FOODWAYS IN TRANSITION: PLANT USE AND COMMUNITY AT THE WALL (31OR11) AND JENRETTE (31OR231A) SITES, HILLSBOROUGH, NORTH CAROLINA

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ABSTRACT

Mallory A. Melton: Foodways in Transition: Plant Use and Community at the Wall (31Or11) and Jenrette (31Or231a) Sites, Hillsborough, North Carolina
(Under the direction of C. Margaret Scarry)

This thesis will describe the archaeobotanical analysis of large pit features excavated during the 1990s and 2000s at the Wall (A.D. 1400-1600) and Jenrette (A.D. 1650-1680) sites in Hillsborough, North Carolina. Certain features demonstrate relatively equivalent quantities of a variety of plant taxa, whereas others are abundant in one or few taxa and appear to represent refuse of communal processing events. These processing events provide a case study for community interaction outside of a ritual context and have implications for interpreting temporal transformations in diet, landscape use, and identity politics in the North Carolina Piedmont during the Late Woodland and historic periods, further elucidating the complex and dynamic cultural histories of Native peoples prior to and immediately following European contact.

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Without the tireless support of mentors, friends, and family, the completion of this thesis would not have been possible. I would like to thank Steve Davis, Brett Riggs, and Trawick Ward for continuing to pursue research questions at the Wall and Jenrette sites; if it were not for their efforts, the pits analyzed in the pages that follow would have never been discovered. The University of North Carolina at Chapel Hill Research Laboratories of Archaeology provided extensive access to flotation samples processed from the study sites. The efforts of Joffre Coe, Robert Wauchope, Roy Dickens, Kristen Gremillion, Julia Hammett, Jane Eastman, Jack Wilson, Amber VanDerwarker, Margaret Scarry, and others established a baseline of research in the North Carolina Piedmont that enhanced the quality of my interpretations. Meg Kassabaum imparted critical perspectives on feasting that will continue to influence my thoughts on the topic. I owe Megan Hynek and Morgan Welch my gratitude for providing much needed solidarity. Countless other friends have been instrumental in supporting my ambitions and goals as I have developed as both an academic and an individual. The Ronald E. McNair Scholars Program has assisted my journey into academia through contributing advice and resources. Steve Davis has been an invaluable resource for answering my questions, and I am sure there will be many more in the future. Vin Steponaitis is responsible for establishing and furthering my interests in archaeology, a contribution that has been fundamental to my development as a scholar and is one that I will never forget. He has provided me with countless opportunities and feedback over the years, without which the aesthetic quality of my tables and figures would have undoubtedly suffered. I am forever thankful to Margaret Scarry for her persistent feedback and steadfast encouragement while I have matured as an archaeobotanist. I will always consider you to be an inspiration as well as a member of my family.

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Chapter 1
Introduction

Communities cannot be fully defined by the arrangement of domestic and public structures; they must also be understood in terms of mundane activities including food procurement, processing, and consumption events that enact communal bonds. The written accounts of European travelers offer one line of evidence regarding community infrastructure in southeastern North America during the sixteenth and seventeenth centuries. European settlers describe being driven out by the Apalachee, witnessing ritual sacrifice at the death of The Great Sun, and feasts in which men ingested the Black Drink (Ewen and Hann 1998; Le Page du Pratz 1975; Bartram 1791). These accounts, however, often capture strikingly exotic images rather than the mundane activities of daily subsistence through which social relationships were performed and survival was ensured.

Archaeology and archaeobotanical analysis offer valuable lenses for interpreting social structure as they provide evidence of long-term trends and combat biases characteristic of European accounts. Given the extensive excavation, good preservation, and close proximity of sequentially occupied sites in the North Carolina Piedmont, this area is an excellent location for examining the development of communal foodways (food procurement, processing, consumption, and disposal practices) in the protohistoric and contact periods. Archaeobotanical assessments of protohistoric and historic subsistence practices in this region complement European evaluations of Native land use practices.

Located on a bank of the Eno River in present day Hillsborough, North Carolina, the Wall (A.D. 1400-1600) and Jenrette (A.D. 1650-1680) sites present the opportunity to identify and compare communal and household foodways in the region in a diachronic manner (Figure

1). Both sites were circular palisaded villages with house structures organized around open central plazas. Excavations completed in 1938, 1940-41, and 1983-84 at the Wall site and 1989-1990 at the Jenrette site revealed small to medium size pit features, some of which were analyzed for archaeobotanical remains by Kristen J. Gremillion. Later excavations at both sites revealed larger pits, some of which were analyzed for archaeobotanical remains for this thesis. Intra-site variations in pit size and location may indicate that larger pits located away from domestic structures represent communal eating or processing events, while smaller pits located near or within these structures represent evidence of household foodways.

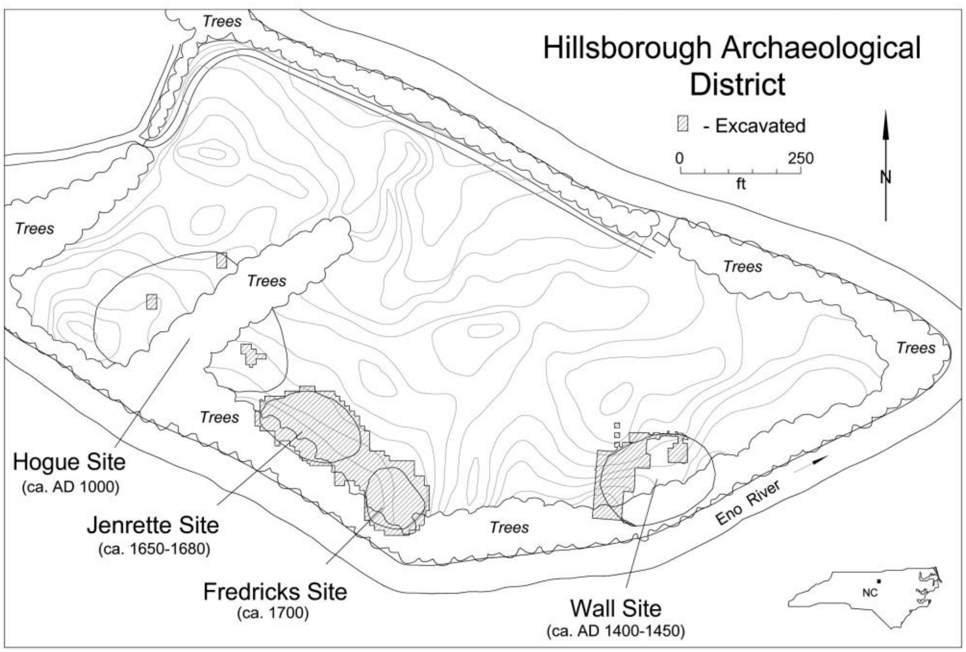


Figure 1. Diagram of the Hillsborough Archaeological District. Excavations completed in the northeast sector of the Wall site in 2001 and 2002 were diagrammed after this map was produced and appear in Figure 4. Excerpted from Ward and Davis 1999:238. Copyright 1999 by the University of North Carolina Press.

For this thesis, I analyzed flotation samples collected from some of the larger pits at Wall and Jenrette and compared my findings to data from small to medium-sized pits collected by Gremillion. Exploratory data analysis techniques (correspondence analysis and box plots) were then used to investigate intra- and inter-site trends regarding the function(s) of these pit features. The analysis sought to answer three questions. First, are plant remains from the larger pits representative of communal foodways and/or ritual events? Second, how do plant remains recovered from these pits compare to those recovered from smaller pit features at each site? Lastly, how do archaeobotanical analyses at the Wall and Jenrette sites comment on changes in foodways in the North Carolina Piedmont during the transition from the Late Woodland to the contact period?

CHAPTER 2
BACKGROUND

Current ecological, ethnohistoric, and archaeological evidence pertaining to landscape use provides context regarding the rich cultural and ecological complexity of the North Carolina Piedmont during the Late Woodland and Contact periods. This review serves to embed interpretations of archaeobotanical material recovered from the Wall and Jenrette sites within evidence of a wide range of daily activities related to protohistoric and contact period subsistence strategies. I will use excavation procedures to describe the arrangement and contents of features and locate features analyzed by Gremillion and myself within each site plan.

Anthropogenic Landscapes of the North Carolina Piedmont (A.D. 1400-1709)

Local foodways inform understandings of historic land use patterns. Ethnohistoric evidence suggests that, on a regional scale, the anthropogenic landscape of the Eastern Woodlands was composed of three basic units: patches, corridors, and surrounding matrix (Hammett 1997:197). Hammett defines patches as settlements, such as nations, towns, villages, or small hamlets. Corridors are passageways by which an individual can move from one location to another. Corridors include trails, paths, and waterways. Land lying outside of settlements represents the surrounding matrix. Parcels of matrix surrounding patches are often referred to as "buffer areas" due to their ability to insulate settlements from encroachment and attack.

Patches, corridors, and buffer areas were not uniform in character, operation, or distribution. The spatial arrangement of households within patches could be dense, sparse, or fall in between the two extremes. Within settlements, small parcels of matrix were present around houses and were utilized to cultivate small garden plots. Larger parcels of matrix were exploited as agricultural fields for maize (*Zea mays*), common bean (*Phaseolus vulgaris*), squash

(*Cucurbita* sp.), and other crops, though direct archaeological evidence of these fields is rare (Waselkov 1997:179). Corridors offered varying levels of protection and vulnerability (Hammett 1997:197). Riverbanks provided suitable environments for wild fruit trees and their rich, moist soil allowed for agricultural exploitation without irrigation (Scarry 2003:68).

Buffer areas provided protection and served as foraging grounds from which wild resources could be collected for food and fuel. Wild plant resources were actively maintained using management techniques, including pruning and fire, in order to promote optimal yields (Scarry 2003; Hammett 1997). Plants available on these lands varied according to local ecology. Hickory and acorn trees tend to be located in forests, while trees that produce fleshy fruits typically grow in disturbed environments, including forest clearings, field edges, and along the borders of small garden plots (Scarry 2003:60, 68). A variety of nuts, fleshy fruits, grains and oil seeds, legumes, roots and tubers, and greens were maintained and harvested in buffer zones throughout the Eastern Woodlands (for a comprehensive list see Scarry 2003:55-56).

