native subsistence patterns feature impressive continuity.

Continued research on Contact period archaeobotanical assemblages would help contextualize the results of this analysis. An investigation of the plant foods and resources of a post-contact refuge settlement like Fort Christanna, although unlikely, would be especially interesting. Alexander Spotswood established Fort Christanna in 1714 as a trading center, fort, and pseudo-reservation for Native groups. Fort Christanna is where some Piedmont Siouan groups migrated while others joined the Catawba further south. Additionally, an investigation of Fort Christanna can be directly compared to work done by UNC archaeologists and students regarding Catawba foodways. In her dissertation, Mary Beth Fitts (2015:371) found Catawba subsistence patterns featured increased diversity over time but found that increasing diversity was not a universal response. Tracing Siouan foodways and plant resources further into the eighteenth century would illuminate Siouan actions and experiences after leaving the North Carolina Piedmont.

I am also interested in studying the archaeobotanical assemblage of a non-Siouan group in the Eastern Woodlands before and during the arrival of Europeans. In the 1630s, the Chicacoan first encountered English colonists in the present-day Northern Neck of Virginia (Haynie 1977). The first Englishman in the region, John Mottrom, established friendly relations with the Chicacoan and settled adjacent to his newfound allies and trading partners. After Mottrom's death in 1655, the Chicacoan were removed from the land. The tribe was subsequently forced to merge with another local Native group and disappears from European records in the eighteenth century. Analyzing the plant subsistence and resource trends between the Chicacoan and Siouan groups would allow for comparisons on how different

Native groups experienced the Contact period and further contextualize evidence of resilience.

Natural and contact-related factors did produce subsistence risk. However, my findings do not provide evidence for Eno River populations using remote fields or for Siouan groups depending more heavily on foraged resources. There is no archaeobotanical evidence that Siouan groups were too afraid to venture beyond palisades in order to forage or harvest. Instead, I suggest that risk-averse practices that fit within Native beliefs (e.g., foraging at night to avoid spirits carrying disease) may have been employed but are not observable in the archaeobotanical record. Threats like climatic fluctuations, disease, and captive raiding were repeatedly experienced and Siouan groups had the opportunity to experiment with their responses to these factors. In a time of chaos and social turmoil, traditional foods and subsistence activities were grounding and familiar.

Despite sociopolitical and environmental challenges, Siouan communities maintained elements of their pre-Contact lifeways. Although it cannot be assumed that all Siouan groups had the same experiences or reactions, the patterns revealed from archaeobotanical remains indicate that Siouan groups largely retained traditional subsistence patterns and potentially intensified medicinal practices. Native groups did not indiscriminately embrace European practices, cosmologies, material culture, or subsistence practices. Native groups responded to epidemic diseases and other threats from within their belief systems. Instead of viewing continuity as a lack of response, it should be viewed as a manifestation of identity and agency**.** The findings of this study are an additional piece to the long conversation regarding Contact period subsistence patterns, human-environmental interactions, and plant use in the Eastern Woodlands of North America.

APPENDIX 1: FEATURES ANALYZED FOR EACH SITE

Site	Feature Number	Flotation or Waterscreen Sample	Feature Type	Cultural Association
31Am167	1	Flotation	Roasting Facility	Hillsboro
31Am167	2	Flotation	Basin	Hillsboro
31Am167	3	Flotation	Roasting Facility	Hillsboro
31Am167	4	Flotation	Basin	Hillsboro
31Am167	5	Flotation	Roasting Facility	Hillsboro
31Am167	6	Flotation	Basin	Hillsboro
31Am167	7	Flotation	Roasting Facility	Hillsboro
31Am167	8	Flotation	Basin	Hillsboro
31Am167	9	Flotation	Basin	Hillsboro
31Am167	10	Flotation	Basin	Hillsboro
31Ch452	Burial 1	Flotation	Burial	Mitchum
31Ch452	1	Flotation	Pit	Mitchum
31Ch452	2	Flotation	Large Posthole	Mitchum
31Ch452	3	Flotation	Small Pit	Mitchum
31Ch452	4	Flotation	Shallow Basin	Mitchum
31Ch452	5	Flotation	Large Basin	Mitchum
31Ch452	6	Flotation	Deep Pit	Mitchum
31Ch452	8	Flotation	Large Basin	Mitchum
31Ch452	9	Flotation	Deep Basin	Mitchum
31Ch452	10	Flotation	Deep Pit	Mitchum
31Ch452	13	Flotation	Deep Pit	Mitchum
31Ch452	14	Flotation	Shallow Basin	Mitchum
31Ch452	15	Flotation	Large Basin	Mitchum
31Ch452	16	Flotation	Storage Pit	Mitchum
31Ch452	17	Flotation	Storage Pit	Mitchum
31Ch452	19	Flotation	Shallow Basin	Mitchum
31Ch452	21	Flotation	Pit	Mitchum
31Ch452	24	Flotation	Storage Pit	Mitchum
31Ch452	25	Flotation	Large Posthole	Mitchum
31Ch452	26 (Burial 2)	Flotation	Burial	Mitchum
31Ch452	28	Flotation	Pit	Mitchum
31Ch452	29	Flotation	Pit	Mitchum
31Ch452	30	Flotation	Large Posthole	Mitchum
31Ch452	32	Flotation	Shallow Basin	Mitchum
31Ch452	33	Flotation	Basin	Mitchum
31Ch452	34	Flotation	Hearth	Mitchum
31Ch452	35	Flotation	Basin	Mitchum
31Ch452	36	Flotation	Storage Pit	Mitchum

Site	Feature Number	Flotation or Waterscreen Sample	Feature Type	Cultural Association
31Ch452	37	Flotation	Large Basin	Mitchum
31Ch452	38	Flotation	Storage Pit	Mitchum
31Or11	1	Flotation	Posthole	Hillsboro
31Or11	2	Flotation	Posthole	Hillsboro
31Or11	3	Flotation	Posthole	Hillsboro
31Or11	4	Flotation	Posthole	Hillsboro
31Or11	5	Flotation	Posthole	Hillsboro
31Or11	70	Flotation	Borrow Pit	Hillsboro
31Or11	71	Flotation	Borrow Pit	Hillsboro
31Or11	72	Flotation	Borrow Pit	Hillsboro
31Or11	76	Flotation	Borrow Pit	Hillsboro
31Or11	77	Both	Borrow Pit	Hillsboro
31Or11	78	Both	Borrow Pit	Hillsboro
31Or11	79	Both	Borrow Pit	Hillsboro
31Or11	82	Flotation	Borrow Pit	Hillsboro
31Or11	87	Both	Borrow Pit	Hillsboro
31Or11	88	Flotation	Borrow Pit	Hillsboro
31Or11	89	Flotation	Borrow Pit	Hillsboro
31Or11	1-83 (Burial 6)	Flotation	Burial	Hillsboro
31Or11	Midden	Flotation	Midden	Hillsboro
31Or231	Burial 1	Flotation	Burial	Fredricks
31Or231	Burial 2	Flotation	Burial	Fredricks
31Or231	Burial 3	Flotation	Burial	Fredricks
31Or231	1	Flotation	Burial (probable)	Fredricks
31Or231	2 (Burial 4)	Flotation	Burial	Fredricks
31Or231	3 (Burial 5)	Flotation	Burial	Fredricks
31Or231	4 (Burial 6)	Flotation	Burial	Fredricks
31Or231	5 (Burial 7)	Flotation	Burial	Fredricks
31Or231	6 (Burial 8)	Flotation	Burial	Fredricks
31Or231	7 (Burial 9)	Flotation	Burial	Fredricks
31Or231	9	Flotation	Hearth	Fredricks
31Or231	10	Flotation	Storage Pit	Fredricks
31Or231	11	Flotation	Pit	Fredricks
31Or231	12	Flotation	Pit	Fredricks
31Or231	13	Flotation	Pit	Fredricks
31Or231	14 (Burial 11)	Flotation	Burial	Fredricks
31Or231	16	Flotation	Shallow Basin	Fredricks
31Or231	17	Flotation	Storage Pit	Fredricks
31Or231	18	Flotation	Pit	Fredricks
31Or231	19	Flotation	Storage Pit	Fredricks
31Or231	20	Flotation	Pit	Fredricks

Site	Feature Number	Flotation or Waterscreen Sample	Feature Type	Cultural Association
31Or231	23	Flotation	Pit	Fredricks
31Or231	26 (Burial 13)	Flotation	Burial	Fredricks
31Or231	27 (Burial 10)	Flotation	Burial	Fredricks
31Or231	28	Flotation	Storage Pit	Fredricks
31Or231	29	Flotation	Storage Pit	Fredricks
31Or231	33	Flotation	Pit	Fredricks
31Or231	41	Flotation	Storage Pit	Fredricks
31Or231	42	Flotation	Pit	Fredricks
31Or231	44	Flotation	Storage Pit	Fredricks
31Or231	45	Flotation	Pit	Fredricks
31Or231	46	Flotation	Storage Pit	Fredricks
31Or231	47	Flotation	Pit	Fredricks
31Or231	49	Flotation	Burial (probable)	Fredricks
31Or231	51	Flotation	Storage Pit	Fredricks
31Or231	53	Flotation	Storage Pit	Fredricks
31Or231	54 (Burial 14)	Flotation	Burial	Fredricks
31Or231	55	Flotation	Pit	Fredricks
31Or231	56	Flotation	Storage Pit	Fredricks
31Or231	57	Flotation	Pit	Fredricks
31Or231	58	Flotation	Pit	Fredricks
31Or231	59	Flotation	Pit	Fredricks
31Or231	61	Flotation	Pit (probable)	Fredricks
31Or231	73 (Burial 24)	Flotation	Burial	Fredricks
31Or231	74 (Burial 23)	Flotation	Burial	Fredricks
31Or231	76 (Burial 21)	Flotation	Burial	Fredricks
31Or231	Structure 1	Flotation	Structure	Fredricks
31Or231	Structure 5	Flotation	Structure	Fredricks
31Or231a	62	Flotation	Pit	Jenrette
31Or231a	63	Flotation	Pit	Jenrette
31Or231a	64	Flotation	Shallow Basin	Jenrette
31Or231a	65	Flotation	Food Preparation Facility	Jenrette
31Or231a	66	Flotation	Shallow Basin	Jenrette
31Or231a	67	Flotation	Shallow Basin	Jenrette
31Or231a	68	Flotation	Shallow Basin	Jenrette
31Or231a	71	Flotation	Storage Pit	Jenrette
31Or231a	72	Flotation	Storage Pit	Haw River (Early)
31Or231a	75	Flotation	Food Preparation Facility	Jenrette
31Or231a	77	Flotation	Storage Pit	Jenrette

Site	Feature Number	Flotation or Waterscreen Sample	Feature Type	Cultural Association
31Or231a	78	Flotation	Food Preparation Facility	Jenrette
31Or231a	79	Flotation	Storage Pit	Jenrette
31Or231a	80 (Burial 22)	Flotation	Burial	Jenrette
31Or231a	81	Flotation	Tree Disturbance	Haw River (Early)
31Or231a	82	Flotation	Storage Pit	Haw River (Early)
31Or231a	84	Flotation	Food Preparation Facility	Jenrette
31Or231a	85	Flotation	Storage Pit	Jenrette
31Or231a	87	Flotation	Shallow Basin	Jenrette
31Or231a	89	Flotation	Shallow Basin	Haw River (Early)
31Or231a	90	Flotation	Shallow Basin	Jenrette
31Or231a	91	Flotation	Shallow Basin	Jenrette
31Or231a	92	Flotation	Burial (probable)	Jenrette
31Or231a	94	Flotation	Pit	Haw River (Early)
31Or231a	95	Flotation	Food Preparation Facility	Jenrette
31Or231a	96	Flotation	Food Preparation Facility	Jenrette
31Or231a	98	Flotation	Storage Pit	Jenrette
31Or231a	99	Flotation	Storage Pit	Jenrette
31Or231a	113	Flotation	Smudge Pit	Jenrette
31Or231a	116	Flotation	Posthole	Jenrette
31Or231a	120	Flotation	Storage Pit	Jenrette
31Or231a	121	Flotation	Shallow Basin	Jenrette
31Or231a	122	Flotation	Food Preparation Facility	Jenrette
31Or231a	123	Flotation	Storage Pit	Jenrette
31Or231a	124	Flotation	Shallow Basin	Jenrette
31Or231a	125	Flotation	Pit	Haw River (Early)
31Or231a	152	Flotation	Large Basin	Jenrette
31Or231a	153	Flotation	Basin	Jenrette
31Or231a	157	Flotation	Borrow Pit	Jenrette
31Or231a	158	Flotation	Shallow Basin/Tree Disturbance	Jenrette
31Or231a	170	Flotation	Borrow Pit (probable)	Jenrette
31Or231a	210	Flotation	Storage Pit	Jenrette