John Lawson, an English explorer and naturalist, provides the most detailed ethnohistoric evidence of the exploitation of plant resources by indigenous peoples in the North Carolina Piedmont. In 1701, Lawson visited Occaneechi Town, a village that is thought to correlate with the Fredricks site (31Or231) located adjacent to the Jenrette site less than a quarter of a mile from the Wall site. Lawson noted in his journal that his group "had never seen 20 miles of such extraordinary rich Land… like that betwixt Hau-River and the Achoneechy [Occaneechi] Town" (Lefler 1967:55). Lawson's account of the quality of land in Haw Fields, to the west of the Eno River, resembles an earlier and briefer description recorded by John Lederer. Lederer describes Shakori, a village that appears to correspond well with the location of the Jenrette site, as possessing "rich Soyl" (Ward and Davis 1999; Cumming 1958:27).

Lawson also recognizes the Occaneechi as having an abundance of provisions at the time of his visit (Lefler 1967:55-56). Lawson's records and archaeological evidence suggest that a wide variety of plants were exploited in the North Carolina Piedmont during the protohistoric and historic periods (Table 1). Evidence from historic period sites in North Carolina suggests that by the time that Lawson traveled into Occaneechi territory, Native peoples had begun to cultivate several foreign crops, namely cowpea, peach, and watermelon (Gremillion 1993b). Native peoples selectively incorporated both European crops and trade goods in manners that complemented existing cultural, social, and horticultural practices (Ward and Davis 2001:139).

Table 1. Common Names of Plants Recorded by Lawson (1709) and Archaeological Evidence from the Wall and Jenrette Sites

	Recorded by Lawson[a]	Archaeological Reference
Cultigens		
Common Bean	-	Gremillion 1989, 1993a
Maize	-	Gremillion 1989, 1993a
Chenopod	X	Gremillion 1993a
Squash	-	Gremillion 1993a
Sumpweed	-	Gremillion 1993a
Sunflower	X	-
Tobacco	X	-
Fruits		
Bramble	X	Gremillion 1993a
Cherry	X	-
Crabapple	X	-
Grape	X	Gremillion 1989, 1993a
Hawthorn	X	Gremillion 1989, 1993a
Huckleberry/Blueberry	X	-
Maypop	-	Gremillion 1989, 1993a
Mulberry	X	-
Peach	X	Gremillion 1993a
Persimmon	X	Gremillion 1989, 1993a
Plum	X	-
Strawberry	X	-
Nuts		
Acorn	X	Gremillion 1989, 1993a
Chestnut	X	-
Hazelnut	X	-
Hickory	X	Gremillion 1989, 1993a
Walnut	X	Gremillion 1989, 1993a

Table 1. Common Names of Plants Recorded by Lawson (1709) and Archaeological Evidence from the Wall and Jenrette Sites (continued)

	Recorded by Lawson[a]	Archaeological Reference
Miscellaneous		
Beauty Berry	X[b]	-
Cedar	X	-
Cypress	X	-
Honey locust	X	-
Pine	X	-
Pokeweed	X[b]	Gremillion 1989, 1993a
Purslane	X	-
Sassafras	X	-
Spicebush	X	-
Sweet maple	X	-
Wax myrtle	X	-
Yaupon	X	-

[a] Data adapted from Hammett 1992:25-27 with historical references provided by Lefler 1967.
[b] References appear to apply to the indicated taxa, but the relationship cannot be proven.

Ethnohistoric evidence suggests that indigenous inhabitants of the North Carolina Piedmont utilized patches, corridors, and matrix in obtaining resources necessary for subsistence. Small garden plots could have been established in the matrix within settlements, but agricultural fields were positioned outside of palisade walls in small, fortified villages. Field and garden areas were utilized to plant crops and encourage the growth of "camp followers," weedy plants (primarily grain and oil seeds) that commonly grow in disturbed areas and whose growth was encouraged by anthropogenic management activities (Hammett 1992:38). A number of fruits were exploited in the North Carolina Piedmont, suggesting that corridors and buffer areas were utilized for subsistence purposes. Settlements in this region were commonly erected near rivers, meaning that patches may have also offered opportunities for fruit harvest with minimal effort (Ward and Davis 1999:77). Buffer areas and upland habitats with established forests served as foraging areas for nuts. Although yields varied from year to year, high quantities of calories, carbohydrates, and protein as well as the potential for long-term storage made nuts a valuable subsistence resource (Scarry 2003:60-63).

This brief discussion of ecological and ethnohistoric evidence suggests that Native peoples managed a mosaic-like landscape whose borders extended far beyond the architectural limits of settlement (Fritz 2000:224). During the protohistoric and historic periods, people living in the North Carolina Piedmont met their subsistence needs through exploiting land at distance and adjacent to the domestic structures that they called home.

Excavation History

The North Carolina Piedmont has been an area of active archaeological interest since the 1930s (Ward and Davis 1999). Over the last 40 years, significant research has been undertaken within the context of the Siouan Project, an initiative begun in 1972 by the Research Laboratories of Archaeology at the University of North Carolina at Chapel Hill (RLA). The Siouan Project aims to use archaeological evidence as an analytical lens for examining the impacts of European colonization upon Native peoples in the North Carolina Piedmont (Ward and Davis 2001). The Wall and Jenrette sites are geographically situated within the Hillsborough Archaeological District, a 25 acre zone where the Siouan Project has investigated four sequentially occupied sites established along a bank of the Eno River (Figure 1, Figure 2).

Figure 2. Photograph of the Eno River. Taken from the southern edge of the Wall site, facing east. Photograph by author.

The Wall Site (A.D. 1400-1600)

The Wall site (31Or11) represents a palisaded village settlement with at least 13 circular domestic structures situated around an open plaza. While 13 have been identified, all of these structures did not likely stand at the same time. Approximately one-quarter of the 1.25-acre site has been excavated (Ward and Davis 1999:112). Although the field in which the site is located was plowed historically, postholes and features extend beneath the base of the plow zone and provide meaningful evidence about site architecture (R. P. Stephen Davis, Jr., personal communication 2014). Eight seasons of excavation were conducted at the Wall site. In order to identify pit features by excavation period, four numbering schemes were constructed. The thirteen features excavated during the 1938 season are identified using Roman numerals (e.g.

Feature 1 is recorded as Feature I). Features excavated during the 1940 and 1941 seasons are designated with Arabic numerals ranging from Feature 1 to Feature 54. Three burials were excavated during the 1983 season and called 1-83, 2-83, and 3-83. Five pit features were excavated during the 1984 season and recorded as 1-84, 2-84, 3-84, 4-84, and 5-84. Excavations completed in 1997 did not identify any new features. Features excavated during the 2001 and 2002 seasons resumed the use of Arabic numerals, beginning with Feature 61. When identification is necessary, feature numbers will correspond to these established sequences.

1938, 1940-1941. The earliest excavations, directed by Joffre Coe in 1938 and Robert Wauchope in 1940-1941, sought to determine whether the Wall site represented the remains of the historic site of Occaneechi Town. These excavations revealed a number of houses, stockade alignments, burials, and other pit features (Figure 3). No soil or flotation samples were collected, as excavations were conducted prior to the advent of routine archaeobotanical analysis. However, two pits (Features 13 and 14) located near Structures A and C on the southwest region of the site were filled with charred maize cobs (Figure 3) (Dickens et al. 1987:38). These pits may represent hide-smoking facilities (smudge pits) for which maize cobs served as the primary source of fuel (Dickens et al. 1987:38).

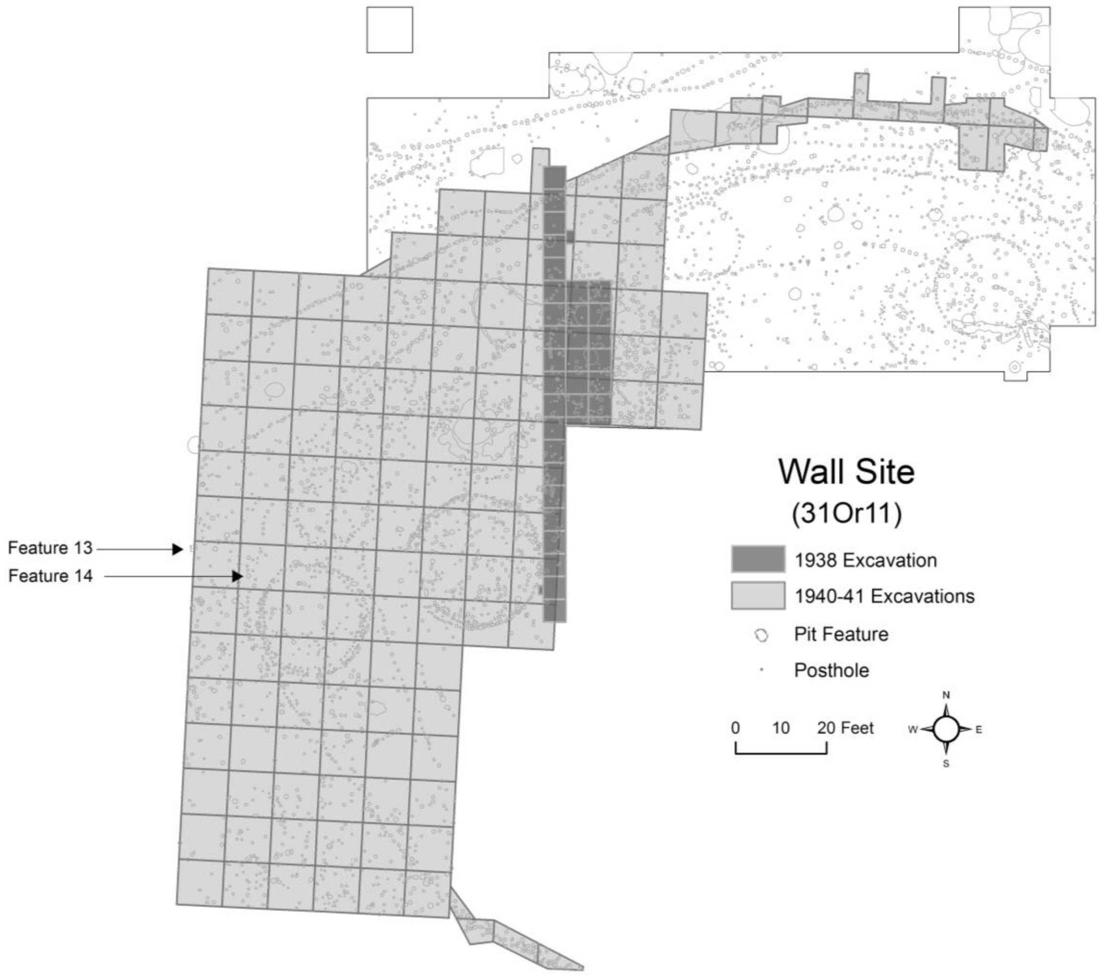


Figure 3. Excavations at the Wall site, 1938-1941. Two cob pits (Features 13 and 14) are identified.

1983-1984. In 1983, the RLA carried out excavations directed by Roy S. Dickens, Jr., R. P. Stephen Davis, Jr. and H. Trawick Ward to re-assess the possibility that the site may represent Occaneechi Town and more accurately determine the location and geographic extent of prior investigations (Figure 4). This excavation spanned approximately 600 square feet in area, revealing three burials, portions of two structures, and further evidence of palisades (Dickens et al. 1987:30). No other pit features were detected. An extensive midden was also exposed during the 1983 field season and further revealed during 1984 excavations (Figure 5). Three radiocarbon samples collected from undisturbed contexts produced an average corrected date of A.D. 1545 ± 80 years, proving that Wall predated the village of Occaneechi Town referenced in John Lawson's journal (Dickens et al. 1987:6). Additionally, waterscreening of fill from undisturbed contexts failed to yield glass beads or other European trade goods typically found on early historic sites (Ward and Davis 1999:112).

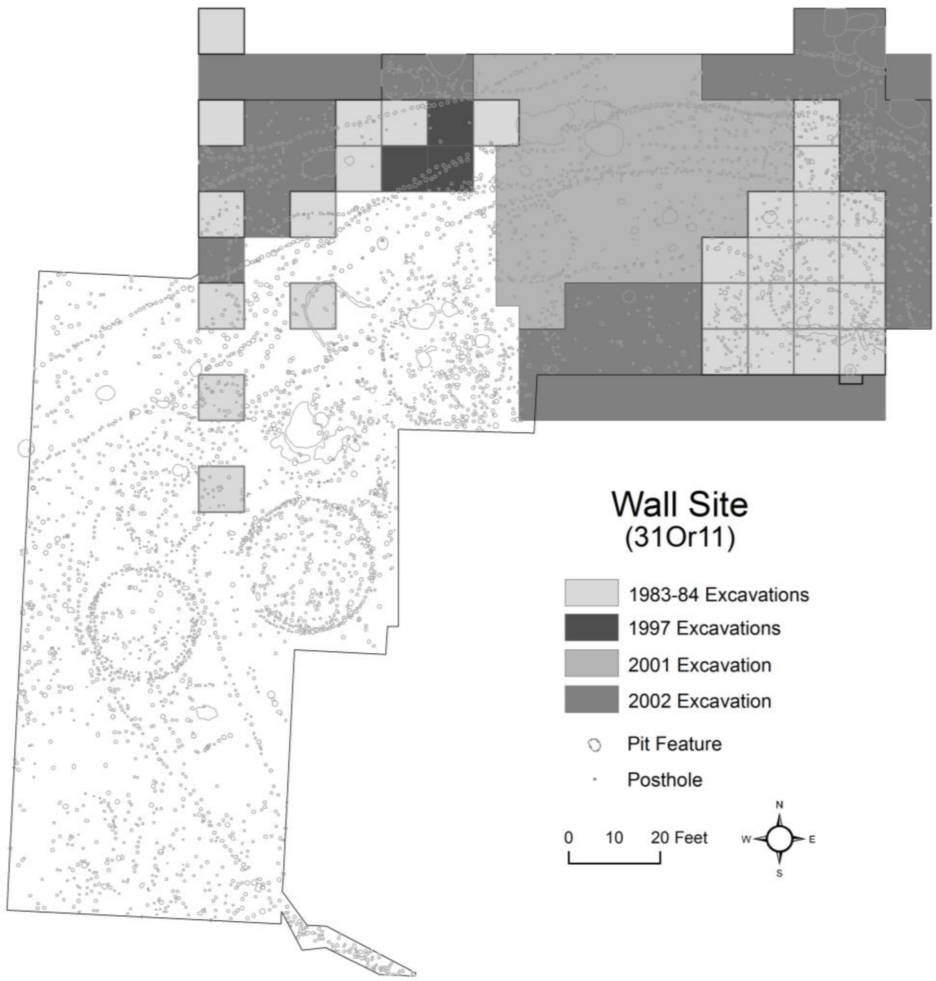


Figure 4. Excavations at the Wall site, 1983-2002.

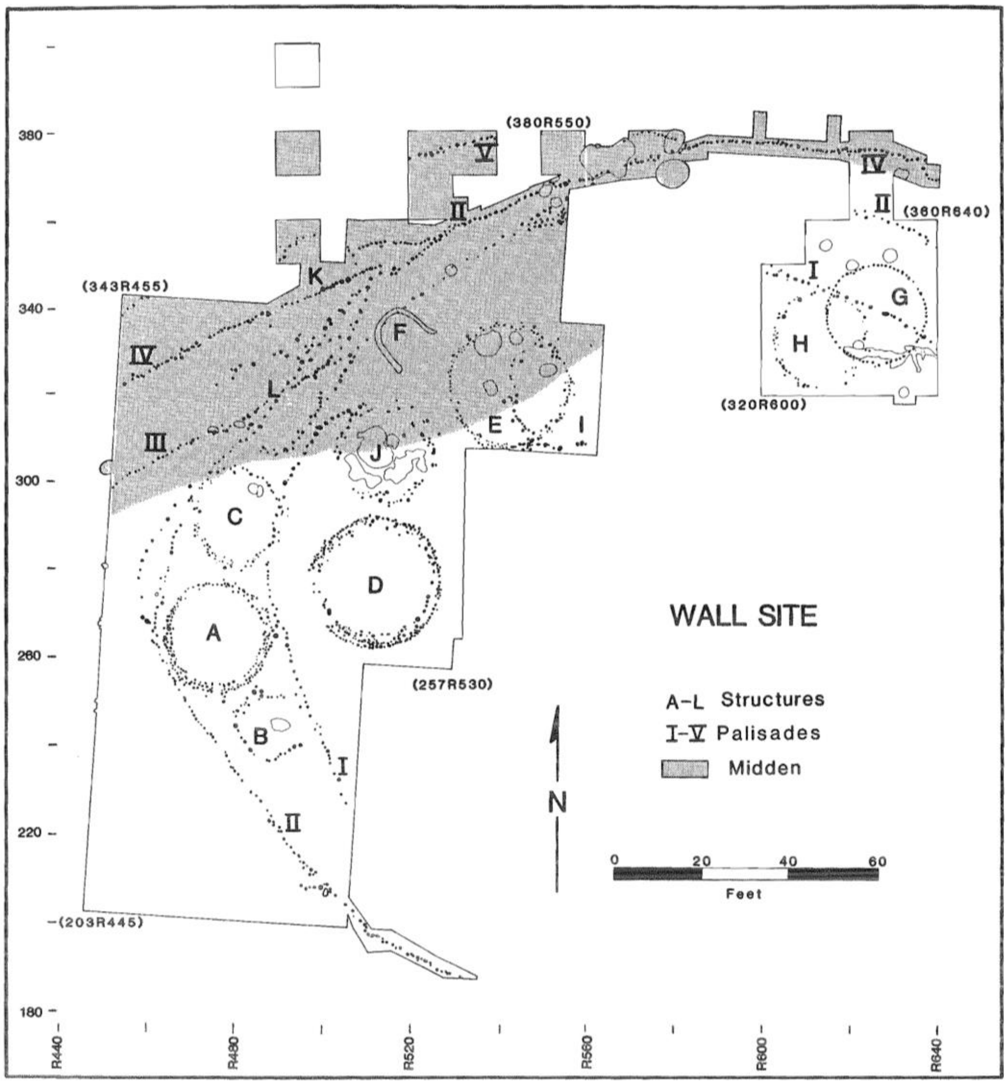


Figure 5. Extent of midden at the Wall site excavated during 1983 and 1984 field seasons. Adapted from Dickens et al. 1987:34, Figure 3.4.

Excavations were continued in 1984 in order to fully expose structures discovered in 1983 (Figure 4). Five pit features were discovered in the northeast sector of the site, all of which were sampled for flotation and later analyzed for botanical remains by Gremillion (Figure 6, Table 2). Gremillion also analyzed soil from the midden for archaeobotanical remains (Figure 5, Table 2). Located in the southern sectors of Structures G and H, Feature 1-84 is described as a large shallow depression filled with gray sandy soil, charcoal, and 46 small sherds. This feature overlays Feature 4-84 and is hypothesized to have been created by depositional processes post-dating the occupation of the Wall site (Dickens et al. 1987:38). Features 2-84 and 3-84 are oval-shaped pits containing charcoal, projectile points, and one potsherd. These pits likely represent secondary deposits of household subsistence debris (Dickens et al. 1987:39). Feature 4-84 consists of two oblong features southeast of Structure G and south of Palisade I that were initially thought to be wall trenches (Dickens et al. 1987:39). Upon further examination, these features appear to be associated with Feature 1-84 and may represent disturbed midden (R. P. Stephen Davis Jr., personal communication 2014). Feature 5-84 contained fired clay, ash, and charcoal and is thought to represent a secondary deposit of hearth contents within the midden (Dickens et al. 1987:40; R. P. Stephen Davis Jr., personal communication 2014).