Site	Feature Number	Flotation or Waterscreen Sample	Feature Type	Cultural Association
31Rk1	1	Flotation	Storage Pit	Middle Saratown
31Rk1	6	Flotation	Basin	Middle Saratown
31Rk1	7	Flotation	Basin	Middle Saratown
31Rk1	8	Flotation	Food Preparation Facility	Middle Saratown
31Rk1	10	Flotation	Storage Pit	Middle Saratown
31Rk1	11	Flotation	Food Preparation Facility	Middle Saratown
31Rk1	13	Flotation	Food Preparation Facility	Middle Saratown
31Rk1	14	Flotation	Depression	Dan River
31Rk1	16	Flotation	Posthole	Middle Saratown
31Rk1	17	Flotation	Storage Pit	Middle Saratown
31Rk1	18	Flotation	Depression	Dan River
31Rk1	20 (Burial 1)	Flotation	Burial	Middle Saratown
31Rk1	21	Flotation	Depression	Middle Saratown
31Rk1	24	Flotation	Storage Pit	Middle Saratown
31Rk1	25	Flotation	Storage Pit	Middle Saratown
31Rk1	30	Flotation	Food Preparation Facility	Middle Saratown
31Rk1	31	Flotation	Storage Pit	Middle Saratown
31Rk1	32	Flotation	Basin	Dan River
31Rk1	33	Flotation	Storage Pit	Middle Saratown
31Rk1	34	Flotation	Basin	Middle Saratown
31Rk1	35	Flotation	Storage Pit	Middle Saratown
31Rk1	38	Flotation	Food Preparation Facility	Middle Saratown
31Rk1	39	Flotation	Basin	Middle Saratown
31Rk1	40	Flotation	Pothole	Middle Saratown
31Rk1	41	Flotation	Storage Pit	Dan River
31Rk1	45	Flotation	Smudge Pit	Middle Saratown
31Rk1	46	Flotation	Food Preparation Facility	Middle Saratown
31Rk1	Midden	Flotation	Midden	Middle Saratown
31Rk5	1	Flotation	Storage Pit	Dan River
31Rk5	2	Flotation	Pit	Dan River
31Rk5	3	Flotation	Storage Pit	Dan River
31Rk5	4	Flotation	Pit	Dan River
31Rk5	6	Flotation	Storage Pit	Dan River
31Rk5	7	Flotation	Basin	Dan River
31Rk5	8	Flotation	Storage Pit	Dan River
31Rk5	9	Flotation	Storage Pit	Early Saratown

Site	Feature Number	Flotation or Waterscreen Sample	Feature Type	Cultural Association
31Rk5	10	Flotation	Storage Pit	Dan River
31Rk5	11	Flotation	Storage Pit	Early Saratown
31Rk5	12	Flotation	Food Preparation Facility	Dan River
31Rk5	13	Flotation	Food Preparation Facility	Dan River
31Rk5	14	Flotation	Storage Pit (Probable)	Early Saratown
31Rk5	15	Flotation	Storage Pit	Dan River
31Rk5	16	Flotation	Basin	Dan River
31Rk5	19	Flotation	Food Preparation Facility	Early Saratown
31Rk5	21	Flotation	Basin	Dan River
31Rk5	24	Flotation	Storage Pit (Probable)	Dan River
31Rk5	25	Flotation	Storage Pit (Probable)	Dan River
31Rk5	27	Flotation	Food Preparation Facility	Early Saratown
31Rk5	28	Flotation	Storage Pit	Dan River
31Rk5	30	Flotation	Basin	Dan River
31Sk1	2	Waterscreen	Storage Pit	Early Saratown
31Sk1	5	Waterscreen	Midden	Early Saratown
31Sk1	6	Waterscreen	Storage Pit	Middle Saratown
31Sk1	12	Waterscreen	Storage Pit	Middle Saratown
31Sk1	14	Waterscreen	Large Storage Pit	Middle Saratown
31Sk1	15	Waterscreen	Shallow Basin	Middle Saratown
31Sk1	16	Waterscreen	Bell-shaped Storage Pit	Middle Saratown
31Sk1	17	Waterscreen	Roasting Pit	Middle Saratown
31Sk1	22	Waterscreen	Large Storage Pit	Dan River (Late)
31Sk1	27	Waterscreen	Deep Basin	Early Saratown
31Sk1	28	Waterscreen	Trash Pit	Dan River (Late)
31Sk1	38	Waterscreen	Storage Pit (Potted)	Early Saratown
31Sk1a	7	Waterscreen	Earth Oven	Late Saratown
31Sk1a	10	Waterscreen	Storage Pit	Late Saratown
31Sk1a	11	Waterscreen	Earth Oven/Roasting Pit	Late Saratown
31Sk1a	16	Waterscreen	Refuse Pit	Late Saratown
31Sk1a	19	Waterscreen	Earth Oven	Late Saratown
31Sk1a	22	Waterscreen	Hearth	Middle Saratown
31Sk1a	23	Waterscreen	Storage Pit	Late Saratown
31Sk1a	26	Waterscreen	Storage Pit	Middle Saratown
31Sk1a	36	Waterscreen	Storage Pit	Late Saratown

Site	Feature Number	Flotation or Waterscreen Sample	Feature Type	Cultural Association
31Sk1a	47	Waterscreen	Earth Oven/Roasting Pit	Middle Saratown
31Sk1a	50	Waterscreen	Shallow Basin	Middle Saratown
31Sk1a	51	Waterscreen	Storage Pit	Middle Saratown
31Sk1a	52	Waterscreen	Storage Pit	Middle Saratown
31Sk1a	53	Waterscreen	Storage Pit	Middle Saratown
31Sk1a	57	Waterscreen	Shallow Basin	Late Saratown
31Sk1a	63	Waterscreen	Storage Pit	Late Saratown
31Sk1a	69	Waterscreen	Earth Oven	Middle Saratown
31Sk1a	71	Waterscreen	Shallow Basin	Middle Saratown
31Sk1a	76	Waterscreen	Earth Oven/Roasting Pit	Middle Saratown
31Sk1a	101	Waterscreen	Earth Oven/Roasting Pit	Middle Saratown
31Sk1a	104	Waterscreen	Storage Pit	Middle Saratown
31Sk1a	118	Waterscreen	Storage Pit	Late Saratown
31Sk1a	126	Waterscreen	Storage Pit	Late Saratown
31Sk1a	134	Waterscreen	Storage Pit	Middle Saratown
31Sk1a	135	Waterscreen	Storage Pit	Middle Saratown
31Sk1a	137	Waterscreen	Storage Pit	Late Saratown
31Sk1a	141	Waterscreen	Bell-shaped Storage Pit	Late Saratown
31Sk1a	143	Waterscreen	Earth Oven	Late Saratown
31Sk1a	144	Waterscreen	Earth Oven	Middle Saratown
31Sk1a	147	Waterscreen	Earth Oven	Middle Saratown
31Sk1a	149	Waterscreen	Refuse Pit	Late Saratown
31Sk1a	157	Waterscreen	Refuse Pit	Late Saratown
31Sk1a	160	Waterscreen	Storage Pit	Middle Saratown
31Sk1a	161	Waterscreen	Storage Pit	Middle Saratown
31Sk1a	168	Waterscreen	Storage Pit	Late Saratown
31Sk1a	170	Waterscreen	Earth Oven/Roasting Pit	Late Saratown
31Sk1a	171	Waterscreen	Earth Oven/Roasting Pit	Late Saratown
31Sk1a	174	Waterscreen	Shallow Basin	Middle Saratown
31Sk1a	175	Waterscreen	Storage Pit	Middle Saratown
31Sk1a	180	Waterscreen	Earth Oven/Roasting Pit	Late Saratown
31Sk1a	184	Waterscreen	Shallow Basin	Late Saratown
31Sk1a	197	Waterscreen	Earth Oven/Roasting Pit	Late Saratown
31Sk1a	198	Waterscreen	Storage Pit	Middle Saratown

Site	Feature Number	Flotation or Waterscreen Sample	Feature Type	Cultural Association
31Sk6	4	Flotation	Storage Pit	Dan River
31Sk6	5	Flotation	Shallow Basin	Dan River
31Sk6	6	Flotation	Storage Pit	Dan River
31Sk6	7	Flotation	Storage Pit	Dan River
31Sk6	8	Flotation	Storage Pit	Dan River
31Sk6	10	Flotation	Large Pit	Late Saratown
31Sk6	21	Flotation	Food Preparation Facility	Late Saratown
31Sk6	28 (Burial 11)	Flotation	Burial	Late Saratown
31Sk6	15	Flotation	Storage Pit	Dan River
31Sk6	17	Flotation	Storage Pit	Dan River
31Sk6	55	Flotation	Shallow Basin	Dan River
31Sk6	Burial 6	Flotation	Burial	Late Saratown

APPENDIX 2: COUNT DATA

	Edgar Rogers (31Am167)									
Feature Number	1	2	3	4	5	6	7	8	9	10
Feature Type	Earth Oven	Basin	Earth Oven	Basin	Earth Oven	Burial	Earth Oven	Basin	Basin	Burial
Phase	Hillsboro									
Plant Weight (g)	256.13	7.33	4.70	6.98	1.54	9.21	7.80	4.81	1.41	1.69
Wood Weight (g)	148.18	6.02	3.43	4.92	1.45	6.57	7.19	3.68	1.06	1.55
Cultigens										
Bean	5	1	-	-	-	1	-	-	-	-
Bean family	8	-	-	-	-	-	-	1	-	-
Maize cupules	1171	19	2	-	-	3	1	16	1	1
Maize kernels	4	-	1	-	-	-	-	2	-	1
Squash	1	-	-	-	-	-	-	-	-	-
Nuts										
Acorn	8127	4	12	35	4	20	8	-	-	1
Acorn meat	12	-	-	-	-	-	-	-	-	-
Hickory	2801	35	3	112	1	115	25	15	11	5
Walnut	11	-	1	-	-	2	-	-	4	-
Fruits										
Grape	10	-	1	-	-	-	-	25	-	-
Grape Stem	6	-	-	-	-	-	-	157	-	-
Grape family cf.	2	-	-	-	-	-	-	-	-	-
Persimmon	26	-	7	-	-	1	-	182	1	-
Plum	1	-	-	-	-	-	-	25	-	-
Oily & Starchy Seeds										
Chenopod	2	-	-	-	-	-	-	-	-	-
Maygrass	-	-	-	-	-	1	-	-	-	-
Miscellaneous										
Bearsfoot	-	-	-	-	-	-	-	1	-	-
Blackgum	220	-	1	-	-	-	-	3	-	1
Grass family cf.	2	-	-	-	-	-	-	-	-	-
Horse Gentian	-	-	-	-	-	-	-	-	1	-

	Mitchum (31Ch452)														
Feature Number	1	2	3	4	5	6	8	9	10	13	14	15	16	17	19
Feature Type	Pit	Large Posthole	Small Pit	Shallow Basin	Shallow Basin	Large Pit	Deep Basin	Deep Basin	Large Pit	Large Pit	Shallow Basin	Deep Basin	Storage Pit	Storage Pit	Shallow Basin
Phase	Mitchum														
Plant Weight (g)	2.42	0.83	1.57	0.31	2.14	38.50	21.77	2.61	12.92	12.46	0.84	2.41	9.07	6.66	1.05
Wood Weight (g)	1.53	0.24	1.34	0.25	1.66	37.55	21.66	2.44	12.34	11.62	0.62	1.30	6.92	4.62	0.86
Cultigens															
Bean	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maize cupules	2	-	6	-	6	-	-	-	-	-	1	-	4	1	-
Maize kernels	1	-	-	-	1	2	-	-	9	2	-	-	-	-	-
Nuts															
Acorn	4	4	1	1	-	1	-	-	-	92	-	4	1	1	-
Hickory	51	9	5	1	3	34	3	1	32	19	13	59	80	55	7
Walnut	-	-	-	-	1	-	-	-	-	-	-	-	1	1	-
Fruits															
Blackberry/raspberry	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Grape	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Hawthorn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maypop	1	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Peach	-	-	3	-	9	3	-	-	-	5	-	-	-	-	-
Oily & Starchy Seeds															
Knotweed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Little Barley	-	-	-	-	-	27	-	-	-	-	-	-	-	-	-
Maygrass	-	-	-	-	2	436	-	-	-	2	-	-	-	-	-
Sunflower	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous															
Bedstraw	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Blackgum	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Grass family	-	-	-	-	-	30	-	-	-	2	-	-	-	-	-