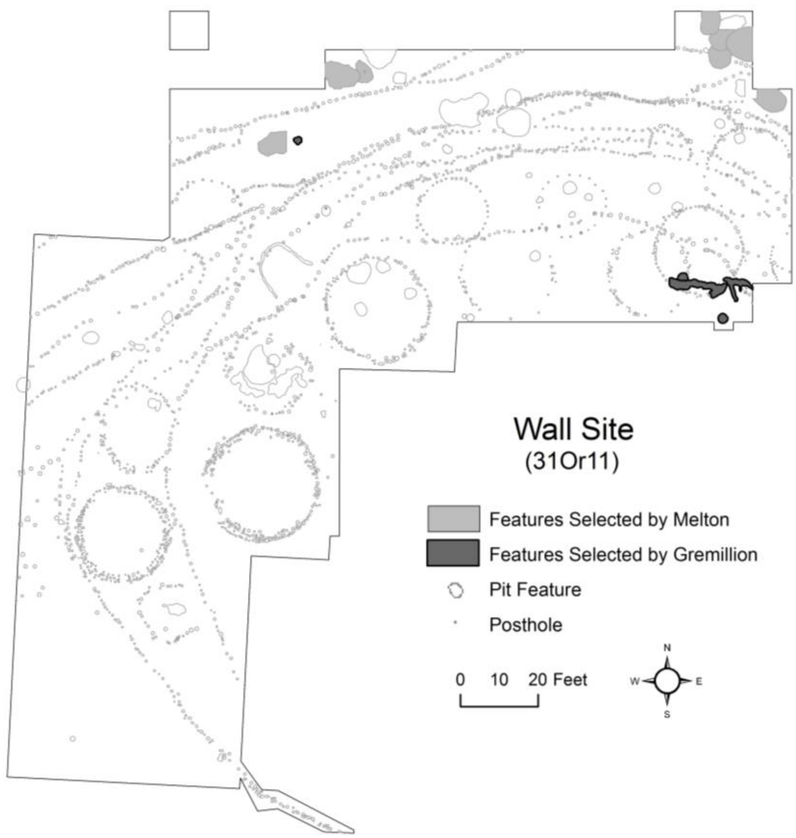


Figure 6. Pit features at the Wall site selected by Kristen J. Gremillion and Mallory A. Melton for botanical analysis.

Table 2. Wall and Jenrette Features Processed for Botanical Analysis

	Analyst	Dimensions (ft)			Pit Volume (ft^3)	Total Plant Weight (g)	Wood Weight (g)
		Length	Width	Depth			
Wall Site							
F1	Gremillion	20.3	3.8	0.2	11.4	0.15	0.03
F2	Gremillion	2.6	2.6	1.5	10.3	0.17	0.10
F3	Gremillion	2.6	2.6	1.5	10.3	13.49	12.46
F4[a]	Gremillion	-	-	-	-	3.70	3.32
F5	Gremillion	1.7 diameter		0.3	0.8	1.32	0.95
Midden	Gremillion	-	-	-	-	106.94	67.75
F70	Melton	7.0	5.0	1.0	35.0	2.54	1.36
F71	Melton	4.5	4.5	0.2	4.7	1.63	1.35
F72	Melton	9.0	6.7	0.6	35.0	0.66	0.38
F76	Melton	6.0	4.8	0.8	21.6	1.77	0.48
F77	Melton	5.3	5.5	1.4	40.1	4.40	3.77
F78	Melton	9.0	6.8	2.9	177.5	10.41	1.98
F79	Melton	5.8	4.7	0.5	12.2	3.41	0.90
F82	Melton	8.6	6.0	1.5	74.8	8.05	6.64
Jenrette Site							
F62	Gremillion	4.3	4.0	0.9	15.5	2.66	2.51
F63	Gremillion	3.0	3.0	0.8	7.2	5.61	5.19
F64	Gremillion	2.0	1.7	0.3	1.0	1.26	1.20
F65	Gremillion	5.9	5.5	1.4	45.4	3.49	2.13
F66	Gremillion	3.0	2.4	0.6	4.3	4.01	3.27
F67	Gremillion	3.0	2.7	0.5	4.1	5.73	4.47
F68	Gremillion	3.8	2.4	0.3	2.7	4.68	4.67
F70	Gremillion	1.7	1.5	0.6	1.5	1.82	1.64
F71	Gremillion	4.6	4.5	1.8	37.3	2.37	1.96
F75	Gremillion	5.4	4.6	0.8	19.9	8.99	6.37
F77	Gremillion	0.3	2.5	1.7	1.3	3.36	3.35
F78	Gremillion	6.0	5.0	0.4	12.0	5.85	5.17
F79	Gremillion	2.7	2.5	2.0	13.5	2.51	1.94
F84	Gremillion	5.5	4.0	0.4	8.8	14.63	13.53
F85	Gremillion	3.4	3.2	2.4	26.1	54.10	9.35
F86	Gremillion	1.5	1.4	1.6	3.4	4.28	3.05
F87	Gremillion	2.6	2.6	0.2	1.4	0.85	0.56
F90	Gremillion	2.5	2.4	0.4	2.4	0.49	0.31
F91	Gremillion	2.8	2.7	0.5	3.8	0.69	0.39
F92	Gremillion	3.5	3.3	0.8	9.2	1.15	0.99
F95	Gremillion	5.4	4.3	0.5	11.6	18.49	7.14
F96	Gremillion	4.6	3.9	1.0	17.9	17.44	10.23
F98	Gremillion	3.8	3.8	2.2	31.8	8.16	5.08
F99	Gremillion	3.1	2.9	1.9	17.1	10.33	8.90
F113	Gremillion	2.4	2.0	0.5	2.4	0.98	0.43
F114	Gremillion	1.4	1.2	0.9	1.5	8.37	7.69
F116	Gremillion	0.8	0.7	0.2	0.1	5.34	4.35
F118	Gremillion	1.6	1.6	1.1	2.8	0.37	0.36
F120	Gremillion	3.2	2.7	1.4	12.1	5.80	2.52

Table 2. Wall and Jenrette Features Processed for Botanical Analysis (continued)

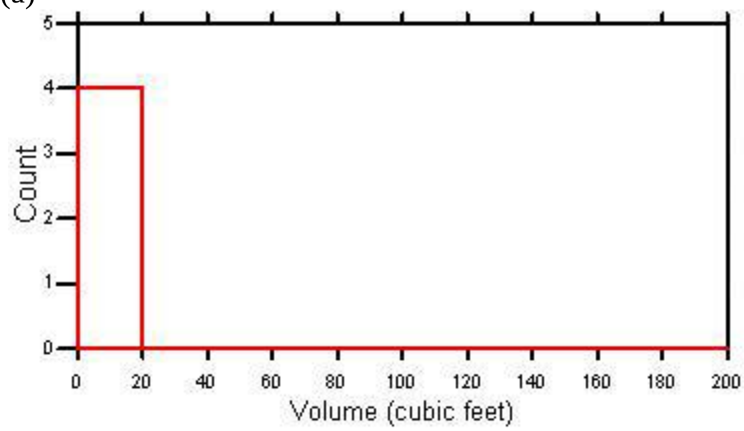
	Analyst	Dimensions (ft) Length	Width	Depth	Pit Volume (ft^3)	Total Plant Weight (g)	Wood Weight (g)
Jenrette Site							
F121	Gremillion	3.8	2.8	0.6	6.4	5.84	4.54
F122	Gremillion	3.7	3.6	1.4	18.6	34.13	25.40
F123	Gremillion	3.1	2.9	1.5	13.5	2.04	1.29
F124	Gremillion	1.5	1.5	0.4	0.9	1.16	1.15
F152	Melton	5.2	4.1	1.0	20.3	3.37	2.46
F153	Melton	5.1	3.0	1.0	15.3	0.45	0.43
F157	Melton	4.0	8.0	1.1	35.2	164.72	2.57
F158[b]	Melton	4.0	2.3	0.9	8.3	12.09	2.71
F170	Melton	6.5	7.5	1.5	73.1	4.36	0.51
F210	Melton	3.8	3.7	1.8	24.0	1.49	0.46

[a] Dimensions are not recorded for Feature 4-84, as it consists of two trenches for which the boundaries are not well designated.

[b] Zone 4 is not accounted for in measured depth as this deep, bell-shaped zone likely represents a tree disturbance. Zone 4 measures approximately 1.5 ft in diameter and 2.1 ft in depth.

1997, 2001-2002. The RLA resumed excavations at the Wall site in 1997 under the direction of R. P. Stephen Davis, Jr. Three units measuring 10 square feet were excavated, but no features were uncovered (Figure 4). Excavations continued in 2001 and 2002 under the direction of R. P. Stephen Davis, Jr. and Brett H. Riggs (in 2002 only) (Figure 4). The northeast region of the site was excavated in order to explore spatial gaps in previous excavations and obtain a broader sense of the settlement pattern (R. P. Stephen Davis Jr., personal communication 2014). Numerous postholes and 26 pit features were discovered during these excavations. I selected and analyzed eight pit features for botanical remains (Figure 6). Several of these pit features appeared to be larger in volume and surface area than previously excavated features (Figure 7). Features chosen by Gremillion from the 1984 excavation range in volume from 0-20 ft^3. Two features that I selected fall within the range exhibited by other features, while five features lie outside of Gremillion's distribution. One feature (Feature 78) far exceeds the range of volumes demonstrated by pit features analyzed by Gremillion. The majority of features that I analyzed greatly exceed the volume of those analyzed by Gremillion.

(a)



(b)

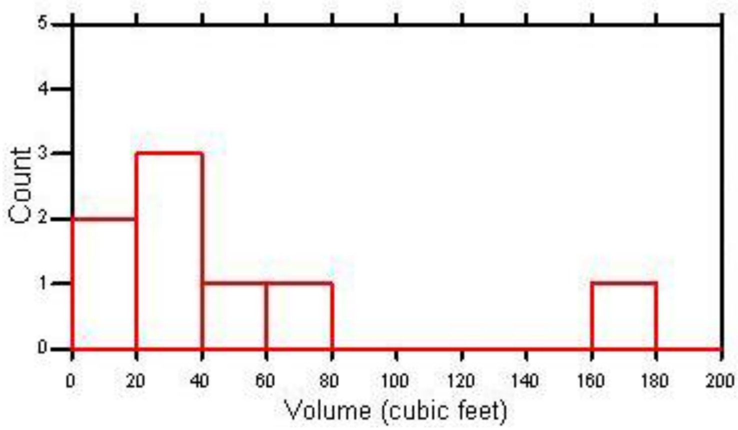


Figure 7. Histograms depicting volumes of Wall site features analyzed for botanical remains. Figure 7a (top) represents volumes calculated for features selected by Gremillion. Figure 7b (bottom) represents volumes calculated for features selected by Melton. Volumes were calculated with the assumption that all pits are rectangular in shape. Feature 4-84 is excluded from this histogram due to its anomalous shape and doubts regarding its function.

The Jenrette Site (A.D. 1650-1680)

The Jenrette site (31Or231a) consists of a circular palisaded village containing the remains of at least three houses, located near the palisade in the eastern portion of the site, and numerous pit features surrounding an open central plaza. These pits may have been associated with houses that are no longer visible due to plow disturbance. The site was located in 1989 during auger testing conducted to ascertain the extent of the nearby Fredricks site (R. P. Stephen Davis, Jr., personal communication 2014). In comparison to the Wall site, the Jenrette site suffered more serious damage from plowing. Postholes at Jenrette were shallow in depth, suggesting that remains of site architecture may have been compromised as a result of plowing (R. P. Stephen Davis, Jr., personal communication 2014). Eleven excavations were completed at the Jenrette site by the RLA under the direction of R. P. Stephen Davis, Jr. and H. Trawick Ward (Figure 8). Jenrette excavations informed understandings of the Frederick site by revealing the spatial extent of Occaneechi-period occupations. Three excavation seasons (1989, 1992, and 1996) will be described in detail as flotation samples analyzed by Gremillion and myself were collected from pit features excavated during these investigations.

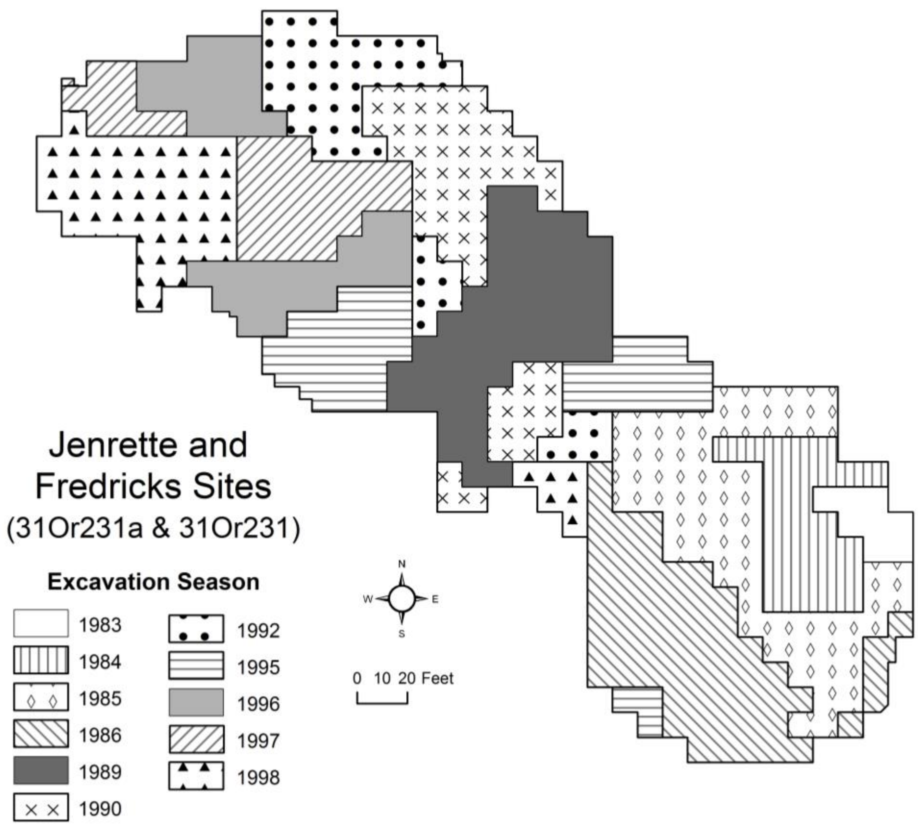


Figure 8. Excavations at the Jenrette and Fredricks sites (1983-1998).

1989. Excavations conducted in 1989 under the direction of R. P. Stephen Davis, Jr. and H. Trawick Ward revealed structures inside of the palisade wall, including: 43 pits, four burials, and portions of two palisade lines (Ward and Davis 1993:319). Gremillion analyzed flotation samples collected from thirty-three of these pit features (Figure 9) and one burial (Gremillion 1993a). All pit features analyzed by Gremillion represent intact secondary refuse contexts. Data collected from flotation samples associated with the burial have been excluded from this analysis as any plant remains present in this context likely represent midden refuse or a ritually purposed deposit. Either explanation is not suitable to merit combining burial data with data collected from pit contexts. Although 1990 excavations will not be discussed in detail, one cob-filled pit (Feature 149) was uncovered during this season near the center of the circular area within the palisade (Figure 10). This feature likely represents a smudge pit or hide-smoking facility.

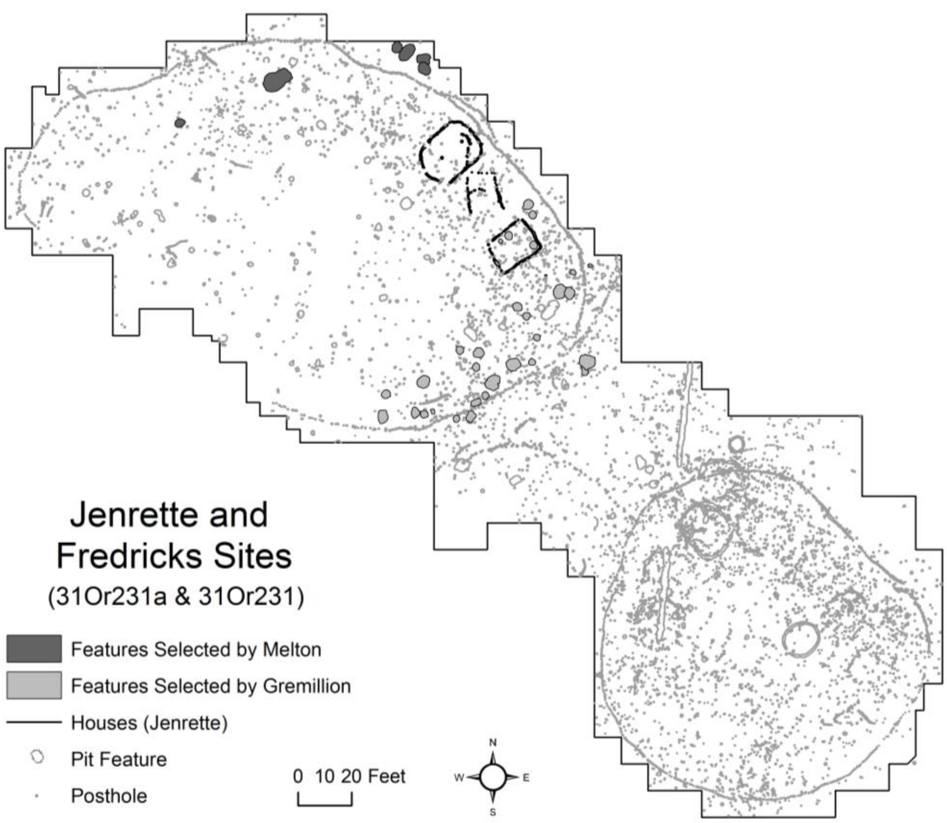


Figure 9. Pit features at the Jenrette site selected by Kristen J. Gremillion and Mallory A. Melton for botanical analysis.

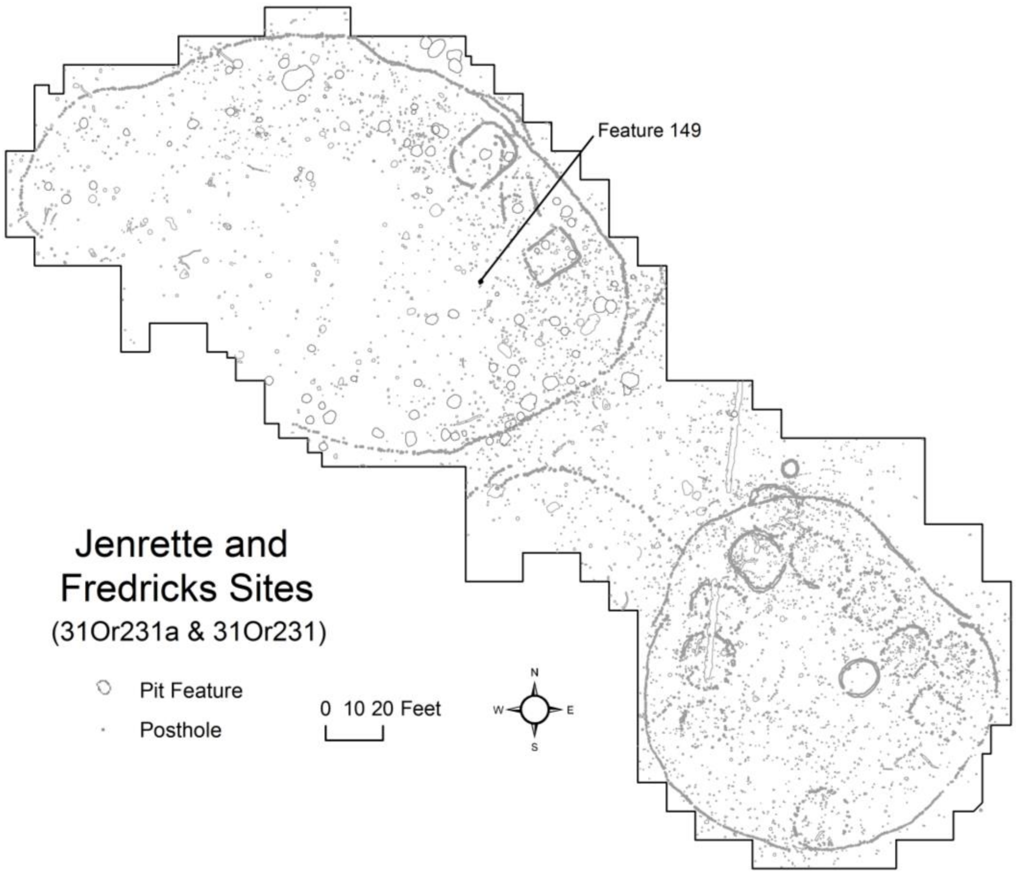


Figure 10. Jenrette and Fredricks site plan (31Or231a and 31Or231). The Jenrette site is located on the upper left, enclosed by a circular palisade. Feature 149, a cob pit discovered during the 1990 excavation season, is identified.