Mitchum (31Ch452) Continued

Feature Number	21	24	25	26	28	29	30	32	33	34	35	36	37	38	Burial 1
Feature Type	Storage Pit	Storage Pit	Large Posthole	Burial	Storage Pit	Storage Pit	Large Posthole	Shallow Basin	Deep Basin	Hearth	Deep Basin	Storage Pit	Deep Basin	Storage Pit	Burial
Phase								Mitchum							
Plant Weight (g)	0.81	9.10	2.70	2.12	2.34	7.20	1.31	4.62	0.48	0.73	1.87	4.44	0.45	3.11	1.92
Wood Weight (g)	0.17	8.63	2.29	1.08	2.10	5.26	1.10	3.90	0.48	0.09	1.64	4.19	0.25	2.49	0.70
Cultigens															
Bean	-	-	-	1	3	-	-	-	-	-	-	-	-	-	-
Maize cupules	-	-	1	1	-	6	-	4	-	1	1	3	-	16	3
Maize kernels	-	-	-	2	1	1	-	1	-	-	-	1	-	-	1
Nuts															
Acorn	-	-	-	9	23	24	1	1	-	1	12	12	-	15	12
Hickory	37	2	-	35	3	84	2	22	-	1	7	7	2	11	64
Walnut	3	-	-	1	1	1	-	7	-	-	2	-	-	2	-
Fruits															
Blackberry/raspberry	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grape	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Hawthorn	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Maypop	-	1	-	-	-	1	-	2	-	-	-	1	-	-	-
Peach	-	-	-	-	-	30	-	-	-	-	-	1	-	1	-
Oily & Starchy Seeds															
Knotweed	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Little Barley	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maygrass	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Sunflower	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous															
Bedstraw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blackgum	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-
Grass family	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	Wall (31Or11)									
Feature Number	1	2	3	4	5	70	71	72	76	77
Feature Type	Posthole	Posthole	Posthole	Posthole	Posthole	Borrow Pit	Borrow Pit	Borrow Pit	Borrow Pit	Borrow Pit
Phase	Hillsboro									
Plant Weight (g)	0.15	0.17	12.95	3.70	1.32	2.54	1.63	0.66	3.55	9.83
Wood Weight (g)	0.03	0.10	12.46	3.32	0.95	1.40	1.40	0.40	2.25	8.36
Cultigens										
Bean	-	-	-	-	-	-	-	-	2	-
Bean cf.	-	-	-	-	-	-	-	-	-	9
Bean family	-	-	-	1	-	-	-	-	-	-
Maize cupules	5	-	-	-	-	88	31	19	64	80
Maize kernels	-	-	-	-	1	4	2	2	6	11
Squash	-	-	-	-	-	-	-	-	1	-
Cucurbit rind	-	-	-	-	-	-	-	-	-	-
Cucurbit rind cf.	-	-	-	-	-	-	-	-	1	-
Nuts										
Acorn	-	-	35	19	15	55	30	3	25	191
Acorn cap	-	-	-	-	-	-	-	-	-	6
Acorn meat	-	-	2	-	-	1	-	-	-	4
Acorn meat cf.	-	-	-	-	-	-	-	-	-	1
Beech	-	-	-	-	-	1	-	-	-	-
Hickory	-	3	28	3	16	34	5	29	240	30
Hickory meat	-	-	-	-	-	-	-	-	-	-
Walnut	-	-	-	-	-	-	-	-	-	-
Fruits										
Blueberry	-	-	-	-	-	-	-	-	-	1
Grape	-	-	-	-	-	-	1	-	-	-
Hawthorn	-	-	-	1	-	-	-	-	-	-
Hawthorn cf.	-	-	-	-	-	-	-	-	-	2
Maypop	-	-	-	-	-	-	-	-	6	-
Maypop cf.	-	-	-	-	-	-	-	-	-	-

	Wall (31Or11)									
Feature Number	1	2	3	4	5	70	71	72	76	77
Mulberry	-	-	-	-	-	-	-	-	-	-
Persimmon	-	-	-	-	-	-	-	-	-	-
Plum/cherry	-	-	-	-	-	-	-	-	-	-
Oily & Starchy Seeds										
Chenopod	-	-	-	-	-	-	-	-	-	-
Knotweed	-	-	-	-	-	-	-	-	-	1
Sumpweed	-	-	-	-	-	-	-	-	-	-
Sunflower	-	-	-	-	-	-	-	-	-	-
Miscellaneous										
Bean/persimmon	-	-	-	-	-	-	-	1	1	-
Bedstraw	-	-	-	-	-	-	-	-	-	2
Blackgum	-	-	-	-	-	-	-	-	-	2
Carpetweed	-	-	-	-	-	-	-	-	-	4
Cheno/am	-	-	-	-	-	-	-	-	-	-
Dogwood	-	-	-	-	-	-	-	-	-	-
Grass family	-	-	-	-	-	-	-	-	2	1
Nightshade family	-	-	-	1	-	-	-	-	-	-
Pink family	1	-	-	-	-	-	-	-	-	-
Pokeweed	-	-	-	-	-	-	-	-	-	-
Purslane	-	-	-	-	-	-	-	-	-	2
Sedge	-	-	-	-	-	-	-	1	-	-

Wall (31Or11) Continued								
Feature Number	78	79	82	87	88	89	1-83	Midden
Feature Type	Borrow Pit	Borrow Pit	Borrow Pit	Borrow Pit	Borrow Pit	Borrow Pit	Burial	Midden
Phase	Hillsboro							
Plant Weight (g)	23.77	6.20	8.05	5.07	3.99	1.88	4.63	107.11
Wood Weight (g)	8.80	2.02	6.64	3.98	2.87	1.56	4.21	67.75
Cultigens								
Bean	2	-	-	-	-	-	-	4
Bean cf.	1	-	-	1	1	-	-	-
Bean family	-	-	1	-	-	-	-	1
Maize cupules	154	574	168	79	137	26	4	236
Maize kernels	27	16	15	1	3	2	-	26
Squash	1	4	-	-	-	-	-	-
Cucurbit rind	-	-	-	-	1	-	-	-
Cucurbit rind cf.	-	-	-	-	-	-	-	-
Nuts								
Acorn	31	41	144	18	27	7	15	1062
Acorn cap	-	-	-	2	-	-	-	-
Acorn meat	2	-	4	-	-	-	-	6
Acorn meat cf.	-	-	-	-	-	-	-	-
Beech	-	-	-	-	-	-	-	-
Hickory	967	21	3	40	34	25	14	1538
Hickory meat	1	-	-	-	-	-	-	-
Walnut	-	-	-	-	-	-	-	38
Fruits								
Blueberry	-	-	-	-	-	-	-	-
Grape	6	-	-	2	-	-	1	21
Hawthorn	-	-	-	-	-	-	-	1
Hawthorn cf.	-	-	-	-	-	-	-	-
Maypop	1	-	-	-	5	1	1	8
Maypop cf.	-	-	-	2	-	-	-	-

	Wall (31Or11) Continued							
Feature Number	78	79	82	87	88	89	1-83	Midden
Mulberry	1	-	-	-	-	-	-	-
Persimmon	-	1	6	2	-	-	-	1
Plum/cherry	3	-	-	1	3	-	-	-
Oily & Starchy Seeds								
Chenopod	-	-	4	-	-	-	-	-
Knotweed	-	-	-	-	-	-	-	-
Sumpweed	2	-	2	-	-	-	-	-
Sunflower	-	-	1	8	-	-	-	-
Miscellaneous								
Bean/persimmon	-	1	14	-	-	-	-	-
Bedstraw	-	-	-	7	4	-	-	1
Blackgum	-	-	-	-	-	-	-	-
Carpetweed	-	-	6	-	-	-	-	-
Cheno/am	1	-	-	-	-	-	-	-
Dogwood	-	-	-	-	-	-	-	1
Grass family	-	-	4	-	-	-	-	-
Nightshade family	-	-	1	-	-	-	-	-
Pink family	-	-	-	-	-	-	-	-
Pokeweed	-	-	-	-	-	-	-	1
Purslane	2	1	-	-	-	-	-	-
Sedge	-	-	-	-	-	-	-	-

	Fredricks (31Or231)									
Feature Number	1	2	3	4	5	6	7	9	10	11
Feature Type	Burial (probable)	Burial	Burial	Burial	Burial	Burial	Burial	Hearth	Storage Pit	Storage Pit
Phase	Fredricks									
Plant Weight (g)	5.63	22.78	16.71	8.92	2.01	19.71	6.73	139.22	31.77	2.72
Wood Weight (g)	4.85	20.13	11.23	4.45	0.67	13.37	3.65	59.61	28.63	2.15
Cultigens										
Bean	-	1	-	-	-	4	-	25	-	-
Bean family	-	-	-	-	-	1	-	1	-	-
Maize cupules	16	35	92	39	1	90	45	416	2	-
Maize kernels	1	2	6	2	1	4	3	412	1	-
Squash	-	-	1	-	-	1	-	-	-	-
Nuts										
Acorn	1	4	12	1	4	8	27	11155	15	-
Acorn meat	-	1	-	-	-	-	-	-	-	-
Hickory	13	141	179	122	9	313	135	2018	148	1
Hickory/walnut	-	-	-	-	-	-	-	-	-	-
Walnut	-	2	-	1	-	1	-	2	-	-
Fruits										
Blackberry/raspberry	-	-	-	-	-	-	-	3	-	-
Blueberry	-	2	1	-	-	1	-	-	-	-
Elderberry	-	-	-	-	-	-	-	1	-	-
Grape	-	1	2	-	1	1	-	20	-	-

Fredricks (31Or231) Continued										
Feature Number	1	2	3	4	5	6	7	9	10	11
Hawthorn	-	-	1	-	-	-	-	2	-	-
Huckleberry	-	-	-	-	-	-	-	-	-	-
Maypop	-	1	1	-	-	2	-	26	-	-
Mulberry	-	-	-	-	-	-	-	-	-	-
Peach	-	1	18	1	-	15	19	139	3	-
Persimmon	-	-	1	2	-	5	1	-	-	-
Plum/cherry	-	-	-	-	-	-	-	-	-	-
Strawberry	-	-	-	-	-	-	-	-	-	-
Sumac	-	-	1	-	-	-	-	2	-	-
Watermelon	-	-	-	-	-	-	-	-	-	-
Oily & Starchy Seeds										
Chenopod	-	-	-	-	-	-	-	17	-	-
Knotweed	-	-	-	-	-	-	-	-	-	-
Miscellaneous										
Amaranth	-	-	-	-	-	-	-	-	-	-
Bearsfoot	-	-	-	-	-	-	-	-	-	-
Bedstraw	-	-	4	-	-	-	1	2	-	-
Blackgum	-	-	-	-	-	-	-	-	-	-
Grass family	-	-	-	-	-	1	-	-	-	-
Horse gentian	-	-	-	-	-	-	-	-	-	-
Nightshade family	-	-	1	1		6	2	5	-	-
Pokeweed	-	-	-	-	-	-	-	6	-	-
Spurge	-	-	-	-	-	1	-	-	-	-
Viburnum	-	-	-	-	-	-	-	-	-	-

Fredricks (31Or231) Continued											
Feature Number	12	13	14	16	17	18	19	20	23	26	27
Feature Type	Storage Pit	Storage Pit	Burial	Shallow Basin	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Burial	Burial
Phase	Fredricks										
Plant Weight (g)	6.55	14.11	7.48	1.40	45.68	3.97	15.44	11.56	6.27	5.60	6.59
Wood Weight (g)	3.39	13.04	3.95	0.49	41.77	0.27	13.23	8.55	5.30	4.63	4.65
Cultigens											
Bean	2	-	1	-	-	1	-	-	-	2	-
Bean family	-	-	-	-	1	-	-	-	-	1	-
Maize cupules	7	1	35	-	1	-	5	3	4	25	15
Maize kernels	1	2	2	-	3	5	2	1	1	1	1
Squash	-	-	-	-	1	-	-	-	-	-	-
Nuts											
Acorn	4	1	4	-	23	23	39	81	8	8	1
Acorn meat	-	-	-	-	-	-	-	-	-	-	-
Hickory	177	57	143	5	221	25	86	136	37	32	24
Hickory/walnut	-	-	-	-	-	-	-	-	-	-	-
Walnut	1	-	-	-	3	-	1	-	4	-	-
Fruits											
Blackberry/raspberry	-	-	-	-	-	-	-	-	-	-	4
Blueberry	-	-	-	-	-	-	-	-	-	-	-
Elderberry	-	-	-	-	-	-	1	-	-	1	-
Grape	-	1	-	-	-	-	-	-	-	1	3