1992, 1996. After 1990, excavations at the Jenrette site were conducted as field schools under the direction of R. P. Stephen Davis, Jr. and H. Trawick Ward with the assistance of RLA graduate students. Excavations focused on expanding the area exposed during the 1989 and 1990 field seasons in order to reveal a more complete picture of the extent of the palisaded town and distribution of features within the area enclosed by the palisade wall (Figure 8). Four pit features excavated in 1992 and two pit features excavated in 1996 were analyzed in this study (Figure 9). The volumes of these features fall within or exceed the distribution associated with previously analyzed features (Figure 11). Features chosen by Gremillion primarily range in volume from 0-20 ft^3, with four features exhibiting higher volumes. Four of the features that I selected appear to fall within the range indicated by the majority of Gremillion's features. One feature lies within the higher range of Gremillion's distribution. A final feature (Feature 170) exceeds the range of volumes demonstrated by pit features analyzed by Gremillion. Features at the Jenrette site that I analyzed fall within the higher range of volumes for pit features at the Jenrette site, but it should be noted that the maximum observed volume for pits sampled for botanical analysis at the Jenrette site is half of the maximum observed volume for pits sampled for botanical analysis at the Wall site (Figure 7).

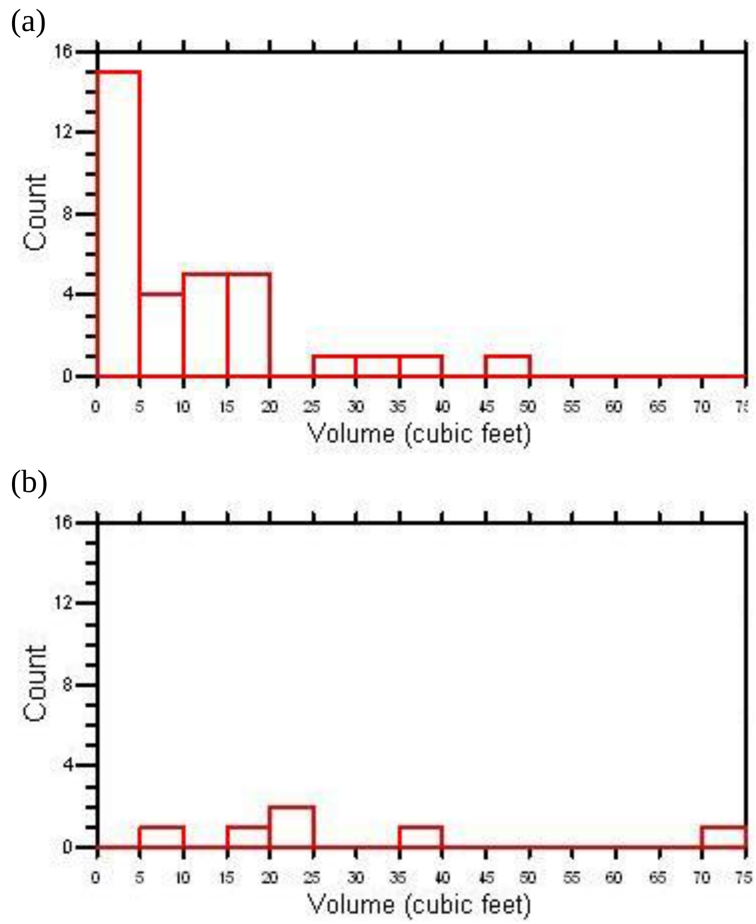


Figure 11. Histograms depicting volumes of Jenrette features analyzed for botanical remains. Figure 11a (top) represents volumes calculated for features selected by Gremillion. Figure 11b (bottom) represents volumes calculated for features selected by Melton. Volumes were calculated with the assumption that all pits are rectangular in shape.

CHAPTER 3
METHODS

Recovery Procedures

Starting with the 1984 excavations, soil samples were routinely collected from feature and midden deposits and processed by flotation to extract plant remains. All flotation samples collected from the Wall and Jenrette sites were measured in liters using a calibrated bucket and 10 liters of fill was taken whenever possible. When less than 10 liters of a feature or zone were present, the entire fill was collected. Flotation samples were processed using a modified SMAP system. A 0.71 mm mesh size was used to collect the light fractions and 1.56 mm mesh window screen was used to collect the heavy fractions. After samples were processed, light fractions and heavy fractions were dried and bagged separately.

Feature Selection

Two subsets of features were selected for inclusion in this analysis. The first subset consists of features from the Wall and Jenrette sites that were processed and analyzed by Gremillion (Gremillion 1989, 1993a; see Table 2). Botanical data recorded for all existing features (excluding burial contexts) analyzed by Gremillion were utilized to provide a baseline comparison for data collected by me. I selected additional features for analysis from both sites (see Table 2). Features that exhibited high volumes and abundant artifacts were given priority. Excavation forms, specimen catalogs, and site maps aided in feature selection. Zones most abundant in charcoal were selected for analysis. Determinations of zone selection were made based on excavation records and visual examination of flotation samples.

Sorting and Identification Procedures

Gremillion

Botanical samples analyzed by Gremillion were processed using procedures defined by Yarnell (1974) (Gremillion 1989:43-45). Each sample was weighed and sieved using a series of geological screens varying in size from 6.25 mm to 0.21 mm. For light fractions, material greater than 2.00 mm in size was fully sorted and each component was then weighed. Heavy fractions were only sorted for seeds and seed fragments, which were removed and identified by taxon. Quantities of taxa in screens less than 2.00 mm and greater than 0.71 mm in size were extrapolated based on representation in size categories exceeding 2.00 mm. For both fractions, screens smaller than 2.00 mm were scanned for seeds, cultigen remains, and plant remains not identified in larger size categories. Maize cupules were removed from all size categories of each sample and weights were only extrapolated if cupules were particularly numerous. Subsampling, when necessary, was performed using a riffle-type splitter. Weights were recorded for wood and all taxa. Counts were only recorded for seeds and fruits. For comparison with my data, weights recorded by Gremillion were extrapolated into counts using count per gram ratios (Table 3). These ratios were calculated from my data for the Wall and Jenrette sites, other North Carolina site data, and data collected from sites throughout the Eastern Woodlands (VanDerwarker et al. 2007; Scarry 2003). When the ratios that I developed from my data closely matched those calculated for North Carolina and the Eastern Woodlands, these ratios were preferred. If the ratios I calculated based on my data did not correspond to other sources, ratios for the Southeast (Scarry 2003) were chosen. Taxa for which counts have been extrapolated from weights recorded by Gremillion are identified in appropriate tables.

Table 3. Ratios Used to Extrapolate Wall and Jenrette Counts

	Ratio grams/fragment	Source
Maize cupule	0.011	Scarry 2003; VanDerwarker et al. 2007
Gourd rind	0.01	Scarry personal communication 2014
Acorn nutmeat	0.04	Wall and Jenrette features analyzed by Melton
Acorn shell	0.0029	Wall and Jenrette features analyzed by Melton
Hickory shell	0.0159	Wall and Jenrette features analyzed by Melton
Peach	0.0159	Walnut ratio, Wall and Jenrette features analyzed by Melton
Walnut shell	0.029	Scarry 2003, combined walnut and butternut ratio

Melton

The methods that I used to sort and identify botanical remains recovered from pits at the Wall and Jenrette sites followed standard procedures used by the Research Laboratories of Archaeology at the University of North Carolina at Chapel Hill (Scarry 1998:3-5). Both light and heavy fractions of each sample were sorted. Counts reported for each taxon represent the sum of identified specimens in the light and heavy fractions of each sample. Light fractions of all samples were weighed and separated by size using geological sieves (2.0 mm, 1.4 mm, and 0.7 mm). Heavy fractions were also weighed and separated into two fractions measuring greater than 2.0 mm and less than 2.0 mm in size. Each size fraction, including material that passed through the 0.7 mm screen, was analyzed with the aid of a stereoscopic microscope (10-40X magnification). For light fractions, the 2.0 mm sieve was fully sorted. Wood charcoal and contaminants were removed and weighed separately. Fragments of nutshell, maize cupule, and seeds were also removed, counted, and weighed. Fractions smaller than 2.0 mm were scanned for identifiable seeds or seed fragments, which were then counted and, where possible, weighed. Both portions of the heavy fraction were scanned for nutshell, maize cupule, and other seeds, which were then counted and weighted.

Identifications were made by me and verified by Dr. C. Margaret Scarry. Similar to processing procedures, standard identification procedures of the Research Laboratories of

Archaeology at UNC were followed. Nut fragments, seeds, and other plant parts were classified to the lowest level of taxonomic certainty. Size, shape, and surface texture were the primary attributes used to identify remains. These attributes were referenced to seed manuals (Martin and Barkley 1961; Schopmeyer 1974) and, when possible, modern specimens in the comparative collections of the Research Laboratories of Archaeology.

CHAPTER 4
OVERALL RESULTS

A total of 14 features at the Wall site, including the site midden and eight large features, will be considered for the purposes of this analysis (Table 4). Thirty-nine features representing pit contexts, six of which represent medium to large pits, will be included in the analysis of the Jenrette site (Table 5). The range of taxa recovered from these features is broad, indicating that varied natural and anthropogenic environments were utilized for subsistence and possibly medicinal and utilitarian purposes (Table 6).