Fredricks (31Or231) Continued											
Feature Number	12	13	14	16	17	18	19	20	23	26	27
Hawthorn	-	-	-	-	-	-	-	-	-	-	-
Huckleberry	-	-	-	-	-	-	-	-	-	-	-
Maypop	-	-	-	-	-	-	-	-	-	-	1
Mulberry	-	-	-	-	-	-	-	-	-	-	-
Peach	1	6	4	-	-	-	-	17	-	6	12
Persimmon	-	-	1	-	-	-	-	1	1	-	-
Plum/cherry	-	-	-	-	-	-	-	-	-	-	-
Strawberry	-	-	-	-	-	-	-	-	-	-	-
Sumac	-	-	-	-	-	-	1	-	1	-	-
Watermelon	-	-	-	-	-	-	-	-	-	-	-
Oily & Starchy Seeds											
Chenopod	-	-	-	-	-	-	1	-	-	-	-
Knotweed	-	-	1	-	-	-	-	1	-	-	-
Miscellaneous											
Amaranth	-	-	-	-	-	-	-	-	-	-	-
Bearsfoot	-	-	-	-	-	-	-	-	-	-	-
Bedstraw	-	-	-	-	-	-	-	-	-	-	1
Blackgum	-	-	-	-	-	-	-	2	-	-	-
Grass family	2	-	-	-	-	-	-	-	-	-	-
Horse gentian	-	-	1	-	-	-	-	-	1	-	-
Nightshade family	1	-	2	-	-	-	-	3	-	-	-
Pokeweed	-	-	-	-	-	-	-	1	-	-	-
Spurge	-	-	-	-	-	-	-	-	-	-	-
Viburnum	-	-	-	-	-	-	-	1	-	-	-

	Fredricks (31Or231) Continued									
Feature Number	28	29	33	41	42	44	45	46	47	49
Feature Type	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Burial
Phase	Fredricks									
Plant Weight (g)	41.05	28.33	7.56	53.97	13.54	138.05	14.17	18.39	37.54	17.55
Wood Weight (g)	24.41	20.1	6.9	40.17	11.84	86.5	11.25	16.07	34.46	13.34
Cultigens										
Bean	1	-	-	1	-	-	-	-	-	-
Bean family	-	-	1	3	-	-	-	1	-	4
Maize cupules	216	240	3	138	15	20	4	20	37	6
Maize kernels	4	13	1	9	4	10	1	-	4	6
Squash	-	-	-	1	-	-	-	-	-	1
Nuts										
Acorn	8	62	8	1008	54	4	8	12	1	58
Acorn meat	-	-	-	40	-	-	-	-	-	-
Hickory	733	197	26	141	69	3335	185	57	165	13
Hickory/walnut	-	-	-	-	-	-	-	-	-	-
Walnut	32	1	1	2	1	-	-	-	-	-
Fruits										
Blackberry/raspberry	1	1	-	-	-	-	-	-	1	-
Blueberry	-	-	-	-	-	-	-	-	-	-
Elderberry	-	-	-	-	-	-	-	-	-	-
Grape	4	6	-	13	-	-	-	-	1	-

	Fredricks (31Or231) Continued									
Feature Number	28	29	33	41	42	44	45	46	47	49
Hawthorn	-	-	-	-	-	-	-	1	-	-
Huckleberry	1	-	-	2	-	2	-	-	-	-
Maypop	3	-	-	4	-	-	-	-	1	1
Mulberry	-	-	-	-	-	-	-	-	-	-
Peach	3	79	4	133	-	12	-	10	-	4
Persimmon	11	1	-	-	-	2	-	-	-	-
Plum/cherry	-	-	-	-	-	-	-	-	-	-
Strawberry	-	-	-	-	-	-	1	1	-	-
Sumac	1	-	-	1	-	-	1	-	-	1
Watermelon	-	-	-	-	-	-	1	-	-	-
Oily & Starchy Seeds										
Chenopod	-	-	-	-	-	-	-	-	-	-
Knotweed	2	4	-	-	-	-	-	2	-	-
Miscellaneous										
Amaranth	-	-	-	-	-	-	-	-	-	-
Bearsfoot	-	1	-	-	-	1	-		-	-
Bedstraw	2	1	-	3	-	1	1	1	1	-
Blackgum	3	-	-	1	-	4	-	1	2	-
Grass family	4	-	-	2	-	1	-	-	-	-
Horse gentian	-	-	-	-	-	-	-	-	-	-
Nightshade family	24	2	-	4	-	-	-	-	-	1
Pokeweed	-	-	-	-	-	-	-	-	-	-
Spurge	-	-	-	-	-	-	-	-	-	-
Viburnum	-	-	-	1	-	-	-	-	-	-

Fredricks (31Or231) Continued									
Feature Number	51	53	54	55	56	57	58	59	61
Feature Type	Storage Pit	Storage Pit	Burial	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Storage Pit
Phase	Fredricks								
Plant Weight (g)	33.12	130.11	17.08	0.64	35.17	1.46	8.85	19.71	2.10
Wood Weight (g)	28.65	113.09	16.33	0.25	29.43	1.30	3.08	13.37	0.71
Cultigens									
Bean	-	1	-	-	-	-	-	-	-
Bean family	-	-	-	-	1	-	-	-	-
Maize cupules	14	26	-	-	27	-	3	9	1
Maize kernels	11	13	1	-	4	-	2	3	1
Squash	-	-	-	-	-	-	-	-	-
Nuts									
Acorn	19	204	54	12	12	-	19	35	-
Acorn meat	-	111	-	-	-	-	-	-	-
Hickory	95	573	9	-	247		112	64	8
Hickory/walnut	-	5	-	2	-	2	-	2	-
Walnut	1	18	-	-	2	-	3	-	-
Fruits									
Blackberry/raspberry	-	1	-	-	1	-	2	-	-
Blueberry	-	1	-	-	-	-	-	-	-
Elderberry	-	2	-	-	1	-	-	-	-
Grape	2	11	-	-	1	-	2	1	-

	Fredricks (31Or231) Continued								
Feature Number	51	53	54	55	56	57	58	59	61
Hawthorn	-	-	-	-	-	-	-	-	-
Huckleberry	-	7	-	-	1	-	-	-	-
Maypop	-	19	-	-	-	-	1	1	-
Mulberry	-	-	-	-	-	-	-	-	-
Peach	6	30	-	-	-	-	-	-	-
Persimmon	-	-	-	-	1	-	1	1	-
Plum/cherry	-	-	-	-	-	-	-	-	-
Strawberry	-	-	-	-	-	-	-	-	-
Sumac	-	1	-	-	-	-	-	-	-
Watermelon	-	-	-	-	-	-	-	-	-
Oily & Starchy Seeds									
Chenopod	-	-	-	-	-	-	-	-	-
Knotweed	-	-	-	-	-	-	-	-	-
Miscellaneous									
Amaranth	1	-	-	-	-	-	-	-	-
Bearsfoot	1	2	-	-	-	-	-	-	-
Bedstraw	1	35	-	-	-	-	-	1	1
Blackgum	-	-	-	-	1	-	-	-	-
Grass family	-	2	-	-	-	-	1	-	-
Horse gentian	-	-	-	-	-	-	-	-	-
Nightshade family	-	-	-	-	1	-	1	1	-
Pokeweed	-	1	-	-	-	-	-	-	-
Spurge	-	-	-	-	-	-	-	-	-
Viburnum	-	-	-	-	-	-	-	-	-

Fredricks (31Or231) Continued

Feature Number	73	74	76	Burial 1	Burial 2	Burial 3	Structure 1	Structure 5
Feature Type	Burial	Burial	Burial	Burial	Burial	Burial	Structure	Structure
Phase				Fredricks				
Plant Weight (g)	10.54	1.36	1.57	8.60	0.98	4.93	0.38	6.38
Wood Weight (g)	6.33	1.02	0.41	7.89	0.85	3.06	0.11	4.21
Cultigens								
Bean	-	-	-	-	-	-	-	-
Bean family	-	-	-	-	-	-	-	-
Maize cupules	51	11	1	3	1	31	-	2
Maize kernels	2	1	-	1	2	1	1	1
Squash	-	-	-	-	-	2	-	-
Nuts								
Acorn	1	4	1	-	1	-	1	39
Acorn meat	-	-	-	-	-	-	-	-
Hickory	229	11	27	25	1	29	25	88
Hickory/walnut	-	-	-	-	-	-	-	-
Walnut	2	-	-	-	-	18	-	-
Fruits								
Blackberry/raspberry	-	-	-	-	-	-	-	-
Blueberry	-	-	-	-	-	5	-	-
Elderberry	-	-	-	-	-	-	-	-
Grape	3	1	-	1	-	1	-	1

	Fredricks (31Or231) Continued							
Feature Number	73	74	76	Burial 1	Burial 2	Burial 3	Structure 1	Structure 5
Hawthorn	-	-	-	-	1	-	-	-
Huckleberry	-	-	-	-	-	-	-	-
Maypop	-	-	-	-	-	-	-	-
Mulberry	-	-	-	-	-	-	-	-
Peach	1	1	-	-	-	-	-	8
Persimmon	-	1	-	-	-	-	-	-
Plum/cherry	-	-	-	-	-	-	-	-
Strawberry	-	-	-	-	-	-	-	-
Sumac	-	-	-	-	-	-	-	-
Watermelon	-	-	-	-	-	-	-	-
Oily & Starchy Seeds								
Chenopod	-	-	-	-	-	-	1	-
Knotweed	-	-	-	-	-	-	-	-
Miscellaneous								
Amaranth	-	-	-	-	-	-	-	-
Bearsfoot	-	-	-	-	-	-	-	-
Bedstraw	-	-	-	-	-	4	-	-
Blackgum	-	-	-	-	-	-	-	-
Grass family	-	-	-	-	-	-	-	-
Horse gentian	-	-	-	-	-	-	-	-
Nightshade family	-	-	-	-	-	-	-	-
Pokeweed	-	-	1	-	-	-	-	-
Spurge	-	-	-	-	-	-	-	-
Viburnum	-	-	-	-	-	-	-	-

	Jenrette (31Or231a)								
Feature Number	62	63	64	65	66	67	68	71	72
Feature Type	Pit	Pit	Shallow Basin	Food Prep. Facility	Shallow Basin	Shallow Basin	Shallow Basin	Storage Pit	Storage Pit
Phase	Jenrette								Early Haw River
Plant Weight (g)	2.52	5.83	1.38	3.59	4.21	6.35	4.70	2.56	1.24
Wood Weight (g)	2.51	5.19	1.20	2.13	3.27	4.47	4.67	1.96	1.08
Cultigens									
Bean	-	-	-	-	-	-	-	-	-
Bean family	-	-	-	-	-	-	-	-	-
Maize cupules	1	-	-	-	-	-	-	-	-
Maize kernels	2	6	-	2	-	-	-	-	1
Squash/gourd	-	-	-	-	-	-	-	-	-
Nuts									
Acorn	1	8	1	20	12	74	4	-	-
Acorn meat	-	-	-	-	-	-	-	-	-
Hickory	4	9	1	63	45	48	1	23	1
Walnut	1	1	-	-	-	8	-	-	-
Fruits									
Blackberry/raspberry	-	-	-	-	-	-	-	-	-
Grape	-	1	-	-	-	-	-	-	-
Hawthorn	-	-	-	-	-	-	-	-	-
Maypop	-	-	-	-	-	1	-	-	-
Peach	-	-	-	11	-	-	-	3	-
Persimmon	-	7	-	-	-	-	-	-	-
Oily & Starchy Seeds									
Chenopod	-	-	-	-	-	-	-	-	-
Knotweed	-	-	-	-	-	-	-	-	-
Sumpweed	-	5	-	-	-	-	-	-	-
Miscellaneous									
Bean/persimmon	-	-	-	-	-	-	-	-	-
Bearsfoot	-	-	-	-	-	-	-	-	-
Bedstraw	-	-	-	-	-	-	-	-	-
Blackgum	-	-	-	-	-	-	-	-	-
Bulrush	-	-	-	-	-	-	-	-	-
Nightshade family	-	-	-	-	1	-	-	-	-
Pokeweed	-	-	-	-	-	-	-	-	-
Tick clover	-	-	-	-	-	-	-	-	-

Jenrette (31Or231a) Continued									
Feature Number	75	77	78	79	80	81	82	84	85
Feature Type	Food Prep. Facility	Storage Pit	Food Prep. Facility	Storage Pit	Burial	Tree Disturbance	Storage Pit	Food Prep. Facility	Storage Pit
Phase	Jenrette					Early Haw River		Jenrette	
Plant Weight (g)	7.76	4.52	5.75	2.36	5.53	2.09	2.29	14.60	53.46
Wood Weight (g)	6.37	3.35	5.17	1.94	4.37	1.63	2.23	13.53	9.35
Cultigens									
Bean	-	-	-	1	-	-	-	2	-
Bean family	-	-	-	-	-	-	-	-	-
Maize cupules	-	-	-	-	1	1	-	-	-
Maize kernels	3	-	-	3	-	-	-	4	4
Squash/gourd	1	-	-	-	-	-	-	-	-
Nuts									
Acorn	23	4	58	8	28	-	8	46	8
Acorn meat	-	-	2	-	-	-	-	-	-
Hickory	88	-	13	17	64	18	3	41	2770
Walnut	-	-	-	1	-	-	-	-	65
Fruits									
Blackberry/raspberry	-	-	-	-	-	-	-	-	2
Grape	-	-	-	-	-	-	1	-	-
Hawthorn	-	-	-	-	-	-	-	-	-
Maypop	-	-	-	-	-	-	-	-	-
Peach	-	-	-	1	1	-	-	1	27
Persimmon	1	-	-	-	-	-	-	2	4
Oily & Starchy Seeds									
Chenopod	-	-	-	-	-	-	-	-	-
Knotweed	-	-	-	-	-	-	-	-	-
Sumpweed	-	-	-	-	-	-	-	-	-
Miscellaneous									
Bean/persimmon	-	-	-	-	-	-	-	-	-
Bearsfoot	-	-	-	-	-	-	-	-	-
Bedstraw	-	-	-	-	-	8	-	-	-
Blackgum	-	-	-	-	-	-	-	-	-
Bulrush	1	-	-	-	-	-	-	-	-
Nightshade family	1	-	-	-	-	-	-	-	-
Pokeweed	-	-	-	-	-	-	-	-	-
Tick clover	-	-	-	-	1	-	-	-	-

Jenrette (31Or231a) Continued										
Feature Number	87	89	90	91	92	94	95	96	98	99
Feature Type	Shallow Basin	Shallow Basin	Shallow Basin	Shallow Basin	Burial (probable)	Storage Pit	Food Prep. Facility	Food Prep. Facility	Storage Pit	Storage Pit
Phase	Jenrette	Early Haw River		Jenrette		Early Haw River			Jenrette	
Plant Weight (g)	0.64	2.79	0.47	0.62	1.16	3.78	18.05	16.38	8.04	9.06
Wood Weight (g)	0.56	0.76	0.31	0.39	0.99	3.60	7.14	10.23	5.08	8.90
Cultigens										
Bean	-	-	-	-	-	-	-	-	-	-
Bean family	-	-	-	-	-	-	-	-	-	-
Maize cupules	1	5	-	-	2	8	-	-	2	-
Maize kernels	-	1	-	-	2	-	5	2	-	2
Squash/gourd	-	-	-	-	-	-	-	-	-	-
Nuts										
Acorn	-	1	8	-	1	-	4	1358	1	24
Acorn meat	-	-	-	-	-	-	-	-	-	-
Hickory	-	8	6	3	3	5	555	155	3	70
Walnut	-	-	-	6	-	3	56	6	-	1
Fruits										
Blackberry/raspberry	-	-	23	-	-	-	-	-	-	-
Grape	-	-	2	-	-	-	-	-	-	-
Hawthorn	-	-	-	-	-	-	18	-	-	-
Maypop	-	-	-	-	-	-	-	-	-	-
Peach	4	-	-	-	5	-	-	-	178	-
Persimmon	-	-	1	-	-	-	5	-	-	-
Oily & Starchy Seeds										
Chenopod	-	-	-	-	-	-	-	-	-	-
Knotweed	-	-	4	-	-	-	-	-	-	-
Sumpweed	-	-	-	-	-	-	-	1	-	-
Miscellaneous										
Bean/persimmon	-	-	-	-	-	-	-	-	-	-
Bearsfoot	-	-	-	-	1	-	-	-	-	-
Bedstraw	-	-	1	-	-	-	-	-	-	-
Blackgum	-	-	-	-	-	-	-	-	1	-
Bulrush	-	-	-	-	-	-	-	-	-	-
Nightshade family	-	-	1	-	-	-	-	-	-	-
Pokeweed	-	-	1	-	-	-	-	-	-	-
Tick clover	-	-	-	-	-	-	-	-	-	-

Jenrette (31Or231a) Continued							
Feature Number	113	116	120	121	122	123	124
Feature Type	Smudge Pit	Posthole	Storage Pit	Shallow Basin	Food Prep. Facility	Storage Pit	Shallow Basin
Phase	Jenrette						
Plant Weight (g)	1.06	5.20	5.80	4.89	25.41	2.07	1.19
Wood Weight (g)	0.43	4.35	2.52	4.65	25.40	1.29	1.15
Cultigens							
Bean	-	-	-	-	-	-	-
Bean family	-	-	-	-	-	-	-
Maize cupules	-	-	-	1	-	-	-
Maize kernels	21	-	-	-	2	1	-
Squash/gourd	-	-	1	-	1	-	-
Nuts							
Acorn	-	-	4	15	231	1	-
Acorn meat	-	-	-	-	-	-	-
Hickory	2	-	119	17	369	47	1
Walnut	-	-	50	-	1	1	-
Fruits							
Blackberry/raspberry	-	-	-	-	-	-	-
Grape	-	1	-	-	-	-	-
Hawthorn	-	-	-	-	-	-	-
Maypop	-	-	-	1	-	-	-
Peach	-	50	1	1	42	-	-
Persimmon	-	-	-	-	-	-	-
Oily & Starchy Seeds							
Chenopod	-	-	-	-	-	1	-
Knotweed	-	-	-	-	-	-	-
Sumpweed	-	-	-	-	-	-	-
Miscellaneous							
Bean/persimmon	-	-	-	-	-	-	-
Bearsfoot	-	-	-	-	-	-	-
Bedstraw	-	-	-	-	-	-	-
Blackgum	-	-	-	-	-	-	-
Bulrush	-	-	-	-	-	-	-
Nightshade family	-	-	-	-	-	-	-
Pokeweed	-	-	-	-	3	-	-
Tick clover	-	-	-	-	-	-	-

Jenrette (31Or231a) Continued							
Feature Number	125	152	153	157	158	170	210
Feature Type	Storage Pit	Deep Basin	Deep Basin	Borrow Pit	Shallow Basin/Tree Disturbanc	Borrow Pit	Storage Pit
Phase	Early Haw River	Jenrette					
Plant Weight (g)	3.71	3.31	0.45	164.67	8.16	4.32	1.49
Wood Weight (g)	2.11	2.46	0.43	2.57	2.71	0.51	0.46
Cultigens							
Bean	-	-	-	-	-	-	-
Bean family	-	-	-	1	1	-	-
Maize cupules	-	14	2	16	459	8	3
Maize kernels	-	7	4	2	3	3	3
Squash/gourd	-	-	-	-	-	-	-
Nuts							
Acorn	27	99	-	2209	19	20	2
Acorn meat	-	4	-	16	1	1	-
Hickory	21	20	-	2300	31	106	31
Walnut	-	-	-	-	2	-	-
Fruits							
Blackberry/raspberry	-	-	-	-	-	-	2
Grape	-	-	-	-	1	1	-
Hawthorn	-	-	-	-	-	1	-
Maypop	-	-	-	-	-	-	-
Peach	-	-	-	4	-	-	-
Persimmon	-	-	-	-	-	-	-
Oily & Starchy Seeds							
Chenopod	-	-	-	-	-	-	-
Knotweed	-	-	-	-	-	-	-
Sumpweed	-	2	-	-	-	-	-
Miscellaneous							
Bean/persimmon	-	1	-	-	-	-	-
Bearsfoot	1	-	-	-	-	-	-
Bedstraw	-	-	-	-	1	-	-
Blackgum	-	-	-	-	-	-	-
Bulrush	-	-	-	-	-	-	-
Nightshade family	-	-	-	-	-	-	-
Pokeweed	-	-	-	-	-	-	-
Tick clover	-	-	-	-	-	-	-

	Lower Saratown (31Rk1)									
Feature Number	1	6	7	8	10	11	13	14	16	17
Feature Type	Storage Pit	Shallow Basin	Deep Basin	Food Prep. Facility	Storage Pit	Food Prep. Facility	Food Prep. Facility	Depression	Posthole	Storage Pit
Phase	Middle Saratown							Dan River	Middle Saratown	
Plant Weight (g)	6.25	18.60	3.84	13.66	9.80	41.88	2.52	6.10	36.05	3.62
Wood Weight (g)	5.71	16.64	3.50	12.56	5.30	23.06	2.17	4.89	4.19	2.56
Cultigens										
Bean	-	1	1	-	1	-	-	-	-	-
Bean family	-	-	-	-	-	1	-	-	-	-
Maize cupules	10	25	3	11	107	5	1	3	1357	-
Maize kernels	3	4	1	1	2	10	-	1	16	1
Squash	1	-	-	-	-	-	-	-	-	-
Nuts										
Acorn	8	35	3	15	12	12	-	4	-	15
Acorn meat	-	-	-	2	-	-	-	-	-	-
Chestnut	-	-	-	-	-	-	-	-	-	-
Hazelnut	-	-	-	-	-	-	-	-	-	-
Hickory	15	46	8	19	92	931	15	52	2	41
Walnut	-	6	-	5	59	104	-	1	-	-
Fruits										
Blackberry/raspberry	-	-	-	-	6	-	-	-	-	-
Grape	-	-	-	-	2	-	1	2	-	5
Maypop	-	1	-	-	-	-	-	-	-	1
Persimmon	-	2	-	-	-	8	-	-	-	-
Plum/cherry	-	-	-	-	-	-	-	-	-	-
Miscellaneous										
Bedstraw	-	-	-	-	6	-	1	-	-	-
Nightshade	-	-	-	-	-	-	-	-	-	-
Nightshade family	-	-	-	-	-	-	-	-	-	-
Pokeweed cf.	-	-	-	-	-	-	-	-	-	-
Ragweed	-	-	-	-	-	-	-	-	-	-
Spurge	-	1	-	1	-	-	-	-	-	-

	Lower Saratown (31Rk1) Continued									
Feature Number	18	20	21	24	25	30	31	32	33	34
Feature Type	Depression	Basin	Depression	Storage Pit	Storage Pit	Food Prep. Facility	Storage Pit	Deep Basin	Storage Pit	Shallow Basin
Phase	Dan River	Middle Saratown						Dan River	Middle Saratown	
Plant Weight (g)	5.13	3.27	73.43	3.01	10.25	74.35	8.07	6.29	2.90	10.42
Wood Weight (g)	4.23	2.83	9.83	2.38	6.68	17.16	6.95	5.64	1.44	8.66
Cultigens										
Bean	-	-	-	-	-	1	-	-	-	1
Bean family	-	-	-	-	-	1	-	-	-	-
Maize cupules	2	11	2233	2	8	9	11	12	33	11
Maize kernels	2	4	6	2	1	5	3	2	1	4
Squash	-	-	-	-	-	-	-	-	-	-
Nuts										
Acorn	1	-	2	12	4	15	19	23	4	8
Acorn meat	-	-	-	-	5	-	-	-	-	-
Chestnut	-	-	-	-	-	-	24	-	-	-
Hazelnut	1	-	2	-	-	-	-	-	-	1
Hickory	27	13	20	7	183	3477	20	12	35	81
Walnut	1	-	81	6	14	107	-	-	13	8
Fruits										
Blackberry/raspberry	-	-	-	-	-	1	-	-	-	1
Grape	-	1	1	-	-	3	-	-	1	-
Maypop	-	-	1	-	-	-	-	-	-	1
Persimmon	-	-	1	1	-	1	-	-	-	-
Plum/cherry	-	-	-	-	-	-	-	-	-	-
Miscellaneous										
Bedstraw	1	-	-	-	-	1	-	-	-	-
Nightshade	-	1	-	-	-	-	-	-	-	-
Nightshade family	1	-	-	-	-	-	-	-	-	-
Pokeweed cf.	-	-	-	-	-	-	-	-	-	-
Ragweed	-	2	-	-	-	-	-	-	-	-
Spurge	-	-	-	-	-	1	-	-	-	-

Lower Saratown Site (31Rk1) Continued								
Feature Number	35	38	39	40	41	45	46	Midden
Feature Type	Storage Pit	Food Prep. Facility	Deep Basin	Pothole	Storage Pit	Smudge Pit	Food Prep. Facility	Midden
Phase	Middle Saratown				Dan River	Middle Saratown		
Plant Weight (g)	7.08	3.93	1.23	2.95	2.14	6.91	10.34	4.21
Wood Weight (g)	6.34	3.38	1.19	2.25	1.70	1.37	7.41	3.81
Cultigens								
Bean	1	-	-	-	-	-	1	-
Bean family	-	-	-	-	-	-	-	-
Maize cupules	8	-	1	2	6	296	9	6
Maize kernels	3	1	-	2	6	4	4	3
Squash	-	-	-	-	-	-	-	-
Nuts								
Acorn	5	12	-	-	12	-	58	8
Acorn meat	-	-	-	-	-	-	-	-
Chestnut	-	-	-	-	-	-	-	-
Hazelnut	-	-	-	-	-	-	-	-
Hickory	22	31	2	29	15	12	106	15
Walnut	3	1	-	1	-	-	4	1
Fruits								
Blackberry/raspberry	-	-	-	-	-	-	-	-
Grape	2	-	-	-	-	-	-	-
Maypop	-	-	-	-	-	-	-	-
Persimmon	-	-	-	-	-	-	-	-
Plum/cherry	-	-	-	-	-	-	1	-
Miscellaneous								
Bedstraw	-	-	-	-	-	-	-	-
Nightshade	-	-	-	-	-	-	-	-
Nightshade family	-	-	-	-	-	-	-	-
Pokeweed cf.	-	-	-	-	-	-	1	-
Ragweed	-	-	-	-	-	-	-	-
Spurge	-	-	-	-	-	-	-	-