Table 4. Wall Site Volume and Feature Count Comparison with Gremillion (1989)

	Gremillion	Melton
Features	5	8
Samples	5	16
Volume (L)	71	160
Plant weight (g)	18.83	32.87
Wood weight (g)	16.86	16.86
Midden	1	-
Samples	1	-
Volume (L)	200	-
Plant weight (g)	106.94	-
Wood weight (g)	67.75	-
Total Contexts	6	8
Total Volume (L)	271	160

Table 5. Jenrette Site Volume and Feature Count Comparison with Gremillion (1993)

	Gremillion	Melton
Features	33	6
Samples	45	7
Volume (L)	430	70
Plant weight (g)	246.98	186.48
Wood weight (g)	151.13	9.14
Total Contexts	33	6
Total Volume (L)	430	70

Table 6. Complete List of Taxonomic Names for Plants Identified at Wall and Jenrette

Common Name	Taxonomic Name
Cultigens	
Common bean	*Phaseolus vulgaris*
Maize	*Zea Mays*
Chenopod	*Chenopodium berlandieri*
Knotweed	*Polygonum* sp.
Squash	*Cucurbita* sp.
Sumpweed	*Iva annua*
Sunflower	*Helianthus annuus*
Fruits	
Bramble	*Rubus* sp.
Grape	*Vitis* sp.
Hawthorn	*Crataegus* sp.
Maypop	*Passiflora incarnata*
Peach	*Prunus persica*
Persimmon	*Diospyros virginiana*
Plum/cherry	*Prunus* sp.
Nuts	
Acorn	*Quercus* sp.
Beech	*Fagus grandifolia*
Hickory	*Carya* sp.
Walnut	*Juglans nigra*
Miscellaneous	
Bearsfoot	*Smallanthus uvedalius*
Bedstraw	*Galium* sp.
Black gum	*Nyssa sylvatica*
Carpetweed	*Mollugo* sp.
Dogwood	*Cornus florida*
Nightshade	*Solanum* sp.
Pokeweed	*Phytolacca americana*
Purslane	*Portulaca* sp.
Sedge	*Scirpus* sp.
Bulrush family	Cyperaceae
Grass family	Poaceae
Legume family	Fabaceae
Nightshade family	Solanaceae
Pink family	Caryophyllaceae

The inhabitants of the Wall and Jenrette sites cultivated crops indigenous to the region, as well as several introduced from Europe and Mesoamerica. Broad taxonomic groups (Cultigens, Fruits, Nuts, and Miscellaneous) have been utilized to organize the plants for discussion. These categories are typically used when discussing Eastern Woodland plant assemblages and, thus, will prove useful in comparing information for Wall and Jenrette to archaeobotanical data collected from other sites (Scarry 2003:55-56).

Cultigens could have been grown in fields, small garden plots, or in areas of disturbed soil. Common bean and maize were introduced into the Eastern Woodlands from Mesoamerica and served as high-carbohydrate foods, complementing the carbohydrates and fats provided by indigenous cultigens (chenopod, knotweed, squash, sumpweed, and sunflower). Common bean was brought into the region around A.D. 1250 to 1300 and maize was introduced as early as A.D. 100, though it was not intensively cultivated in the Eastern Woodlands until around A.D. 800 or 900 (Hart 2008:90; Scarry 1993:78). The first evidence of squash in a cultural context in the Eastern Woodlands dates to approximately 5500 B.P. (Fritz 2000:226). In addition to serving subsistence functions, squash was used as raw material for manufacturing ceremonial rattles, containers, cooking tools, and fishing floats (Moerman 1998:188).

Maize, beans, and squash are well suited to polycropping, although this practice did not emerge until the late in the pre-contact period. As each member of the "three sisters" was introduced, planting these three resources in the same plot became preferable due to agricultural and dietary advantages (Hart 2008). Maize uses its height to compete against weeds and stalks serve as trellises for beans, while beans fix nitrogen in the soil (Hart 2008:87-88). Squash leaves produce shade that helps retain soil moisture and prevent the growth of weeds (Hart 2008:87).

The range of recovered fruits suggests that forest edges, riverbanks, and other disturbed locations served as harvest areas from early summer into the fall. The harvest of fruits is not surprising given the proximity of both sites to the Eno River (see Figure 1). Peach, a European cultigen, was grown near the villages. This fruit was transmitted through contact with Native groups who had acquired fruit or seeds from Spanish Florida (Gremillion 1993b; Reitz and Scarry 1985:47).

Acorn, hickory, and walnut were popular staples in Native North America as they could be harvested during the fall, when the majority of other plant resources stop producing edible fruit. During the winter, animal competitors would reduce the availability of nut resources (Scarry 2003:66). However, nuts could be stored for long periods, which contributed to their popularity as staple resources throughout the Eastern Woodlands. Thin-shelled nuts, like acorns, keep for shorter periods of time than thicker-shelled species including hickory, walnut, and hazelnut (Scarry 2003:66). Beech is less common in the archaeological record, perhaps due to the extra effort involved in collecting and processing nuts of such small size (Scarry 2003:68).

Miscellaneous taxa include those that do not fit well in any of the designated taxonomic categories. Most of the plants in this group can be divided into two subgroups: (1) small indigenous seeds that are not confirmed cultigens; and (2) seeds that could only be identified to the family level. In the tables, taxa identified to family are listed below miscellaneous plants identified to lower taxonomic levels. Miscellaneous taxa represent a wide range of plants utilized for subsistence or medicinal purposes. Other taxa may represent plants that were of ecological importance, but were not actively cultivated or harvested by Native peoples. Along with common bean, the bean family contained a wide variety of weedy legumes that grew in disturbed areas and were utilized for subsistence purposes. The Cherokee used bearsfoot, bedstraw, black gum, dogwood, nightshade (along with other members of the nightshade family), pokeweed, and certain taxa in the pink family to treat a variety of ailments (Moerman 1998). Collectively, these resources served analgesic, antidiarrheal, anthelmintic, dermatological, diuretic, gastrointestinal, and gynecological purposes (Moerman 1998). The leafy greens of pokeweed and purslane were consumed. However, pokeweed greens needed to be picked early and were only rendered consumable after toxins, naturally present in the plant, were removed through boiling (Moerman 1998). Carpetweed, sedge, and members of the bulrush and grass families signify native species that were ecologically important. In addition to potential medicinal and subsistence uses, these plants served utilitarian functions as raw material for creating baskets, pit linings, and cordage (Anderson and Moratto 1996:192).

Although a wide variety of taxa have been identified in the Wall and Jenrette assemblage, the list provided in Table 6 does not provide a complete representation of plants utilized by Wall and Jenrette inhabitants. Differential preservation and taphonomic processes have undoubtedly impacted plant recovery. Identified remains only represent taxa that have been deliberately or accidentally burned, not the full range of plants used for subsistence, medicinal, craft, architectural, and other additional purposes (Pearsall 2000:244).

Consumption and production debris are also differentially manifested in an assemblage. Only certain biological components of each plant are disposed of in fires. In the Eastern Woodlands, plant parts typically used as fuel (maize cobs and hickory shell, for example) and the remains of cooking and storage accidents are most likely to preserve (Pearsall 2000:244). Even when plants are exposed to fire, biological factors impact preservation. Plant component, species, moisture content, atmosphere, length of exposure, and temperature have been identified as factors affecting the likelihood of preservation (Wright 2003:577,582). Bioturbation and plowing activities at Wall and Jenrette may have displaced small seeds, especially in disturbed feature and midden contexts (see Chapter 2, Excavation History). Certain small seeds are consumed along with the fruit (as is the case with strawberry), whereas others are removed or spit out and discarded (as is the case with persimmon). Tubers and greens are not present at Wall and Jenrette as neither preserve well in archaeological deposits (Scarry 2003:72-73). Tubers were utilized as sources of carbohydrates that could be harvested year-round. Starch grain analysis can be used to detect evidence of tuber processing on ceramic vessels or stone tools (Messner 2011). However, applications of this method are rare in the Eastern Woodlands due to its novelty, and starch grain studies have not been performed on Wall or Jenrette materials. The use of greens is even more elusive since leaves were eaten whole and discarded portions would not have survived burning (Scarry 2003:73).

The specimens that survived differed in their presence at each site (Table 7). Similar ranges of indigenous and introduced cultigens and nuts were identified at both sites. Fruit assemblages are comparable with two exceptions: bramble and peach. Peach appears as a consequence of temporality (the crop had not yet spread into the North Carolina Piedmont when the Wall site was occupied), whereas the absence of bramble at Wall may be due to consumption of seeds or discrepancies in harvesting or disposal practices. A greater number of miscellaneous taxa were identified at the Wall site, a trend that could be associated with temporal changes in plant use practices. Alternatively, since seeds associated with these taxa tend to be small in size, they may have been lost at the Jenrette site as a result of bioturbation.

Seasonality profiles are useful in reconstructing subsistence strategies. Presence of identified plant taxa was assessed for all contexts and the frequency of occurrence (ubiquity) was calculated for the 10 most common (Table 8). Remaining plant taxa were not included as their ubiquity was small (five contexts or below). Seasonality data were then plotted for the 10 taxa (Figure 12). The seasonality distribution reflects an emphasis on resources that were harvested during the summer and fall months, seasons in which the most plant foods are ready for harvest. The high presence of maize and nuts is not surprising considering their value as storable resources. Although these crops were harvested from late summer into the fall, their storage value signifies that recovered specimens could have been associated with cooking or storage accidents that occurred during the spring, summer, fall, or winter months. The Wall site demonstrates an even greater focus on late summer and fall resources, as the only early to mid-summer crop, peach, was not present at the Wall site.