	Powerplant (31Rk5)										
Feature Number	1	2	3	4	6	7	8	9	10	11	12
Feature Type	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Shallow Basin	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Food Prep. Facility
Phase	Dan River							Early Saratown	Dan River	Early Saratown	Dan River
Plant Weight (g)	1.24	5.01	1.77	15.32	22.17	1.55	1.18	2.82	2.02	2.18	1.35
Wood Weight (g)	0.82	4.48	1.34	13.12	19.95	1.19	0.67	2.40	1.81	1.92	1.10
Cultigens											
Bean	-	-	-	-	1	-	-	-	-	-	-
Bean family	-	-	1	-	-	-	-	-	-	-	-
Maize cupules	-	2	1	1	6	1	-	-	1	2	1
Maize kernels	1	3	5	-	8	1	2	-	-	-	-
Nuts											
Acorn	23	12	1	-	331	-	-	1	1	-	14
Acorn meat	2	-	-	-	9	-	-	-	-	-	-
Hickory	14	15	21	137	29	12	-	23	12	7	6
Walnut	1	8	4	1	1	3	1	-	2	3	1
Fruits											
Grape	1	-	-	-	1	-	-	-	-	-	-
Sumac	-	-	-	-	4	-	-	-	-	-	-
Oily & Starchy Seeds											
Chenopod	-	1	-	-	2	-	-	-	-	-	-
Little Barley	-	-	-	-	-	-	-	-	-	-	-
Sunflower	-	-	-	-	1	-	-	-	-	-	-
Miscellaneous											
Nightshade family	1	-	-	-	-	-	-	-	-	-	-

Powerplant (31Rk5) Continued											
Feature Number	13	14	15	16	19	21	24	25	27	28	30
Feature Type	Food Prep. Facility	Storage Pit	Storage Pit	Shallow Basin	Storage Pit	Shallow Basin	Storage Pit	Storage Pit	Food Prep. Facility	Storage Pit	Shallow Basin
Phase	Dan River	Early Saratown	Dan River		Early Saratown	———Dan River———			Early Saratown	Dan River	
Plant Weight (g)	1.79	0.12	0.40	1.66	2.35	1.15	0.11	1.08	8.67	0.01	7.16
Wood Weight (g)	1.12	0.04	0.28	1.55	1.90	1.08	0.11	1.04	7.44	0.01	6.49
Cultigens											
Bean	-	-	-	-	-	-	-	-	-	-	-
Bean family	-	-	-	-	-	-	-	-	-	-	-
Maize cupules	1	7	2	1	2	-	-	1	-	-	11
Maize kernels	-	-	1	-	5	-	-	-	1	-	2
Nuts											
Acorn	96	-	-	4	-	-	-	-	1	-	1
Acorn meat	5	-	-	-	-	-	-	-	-	-	3
Hickory	5	1	1	2	17	5	-	7	63	-	3
Walnut	2	-	-	1	2	-	-	-	9	-	-
Fruits											
Grape	-	-	-	-	-	-	-	-	-	-	-
Sumac	-	-	-	-	-	-	-	-	-	-	-
Oily & Starchy Seeds											
Chenopod	-	-	-	-	-	-	-	-	-	-	-
Little Barley	-	-	-	-	-	-	-	-	1	-	-
Sunflower	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous											
Nightshade family	-	-	-	-	-	-	-	-	-	-	-

Hairston (31Sk1)												
Feature Number	2	5	6	12	14	15	16	17	22	27	28	38
Feature Type	Storage Pit	Refuse Pit	Storage Pit	Storage Pit	Large Storage Pit	Shallow Basin	Storage Pit	Earth Oven	Large Storage Pit	Deep Basin	Refuse Pit	Storage Pit
Phase	Early Saratown		Middle Saratown						Dan River	Early Saratown	Dan River	Early Saratown
Plant Weight (g)	88.86	150.98	141.17	274.50	56.89	29.08	261.75	208.76	119.24	80.43	132.80	87.77
Wood Weight (g)	62.36	126.25	137.96	218.80	51.74	26.81	173.30	195.97	100.42	75.69	122.86	81.36
Cultigens												
Bean	-	-	-	2	-	-	16	-	-	-	1	-
Bean cf.	-	-	-	1	-	-	-	-	-	-	-	-
Bean family	-	-	-	-	-	-	-	-	-	-	3	-
Maize cupules	44	150	100	599	43	166	1009	467	690	18	105	-
Maize kernels	227	63	60	111	8	9	111	37	170	6	52	-
Squash	-	-	-	-	-	1	-	-	-	-	-	-
Cucurbit rind	4	4	2	5	2	1	12	2	-	2	2	1
Tobacco	-	-	2	2	-	-	-	4	1	-	-	2
Nuts												
Acorn	57	263	81	191	50	2	34	24	252	47	70	39
Acorn cap	-	-	-	-	-	-	-	-	1	-	-	-
Acorn meat	1	6	-	3	-	-	-	1	10	1	6	4
Chestnut	-	-	-	-	-	-	-	1	-	-	-	-
Hickory	909	527	106	1416	288	28	2299	159	233	131	107	73
Walnut	8	19	-	65	1	-	49	2	1	3	4	8
Fruits												
Blackberry/raspberry	-	-	-	1	-	-	2	-	2	-	-	-
Blueberry	-	-	-	-	-	-	-	1	1	-	-	-
Elderberry	-	-	-	-	-	-	1	-	-	-	-	-
Grape	5	20	2	14	2	-	44	47	131	1	21	7
Hawthorn	-	4	-	-	-	-	2	1	1	-	-	-
Hawthorn cf.	-	-	-	-	-	-	-	-	-	-	-	1

Hairston (31Sk1) Continued												
Feature Number	2	5	6	12	14	15	16	17	22	27	28	38
Maypop	1	7	2	6	1	2	1	12	80	3	19	1
Mulberry	-	-	-	-	-	-	-	-	-	-	-	1
Peach	-	-	-	-	-	-	62	-	-	-	-	-
Persimmon	6	16	7	18	2	3	65	55	17	2	195	6
Plum/cherry	-	4	1	-	-	-	1	2	1	-	-	-
Sumac	-	2	-	1	-	-	-	-	1	-	-	-
Sumac cf.	-	-	-	1	-	-	-	-	1	-	-	-
Oily & Starchy Seeds												
Chenopod	-	29	1	-	-	-	-	1	-	-	-	4
Knotweed	1	-	-	-	-	-	-	1	-	-	-	-
Little Barley	-	-	1	1	-	-	-	1	-	-	-	-
Maygrass	-	1	-	-	-	-	-	-	2	-	-	-
Sumpweed	-	2	-	-	-	-	-	1	-	-	4	-
Sumpweed/sunflower	-	-	-	-	-	-	-	4	-	-	1	-
Sumpweed/sunflower cf.	-	1	-	-	-	-	-	-	-	-	-	-
Sunflower	-	-	1	-	-	-	1	-	1	-	-	-
Sunflower cf.	-	-	-	-	-	-	-	-	-	-	-	2
Miscellaneous												
Amaranth	-	37	-	-	-	-	-	2	-	-	-	-
Barnyard grass	-	-	-	2	-	1	10	28	-	1	-	1
Barnyard grass cf.	-	-	-	1	-	-	-	-	-	-	-	-
Bean/persimmon	-	-	-	3	-	-	-	-	-	-	-	-
Bedstraw	2	1	-	-	-	-	-	-	-	-	-	-
Blackgum	-	-	-	-	-	-	-	-	-	6	4	-
Bulrush	-	6	-	6	-	-	-	-	-	-	-	-
Carpetweed	-	1	-	-	-	-	-	-	-	-	-	-
Cheno/am	2	308	-	6	-	-	-	1	1	-	-	2
Cleaver	-	-	1	-	-	-	-	-	-	-	-	-
Composite family	-	1	-	-	-	-	-	-	-	-	-	-
Composite family cf.	-	-	-	-	-	-	-	1	-	-	1	-
Copperleaf	-	-	-	-	-	-	-	-	1	-	-	-
Dogwood	-	-	-	-	-	-	-	-	-	-	1	-

	Hairston (31Sk1) Continued											
Feature Number	2	5	6	12	14	15	16	17	22	27	28	38
Dogwood cf.	-	-	-	-	-	-	-	1	-	-	-	-
Grass family	2	1	-	-	-	1	4	5	-	-	2	1
Groundcherry	-	291	1	-	-	-	-	3	67	-	1	5
Groundcherry cf.	-	-	-	-	-	1	-	-	-	-	-	-
Morninglory	1	9	1	24	-	-	1	2	-	-	1	1
Nightshade	-	289	7	3	-	1	1	2	16	1	1	8
Nightshade family	16	-	-	-	-	-	-	-	-	-	-	-
Nightshade family cf.	-	-	-	-	-	-	-	-	4	-	-	-
Peduncle	-	1	1	-	-	-	-	-	5	-	-	1
Pinecone	-	2	-	1	1	-	1	-	-	1	-	-
Pink family cf.	-	-	-	-	-	-	-	-	1	-	-	-
Pokeweed	-	-	1	-	-	-	-	-	1	-	1	-
Purslane	-	1	-	-	-	-	-	-	-	-	-	-
Sedge	-	-	-	-	-	-	1	3	-	-	-	-
Spurge	-	1	-	2	-	-	-	2	-	-	-	2
Wood sorrel	-	1	-	-	-	-	-	-	-	-	-	-

Upper Saratown (31Sk1a)								
Feature Number	7	10	11	16	19	22	23	26
Feature Type	Earth Oven	Storage Pit	Earth Oven	Roasting Pit	Earth Oven	Hearth	Storage Pit	Storage Pit
Phase	Late Saratown					Middle Saratown	Late Saratown	Middle Saratown
Plant Weight (g)	23.42	11.21	715.40	25.71	81.70	18.90	17.47	44.62
Wood Weight (g)	21.80	10.68	190.58	22.04	70.82	14.41	17.44	25.02
Cultigens								
Bean	-	-	-	1	-	-	-	-
Bean cf.	-	-	-	-	-	-	-	-
Maize cupules	15	5	2434	134	122	171	-	148
Maize kernels	13	4	6	5	3	3	-	15
Squash	-	-	-	-	-	-	-	-
Cucurbit rind	-	-	-	-	-	-	-	1
Cucurbit rind cf.	-	-	-	-	-	-	-	-
Bottle gourd	-	-	-	-	-	-	-	-
Tobacco	-	-	-	-	-	-	-	-
Nuts								
Acorn	-	4	-	1	-	3	-	13
Acorn meat	-	-	-	1	-	3	-	-
Butternut shell	-	-	-	-	-	1	-	-
Hazelnut shell	-	-	-	-	-	-	-	-
Hazelnut meat	-	-	-	-	-	-	-	-
Hickory	58	7	53	69	74	6	-	544
Hickory meat cf.	-	-	-	-	-	-	-	-
Walnut	-	-	-	-	8	1	-	86
Fruits								
Blackberry/raspberry	-	-	-	-	-	-	-	-
Blueberry	-	-	-	-	-	-	-	-
Elderberry	-	-	-	-	-	-	-	-
Grape	1	1	13	-	2	-	-	1
Grape stem	-	-	-	-	-	-	-	-
Grape family	-	-	-	-	-	-	-	-
Grape family stem	-	-	-	-	-	-	-	-
Hawthorn	-	-	-	-	1	-	-	-
Maypop	-	-	-	-	-	-	-	4

Upper Saratown (31Sk1a) Continued								
Feature Number	7	10	11	16	19	22	23	26
Mulberry	-	-	-	-	-	-	-	-
Mulberry cf.	-	-	-	-	-	-	-	-
Peach	-	2	539	1	-	-	-	4
Persimmon	6	-	-	1	15	-	1	15
Persimmon cf.	-	-	-	-	-	-	-	-
Plum/cherry	-	-	-	-	-	-	-	-
Plum/cherry cf.	-	-	-	-	-	-	-	-
Sumac	-	-	-	-	-	-	-	1
Watermelon	-	-	-	-	-	-	-	-
Oily & Starchy Seeds								
Chenopod	-	-	-	-	-	-	-	-
Knotweed	-	-	-	-	-	-	-	-
Maygrass	-	-	-	-	-	-	-	-
Sumpweed	-	-	-	-	-	-	-	-
Sumpweed/sunflower	-	-	-	-	-	-	-	-
Sunflower	-	-	-	-	-	-	-	-
Miscellaneous								
Amaranth	-	-	-	-	-	-	-	-
Bean/persimmon	-	-	-	-	-	-	-	-
Bedstraw	-	-	-	-	-	-	-	-
Blackgum	1	-	-	-	-	-	-	1
Bulrush	-	-	-	-	-	-	-	-
Chenopod/amaranth	-	-	-	-	-	-	-	-
Cleaver	-	-	-	-	-	-	-	-
Copperleaf	-	-	-	-	-	-	-	-
Grass family	-	-	-	-	-	-	-	-
Groundcherry	-	-	-	-	-	-	-	-
Groundcherry cf.	-	-	-	-	-	-	-	-
Morninglory	-	-	-	-	-	-	-	-
Nightshade	-	-	-	-	-	-	-	-
Peduncle	-	-	-	-	-	-	-	-
Peppervine	-	-	-	-	-	-	-	-
Pokeweed	-	-	-	-	-	-	-	-
Ragweed	-	-	-	-	-	-	-	-
Sedge	-	-	-	-	-	-	-	-
Spurge	1	-	-	-	-	-	-	-
Tick clover	-	-	-	-	-	-	-	-

Upper Saratown (31Sk1a) Continued								
Feature Number	36	47	50	51	52	53	57	63
Feature Type	Storage Pit	Earth Oven	Shallow Basin	Storage Pit	Storage Pit	Storage Pit	Shallow Basin	Storage Pit
Phase	Late Saratown	Middle Saratown					Late Saratown	
Plant Weight (g)	32.15	132.45	397.52	10.94	495.49	24.82	17.49	772.28
Wood Weight (g)	25.67	29.76	351.23	5.98	68.85	19.65	14.68	675.73
Cultigens								
Bean	-	4	54	-	18	2	-	58
Bean cf.	-	-	-	-	-	-	-	-
Maize cupules	32	2046	883	37	17154	49	41	2497
Maize kernels	2	133	181	1	425	14	6	702
Squash	-	5	-	-	-	-	-	-
Cucurbit rind	-	4	-	-	-	1	-	-
Cucurbit rind cf.	-	-	-	-	-	-	-	-
Bottle gourd	-	1	-	-	-	-	-	-
Tobacco	-	-	-	-	-	-	-	-
Nuts								
Acorn	-	86	1	-	51	6	-	445
Acorn meat	-	-	-	-	20	-	-	1
Butternut shell	-	-	-	-	-	-	-	-
Hazelnut shell	-	3	-	-	18	-	-	1
Hazelnut meat	-	-	-	-	-	-	-	-
Hickory	103	2872	858	173	5564	194	50	2406
Hickory meat cf.	-	5	-	-	-	-	-	-
Walnut	2	-	205	-	-	-	3	-
Fruits								
Blackberry/raspberry	-	-	-	-	-	-	-	1
Blueberry	-	1	-	-	-	-	-	-
Elderberry	-	-	-	-	-	-	-	-
Grape	-	41	15	1	652	6	2	38
Grape stem	-	-	-	-	27	-	-	-
Grape family	-	20	-	-	-	-	-	3
Grape family stem	-	43	-	-	-	-	-	1
Hawthorn	-	3	1	-	-	-	-	-
Maypop	-	6	13	-	25	-	1	30

Upper Saratown (31Sk1a) Continued								
Feature Number	36	47	50	51	52	53	57	63
Mulberry	-	-	-	-	8	-	-	-
Mulberry cf.	-	-	-	-	-	-	-	8
Peach	16	102	130	4	1355	2	-	35
Persimmon	7	33	14		6	1	2	28
Persimmon cf.	-	-	-	-	-	-	-	-
Plum/cherry	-	4	-	-	2	-	-	-
Plum/cherry cf.	-	-	-	-	1	-	-	-
Sumac	-	-	13	2	-	-	-	2
Watermelon	-	-	-	-	-	-	-	1
Oily & Starchy Seeds								
Chenopod	-	-	16	-	3	-	-	-
Knotweed	-	1	-	-	-	1	-	-
Maygrass	-	-	-	-	-	3	-	-
Sumpweed	-	-	-	-	20	-	-	-
Sumpweed/sunflower	-	-	-	-	-	-	-	-
Sunflower	-	-	-	-	-	-	-	-
Miscellaneous								
Amaranth	-	-	-	-	-	-	-	-
Bean/persimmon	-	1	-	-	-	3	-	17
Bedstraw	-	-	-	-	8	-	-	-
Blackgum	-	-	-	-	-	-	-	-
Bulrush	-	-	-	-	-	-	-	8
Chenopod/amaranth	-	-	-	-	-	-	-	-
Cleaver	-	-	-	-	-	-	-	-
Copperleaf	-	1	-	-	-	-	-	-
Grass family	-	-	-	-	-	-	-	-
Groundcherry	-	-	-	-	-	-	-	-
Groundcherry cf.	-	-	-	-	-	-	-	-
Morninglory	-	-	-	-	-	-	-	2
Nightshade	-	-	-	-	-	-	-	-
Peduncle	-	-	-	-	-	-	-	8
Peppervine	-	1	-	-	-	-	-	-
Pokeweed	-	9	-	-	-	-	-	-
Ragweed	-	-	-	-	8	-	-	1
Sedge	-	-	-	-	-	1	-	-
Spurge	-	-	-	-	-	-	-	-
Tick clover	-	16	-	-	3	-	-	-

Upper Saratown (31Sk1a) Continued									
Feature Number	69	71	76	101	104	118	126	134	135
Feature Type	Earth Oven	Shallow Basin	Earth Oven	Earth Oven	Storage Pit	Storage Pit	Storage Pit	Storage Pit	Storage Pit
Phase	Middle Saratown					Late Saratown		Middle Saratown	
Plant Weight (g)	45.05	10.16	107.93	4.07	46.16	64.69	89.04	27.71	37.51
Wood Weight (g)	43.48	7.48	107.93	4.07	46.16	57.95	70.56	24.53	33.22
Cultigens									
Bean	1	1	-	-	-	-	-	-	-
Bean cf.	-	-	-	-	-	-	-	-	-
Maize cupules	296	2	-	-	-	87	25	8	57
Maize kernels	5	2	-	-	-	66	14	2	16
Squash	-	-	-	-	-	-	-	-	-
Cucurbit rind	-	1	-	-	-	1	1	-	3
Cucurbit rind cf.	-	-	-	-	-	-	-	-	-
Bottle gourd	-	-	-	-	-	-	-	-	-
Tobacco	-	-	-	-	-	-	-	-	-
Nuts									
Acorn	6	2	-	-	-	3	1	-	2
Acorn meat	-	-	-	-	-	-	-	-	1
Butternut shell	-	-	-	-	-	-	-	-	-
Hazelnut shell	-	-	-	-	-	-	-	-	-
Hazelnut meat	-	-	-	-	-	-	-	-	-
Hickory	21	157	-	-	-	219	505	115	105
Hickory meat cf.	-	-	-	-	-	-	-	-	-
Walnut	-	-	-	-	-	-	2	-	-
Fruits									
Blackberry/raspberry	-	-	-	-	-	-	-	-	-
Blueberry	-	-	-	-	-	-	-	-	-
Elderberry	-	-	-	-	-	-	-	-	-
Grape	-	-	-	-	-	8	5	-	-
Grape stem	-	-	-	-	-	-	-	-	-
Grape family	-	-	-	-	-	-	-	-	-
Grape family stem	-	-	-	-	-	-	-	-	-
Hawthorn	-	-	-	-	-	2	1	-	-
Maypop	1	1	-	-	-	6	1	-	-

Upper Saratown (31Sk1a) Continued									
Feature Number	69	71	76	101	104	118	126	134	135
Mulberry	-	-	-	-	-	-	-	-	-
Mulberry cf.	-	-	-	-	-	-	-	-	-
Peach	-	1	-	-	-	57	57	3	27
Persimmon	-	1	-	-	-	1	5	5	6
Persimmon cf.	-	-	-	-	-	-	-	-	-
Plum/cherry	-	-	-	-	-	-	-	-	-
Plum/cherry cf.	-	-	-	-	-	-	-	-	-
Sumac	-	-	-	-	-	-	-	-	-
Watermelon	-	-	-	-	-	1	-	-	-
Oily & Starchy Seeds									
Chenopod	-	-	-	-	-	-	-	-	-
Knotweed	-	-	-	-	-	-	-	-	-
Maygrass	-	-	-	-	-	-	-	-	-
Sumpweed	-	-	-	-	-	-	-	-	-
Sumpweed/sunflower	-	-	-	-	-	-	-	-	-
Sunflower	-	-	-	-	-	-	-	-	-
Miscellaneous									
Amaranth	-	-	-	-	-	-	-	-	-
Bean/persimmon	-	-	-	-	-	-	-	-	-
Bedstraw	4	-	-	-	-	-	-	-	-
Blackgum	2	-	-	-	-	1	1	-	-
Bulrush	-	-	-	-	-	-	-	-	-
Chenopod/amaranth	-	-	-	-	-	-	-	-	-
Cleaver	-	-	-	-	-	3	-	-	-
Copperleaf	-	-	-	-	-	-	-	-	-
Grass family	-	-	-	-	-	-	-	-	-
Groundcherry	-	-	-	-	-	-	-	-	-
Groundcherry cf.	-	-	-	-	-	-	-	-	-
Morninglory	-	-	-	-	-	7	-	-	-
Nightshade	-	-	-	-	-	-	-	-	-
Peduncle	-	-	-	-	-	-	-	-	-
Peppervine	-	-	-	-	-	-	-	-	-
Pokeweed	1	-	-	-	-	-	-	-	-
Ragweed	-	-	-	-	-	-	-	-	-
Sedge	-	-	-	-	-	-	-	-	-
Spurge	4	-	-	-	-	-	-	-	-
Tick clover	-	-	-	-	-	-	-	-	-

Upper Saratown (31Sk1a) Continued							
Feature Number	137	141	143	144	147	149	157
Feature Type	Storage Pit	Storage Pit	Earth Oven	Earth Oven	Earth Oven	Roasting Pit	Roasting Pit
Phase	——Late Saratown——			Middle Saratown		Late Saratown	
Plant Weight (g)	50.48	91.50	41.05	104.63	69.54	119.53	42.86
Wood Weight (g)	44.84	78.28	34.10	93.86	67.05	87.84	26.64
Cultigens							
Bean	-	-	4	-	2	-	1
Bean cf.	-	-	1	-	-	4	-
Maize cupules	399	414	146	97	124	65	122
Maize kernels	10	20	17	8	1	55	11
Squash	-	-	-	-	-	-	-
Cucurbit rind	-	3	-	2	-	2	1
Cucurbit rind cf.	-	-	-	-	-	2	-
Bottle gourd	-	-	-	-	-	-	-
Tobacco	-	-	-	-	-	-	-
Nuts							
Acorn	19	17	5	3	3	3	3
Acorn meat	2	1	-	-	-	2	-
Butternut shell	-	-	-	-	-	-	-
Hazelnut shell	-	-	-	-	-	-	-
Hazelnut meat	-	-	-	-	-	-	-
Hickory	123	219	199	288	52	1667	661
Hickory meat cf.	-	-	-	-	-	-	-
Walnut	-	-	-	-	-	-	-
Fruits							
Blackberry/raspberry	-	-	-	-	-	-	-
Blueberry	-	-	-	-	-	-	-
Elderberry	-	-	-	-	-	-	-
Grape	4	9	9	6	-	-	4
Grape stem	-	-	-	-	-	-	-
Grape family	-	-	-	-	-	-	-
Grape family stem	-	-	-	-	-	-	-
Hawthorn	1	-	1	-	-	-	-
Maypop	6	3	6	1	1	1	9

Upper Saratown (31Sk1a) Continued							
Feature Number	137	141	143	144	147	149	157
Mulberry	-	4	-	-	-	-	-
Mulberry cf.	-	-	-	-	-	-	-
Peach	-	185	20	37	21	3	18
Persimmon	2	18	15	8	-	30	-
Persimmon cf.	-	-	-	-	-	-	-
Plum/cherry	2	-	-	-	-	-	-
Plum/cherry cf.	-	-	-	-	-	-	-
Sumac	-	-	-	-	-	1	-
Watermelon	-	-	-	-	-	-	-
Oily & Starchy Seeds							
Chenopod	-	-	-	-	-	-	-
Knotweed	-	-	-	-	-	-	1
Maygrass	-	-	-	-	1	-	-
Sumpweed	-	-	-	-	-	-	-
Sumpweed/sunflower	-	-	-	-	-	-	-
Sunflower	-	-	-	-	-	-	-
Miscellaneous							
Amaranth	-	-	-	-	-	-	-
Bean/persimmon	-	1	-	-	-	-	-
Bedstraw	-	-	-	-	-	-	-
Blackgum	-	-	-	-	-	-	-
Bulrush	-	-	-	-	-	-	-
Chenopod/amaranth	-	-	-	-	-	-	-
Cleaver	-	1	-	-	1	-	-
Copperleaf	-	-	-	-	-	-	-
Grass family	-	-	-	-	-	-	-
Groundcherry	1	-	-	-	-	-	-
Groundcherry cf.	-	-	-	-	-	-	-
Morningglory	2	-	-	-	-	-	-
Nightshade	-	-	-	-	-	-	-
Peduncle	-	-	-	-	-	-	-
Peppervine	-	-	-	-	-	-	-
Pokeweed	-	-	-	-	-	-	-
Ragweed	-	-	-	-	-	-	-
Sedge	-	-	-	-	-	-	-
Spurge	-	-	-	-	-	-	-
Tick clover	-	-	-	-	-	-	-

Upper Saratown (31Sk1a) Continued						
Feature Number	160	161	168	170	171	174
Feature Type	Storage Pit	Storage Pit	Storage Pit	Earth Oven	Earth Oven	Shallow Basin
Phase	Middle Saratown		——Late Saratown——			Middle Saratown
Plant Weight (g)	76.20	51.16	77.67	393.20	34.18	8.40
Wood Weight (g)	57.61	50.67	50.00	52.00	26.80	7.04
Cultigens						
Bean	-	-	-	103	-	1
Bean cf.	-	-	-	-	-	-
Maize cupules	346	-	178	1018	-	16
Maize kernels	34	-	44	3772	-	12
Squash	1	-		2	-	-
Cucurbit rind	1	-	3	-	-	-
Cucurbit rind cf.	-	-	-	-	-	-
Bottle gourd	-	-	-	-	-	-
Tobacco	-	-	-	2	-	-
Nuts						
Acorn	14	1	5	2397	-	1
Acorn meat	2	-	2	179	-	3
Butternut shell	-	-	-	-	-	-
Hazelnut shell	-	-	-	-	1	-
Hazelnut meat	-	-	-	-	-	-
Hickory	626	-	1191	9905	3	38
Hickory meat cf.	-	-	-	-	-	-
Walnut	2	-	-	-	-	-
Fruits						
Blackberry/raspberry	-	-	-	-	-	-
Blueberry	-	-	-	-	-	-
Elderberry	-	-	-	2	-	-
Grape	12	-	5	-	-	2
Grape stem	-	-	-	-	-	-
Grape family	-	-	-	-	-	-
Grape family stem	-	-	-	-	-	-
Hawthorn	1	-	-	-	-	-
Maypop	2	-	13	2	-	1

Upper Saratown (31Sk1a) Continued						
Feature Number	160	161	168	170	171	174
Mulberry	-	-	-	-	-	-
Mulberry cf.	-	-	-	-	-	-
Peach	72	2	82	8	24	1
Persimmon	8	1	11	11	-	-
Persimmon cf.	-	-	-	-	-	3
Plum/cherry	2	-	-	-	1	-
Plum/cherry cf.	-	-	-	-	-	-
Sumac	-	-	1	-	-	-
Watermelon	-	-	-	-	-	-
Oily & Starchy Seeds						
Chenopod	-	-	-	-	-	-
Knotweed	-	-	-	-	-	-
Maygrass	-	-	-	-	-	-
Sumpweed	-	-	-	11	-	-
Sumpweed/sunflower	1	-	-	-	-	-
Sunflower	1	-	1	4	-	-
Miscellaneous						
Amaranth	-	-	-	-	-	-
Bean/persimmon	-	-	-	-	-	-
Bedstraw	-	-	-	-	-	-
Blackgum	-	-	-	-	-	-
Bulrush	-	-	-	-	-	-
Chenopod/amaranth	1	-	-	-	-	-
Cleaver	-	-	1	-	-	-
Copperleaf	-	-	-	-	-	-
Grass family	-	-	-	-	-	-
Groundcherry	-	-	-	-	-	-
Groundcherry cf.	-	-	-	-	-	-
Morninglory	-	-	1	-	-	-
Nightshade	-	-	-	-	-	-
Peduncle	1	-	-	-	-	-
Peppervine	-	-	-	-	-	-
Pokeweed	-	-	-	-	-	-
Ragweed	-	-	-	-	-	-
Sedge	-	-	-	-	-	-
Spurge	-	-	-	-	-	-
Tick clover	-	-	-	-	-	-

Upper Saratown (31Sk1a) Continued					
Feature Number	175	180	184	197	198
Feature Type	Storage Pit	Earth Oven	Shallow Basin	Earth Oven	Storage Pit
Phase	Middle Saratown	Late Saratown			Middle Saratown
Plant Weight (g)	174.48	186.10	41.64	4.78	51.62
Wood Weight (g)	160.61	108.82	34.71	1.02	49.57
Cultigens					
Bean	-	17	3	-	4
Bean cf.	-	1	-	-	-
Maize cupules	1	952	293	-	53
Maize kernels	2	369	23	-	30
Squash	-	-	-	-	-
Cucurbit rind	-	-	7	-	-
Cucurbit rind cf.	-	-	-	-	-
Bottle gourd	-	-	-	-	-
Tobacco	-	-	2	-	-
Nuts					
Acorn	-	5	9	-	4
Acorn meat	-	53	2	-	1
Butternut shell	-	-	-	-	-
Hazelnut shell	-	8	-	-	-
Hazelnut meat	-	1	-	-	-
Hickory	33	154	156	21	47
Hickory meat cf.	-	-	-	-	-
Walnut	5	8	-	-	-
Fruits					
Blackberry/raspberry	-	-	-	-	-
Blueberry	-	-	-	-	-
Elderberry	-	-	-	-	-
Grape	-	1	4	-	2
Grape stem	-	-	-	-	-
Grape family	-	1	-	-	-
Grape family stem	-	-	-	-	-
Hawthorn	1	-	-	-	-
Maypop	-	-	13	-	4

Upper Saratown (31Sk1a) Continued					
Feature Number	175	180	184	197	198
Mulberry	-	-	-	-	-
Mulberry cf.	-	-	-	-	-
Peach	15	6	26	-	12
Persimmon	2	77	12	-	9
Persimmon cf.	-	-	-	-	-
Plum/cherry	-	1	1	-	-
Plum/cherry cf.	-	-	-	-	-
Sumac	-	-	-	-	-
Watermelon	-	-	-	-	-
Oily & Starchy Seeds					
Chenopod	-	-	-	-	-
Knotweed	-	-	-	-	-
Maygrass	-	-	-	-	-
Sumpweed	-	-	-	-	-
Sumpweed/sunflower	-	-	-	-	-
Sunflower	-	-	1	-	-
Miscellaneous					
Amaranth	-	-	-	-	-
Bean/persimmon	-	-	-	-	-
Bedstraw	-	-	-	-	-
Blackgum	-	-	-	-	1
Bulrush	-	-	-	-	7
Chenopod/amaranth	-	-	1	-	6
Cleaver	-	-	-	-	-
Copperleaf	-	-	-	-	-
Grass family	-	-	-	-	-
Groundcherry	-	-	-	-	1
Groundcherry cf.	-	-	-	-	-
Morningglory	-	-	2	-	-
Nightshade	-	-	1	-	-
Peduncle	-	-	-	-	-
Peppervine	-	-	-	-	-
Pokeweed	-	-	-	-	-
Ragweed	-	-	-	-	-
Sedge	-	1	1	-	-
Spurge	-	-	-	-	-
Tick clover	-	-	-	-	-

William Kluttz (31Sk6)													
Feature Number	4	5	6	7	8	10	15	17	21	28	30	55	Burial 6
Feature Type	Storage Pit	Shallow Basin	Storage Pit	Storage Pit	Storage Pit	Large Storage Pit	Storage Pit	Storage Pit	Food Prep. Facility	Burial	Burial	Shallow Basin	Burial
Phase	Dan River					Late Saratown	Dan River		Late Saratown			Dan River	Late Saratown
Plant Weight (g)	4.57	2.29	10.04	3.94	0.14	144.83	7.76	6.49	0.23	1.44	3.72	11.89	0.04
Wood Weight (g)	4.22	1.82	9.49	2.88	0.11	127.56	5.86	6.16	0.19	0.69	3.53	11.58	0.04
Cultigens													
Bean	-	-	-	-	-	5	5	-	-	-	-	-	-
Maize cupules	1	3	5	12	3	80	24	2	-	4	1	4	-
Maize kernels	2	1	1	1	1	35	12	1	-	2	1	-	-
Nuts													
Acorn	-	4	12	2	-	58	-	8	-	-	-	-	-
Chestnut	-	-	-	1	-	-	-	-	-	-	-	-	-
Hickory	9	22	15	14	-	799	13	7	1	5	3	5	-
Walnut	3	2	-	3	-	12	3	1	-	1	1	-	-
Fruits													
Blackberry/raspberry	-	-	-	-	-	-	-	-	-	-	1	-	-
Grape	2	-	-	-	-	1	-	-	-	-	3	-	-
Maypop	-	-	-	-	-	1	-	-	-	-	-	-	-
Persimmon	-	-	-	1	-	9	-	-	-	-	-	-	-
Plum/cherry	-	-	-	-	-	-	-	-	-	-	1	-	-
Oily & Starchy Seeds													
Chenopod		-	-	-	-	-	1	-	-	-	-	-	-
Knotweed		1	-	-	-	27	-	-	-	-	-	-	-
Sumpweed		-	-	-	-	-	5	-	-	-	-	-	-
Miscellaneous													
Bulrush		-	-	-	-	-	-	-	-	1	-	-	-
Nightshade family		-	-	-	-	-	-	1	-	-	-	-	-

APPENDIX 3: CORRESPONDENCE ANALYSIS DATA

Table 1. Output Data from Correspondence Analysis.

	Overall		
Category	**Mass**	**Quality**	**Percent Inertia**
Acorn	0.196	0.956	0.275
Oily & Starchy Seeds	0.004	0.992	0.258
Large Fruits	0.040	0.346	0.022
Small Fruits	0.001	0.207	0.001
Other Cultigens	0.003	0.091	0.001
Maize Cupule	0.258	0.818	0.162
Maize Kernel	0.046	0.091	0.064
All Medicinal Taxa	0.045	0.197	0.028
Primary Medicinal Taxa	0.001	0.015	0.005
Miscellaneous	0.010	0.018	0.148
Hickory	0.395	0.002	0.036
	Dimension 1 (41.2% Total Inertia)		
Category	**Coordinate**	**Squared Correlation**	**Contribution**
Acorn	1.364	0.942	0.629
Oily & Starchy Seeds	0.716	0.006	0.003
Large Fruits	-0.513	0.345	0.018
Small Fruits	0.465	0.207	0.000
Other Cultigens	-0.247	0.091	0.000
Maize Cupule	-0.847	0.811	0.319
Maize Kernel	-0.422	0.091	0.014
All Medicinal Taxa	-0.405	0.190	0.013
Primary Medicinal Taxa	0.319	0.014	0.000
Miscellaneous	0.426	0.009	0.003
Hickory	0.004	0.000	0.000
	Dimension 2 (26.1% Total Inertia)		
Category	**Coordinate**	**Squared Correlation**	**Contribution**
Acorn	0.185	0.014	0.014
Oily & Starchy Seeds	-10.699	0.987	0.975
Large Fruits	-0.032	0.001	0.000
Small Fruits	-0.002	0.000	0.000
Other Cultigens	-0.014	0.000	0.000
Maize Cupule	0.087	0.007	0.004
Maize Kernel	0.015	0.000	0.000
All Medicinal Taxa	-0.089	0.007	0.001
Primary Medicinal Taxa	0.053	0.000	0.000
Miscellaneous	-0.476	0.009	0.005
Hickory	-0.018	0.002	0.000

Table 2. Output Data from Correspondence Analysis.

Overall			
Category	**Mass**	**Quality**	**Percent Inertia**
Acorn	0.199	0.992	0.462
Large Fruits	0.040	0.415	0.037
Small Fruits	0.001	0.211	0.002
Other Cultigens	0.003	0.424	0.002
Maize Cupule	0.261	0.978	0.265
Maize Kernel	0.047	0.731	0.108
All Medicinal Taxa	0.046	0.187	0.055
Primary Medicinal Taxa	0.001	0.027	0.008
Hickory	0.401	0.600	0.062
Dimension 1 (68.8% Total Inertia)			
Category	**Coordinate**	**Squared Correlation**	**Contribution**
Acorn	1.371	0.960	0.644
Large Fruits	-0.507	0.337	0.018
Small Fruits	0.459	0.201	0.000
Other Cultigens	-0.236	0.085	0.000
Maize Cupule	-0.829	0.803	0.309
Maize Kernel	-0.421	0.092	0.014
All Medicinal Taxa	-0.426	0.179	0.014
Primary Medicinal Taxa	0.318	0.014	0.000
Hickory	0.008	0.000	0.000
Dimension 2 (17.1% Total Inertia)			
Category	**Coordinate**	**Squared Correlation**	**Contribution**
Acorn	0.358	0.033	0.088
Large Fruits	0.344	0.077	0.016
Small Fruits	-0.148	0.010	0.000
Other Cultigens	-0.668	0.339	0.004
Maize Cupule	0.548	0.175	0.270
Maize Kernel	-1.575	0.640	0.403
All Medicinal Taxa	0.127	0.008	0.003
Primary Medicinal Taxa	0.449	0.014	0.001
Hickory	-0.395	0.599	0.215

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