Table 7. Taxa Present at the Wall and Jenrette Sites

	Wall		Jenrette	
	Gremillion	Melton	Gremillion	Melton
Cultigens				
Common bean	X	X	X	
Maize cupule	X	X	X	X
Maize kernel	X	X	X	X
Chenopod		X	X	
Knotweed		X	X	
Squash rind			X	
Sumpweed		X	X	X
Sunflower		X		
Fruit				
Bramble			X	X
Grape	X	X	X	X
Hawthorn	X		X	
Maypop	X	X	X	X
Peach			X	X
Persimmon	X	X	X	
Plum/cherry[a]		X		
Nuts				
Acorn cap		X		
Acorn nutmeat	X	X	X	X
Acorn shell	X	X	X	X
Hickory shell	X	X	X	X
Walnut shell	X		X	X
Beech nut		X		
Miscellaneous				
Bean/persimmon[b]		X		X
Bearsfoot	X		X	
Bedstraw	X	X	X	X
Black gum		X	X	
Bulrush			X	
Carpetweed		X		
Dogwood	X			
Nightshade			X	
Pokeweed	X		X	
Purslane		X		
Sedge		X		
Grass family		X		
Legume family	X	X		X
Nightshade family	X	X	X	
Pink Family	X			

[a] The slash mark between the names of these two classifications signifies that they are closely related taxonomically and are hard to distinguish in fragmentary remains.
[b] These two taxa are not related but the establishment of a separate category was necessary because charred bean and persimmon fragments are often similar in shape and surface texture.

Table 8. Ten Most Ubiquitous Taxa in Wall and Jenrette Contexts

Plant Component	Contexts Present	Total Contexts	Ubiquity Value
Hickory shell	47	53	89%
Acorn shell	35	53	66%
Maize kernel	30	53	57%
Maize cupule	17	53	32%
Walnut shell	16	53	30%
Peach	13	53	24%
Acorn nutmeat	11	53	21%
Persimmon	10	53	19%
Grape	8	53	15%
Maypop	6	53	11%

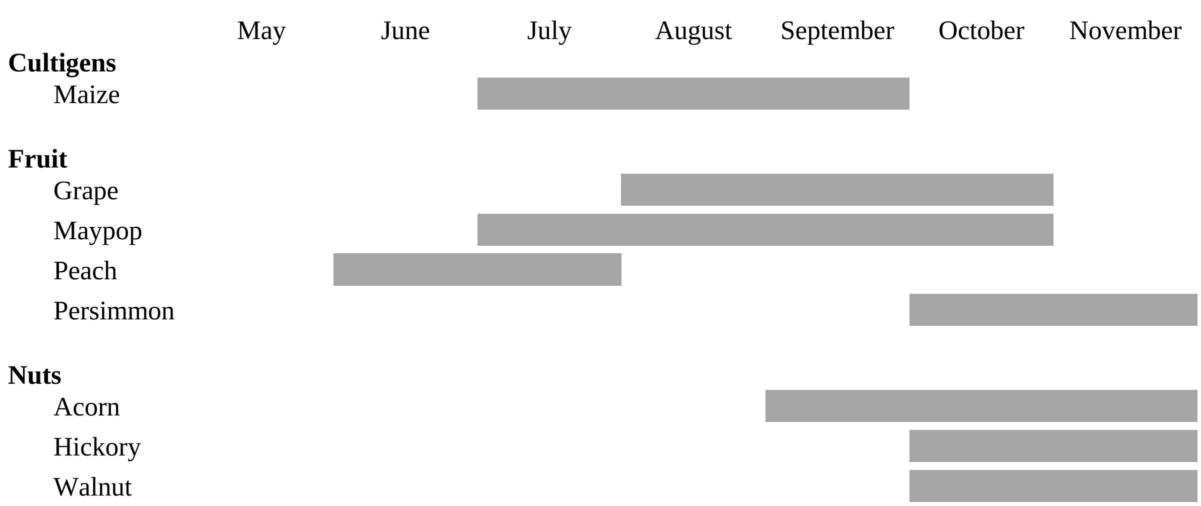


Figure 12. Seasonality of most ubiquitous taxa at the Wall and Jenrette sites. Seasonality data adapted from VanDerwarker et al. 2007.

Presence and absence data suggest that the inhabitants of the Wall and Jenrette sites utilized similar plant taxa associated with a broad range of ecological habitats and taxonomic categories. Temporal differences in occupation period impacted the availability of peach to Native peoples. However, these temporal differences did not result in major changes in the seasonality profile demonstrated by charred remains. Factors impacting the total recovered plant assemblage have been outlined. In the next two chapters, each set of samples investigated by Gremillion and myself will be analyzed by site in order to explore patterns in abundance. These patterns will aid in evaluating evidence of foodways exhibited by large pit, small pit, and midden contexts.

CHAPTER 5
WALL SITE (31OR11) RESULTS

This chapter presents data on the plants recovered from the Wall site and examines abundance by taxonomic group. Raw counts for analyses performed by Gremillion and myself are presented in Tables 9 and 10. These counts were also standardized by total plant weight (TPW) (Tables 11 and 12). Total plant weight is the combined weight of identified wood, nut fragments, seeds, and other plant parts. Standardizing by total plant weight corrects for differential density of plant remains in depositional contexts and allows for better assessment of the relative presence of each taxon in the overall assemblage than other norming variables, such as volume (Fritz 2005:793-794). Additionally, total plant weight takes into account context-dependent variations in preservation conditions, which would be masked if one were to standardize by volume. Total plant weight, wood weight, and sample volume are reported in raw count tables (Tables 9 and 10). Weight data for both investigations are reported in Appendix A (Tables A-1 and A-2).

Table 9. Wall Site Seed Counts Recorded by Melton

	F 70	F 71	F 72	F 76	F 77	F 78	F 79	F 82
Total plant weight (g)	2.54	1.63	0.66	1.77	4.40	10.41	3.41	8.05
Wood weight (g)	1.36	1.35	0.38	0.48	3.77	1.98	0.90	6.64
Volume (L)	10.00	10.00	10.00	10.00	10.00	30.00	20.00	60.00
Cultigens								
Common bean				2		1		
Maize cupule	88	31	19	31	41	77	504	38
Maize kernel	4	2	2	1	6	13	16	15
Chenopod								4
Knotweed					1			
Sumpweed						1		2
Sunflower								1
Fruits								
Grape		1				3		
Maypop				3				
Persimmon								6
Plum/cherry						1		
Nuts								
Acorn cap					6			
Acorn nutmeat	1				2	1		4
Acorn shell	55	30	3	5	95	16	10	144
Beech nut	1							
Hickory shell	34	5	29	86	15	478	9	3
Miscellaneous								
Bean/persimmon			1				1	14
Bedstraw					1			
Black gum					2			
Carpetweed					3			6
Purslane					1	1	1	
Sedge			1					
Grass family				2	1			4
Legume family								1
Nightshade family								1
Unidentified				3				

Table 10. Wall Site Seed Counts Recorded by Gremillion[a]

	F 1-84	F 2-84	F 3-84	F 4-84	F 5-84	Midden
Total plant weight (g)	0.15	0.17	13.49	3.70	1.32	106.94
Wood weight (g)	0.03	0.10	12.46	3.32	0.95	67.75
Volume (L)	10.00	10.00	13.00	28.00	10.00	200.00
Cultigens						
Common bean						4
Maize cupule[b]	5					244
Maize kernel					1	26
Fruits						
Grape						21
Hawthorn				1		1
Maypop						8
Persimmon						1
Nuts						
Acorn nutmeat[b]			2			6
Acorn shell[b]			31	17	14	952
Hickory shell[b]		2	26	2	15	1451
Walnut shell[b]						38
Miscellaneous						
Bearsfoot			1	1		
Bedstraw						1
Dogwood						1
Pokeweed						1
Legume family				1		1
Nightshade family				1		
Pink family	1					
Unidentified	2		1	1		26

[a] Data adapted from Gremillion 1989:276, 278.

[b] Counts extrapolated from weights recorded by Gremillion (see Chapter 3).

Table 11. Standardized Wall Site Seed Counts Recorded by Melton

	F 70	F 71	F 72	F 76	F 77	F 78	F 79	F 82
Cultigens								
Common bean				1.13		0.10		
Maize cupule	34.65	19.02	28.79	17.51	9.32	7.40	147.80	4.72
Maize kernel	1.57	1.23	3.03	0.56	1.36	1.25	4.69	1.86
Chenopod								0.50
Knotweed					0.23			
Sumpweed						0.10		0.25
Sunflower								0.12
Fruits								
Grape		0.61				0.29		
Maypop				1.69				
Persimmon								0.75
Plum/cherry						0.10		
Nuts								
Acorn cap					1.36			
Acorn nutmeat	0.39				0.45	0.10		0.50
Acorn shell	21.65	18.40	4.55	2.82	21.59	1.54	2.93	17.89
Beech nut	0.39							
Hickory shell	13.39	3.07	43.94	48.59	3.41	45.92	2.64	0.37
Miscellaneous								
Bean/persimmon			1.52				0.29	1.74
Bedstraw					0.23			
Black gum					0.45			
Carpetweed					0.68			0.75
Purslane					0.23	0.10	0.29	
Sedge			1.52					
Grass family				1.13	0.23			0.50
Legume family								0.12
Nightshade family								0.12
Unidentified				1.69				

Table 12. Standardized Wall Site Seed Counts Recorded by Gremillion

	F 1-84	F 2-84	F 3-84	F 4-84	F 5-84	Midden
Cultigens						
Common bean						0.04
Maize cupule	33.33					2.28
Maize kernel					0.76	0.24
Fruits						
Grape						0.20
Hawthorn				0.27		0.01
Maypop						0.07
Persimmon						0.01
Nuts						
Acorn nutmeat			0.15			0.06
Acorn shell			2.30	4.59	10.61	8.90
Hickory shell		11.76	1.93	0.54	11.36	13.57
Walnut shell						0.36
Miscellaneous						
Bearsfoot			0.07	0.27		
Bedstraw						0.01
Dogwood						0.01
Pokeweed						0.01
Legume family				0.27		0.01
Nightshade family				0.27		
Pink family	6.67					
Unidentified	13.33		0.07	0.27		0.24

Wood

Wood is the most common taxon in the majority of botanical samples. In addition to serving as an indicator for burning activity and a tool for environmental reconstruction, wood can provide evidence of structural remains (Smart and Hoffman 1988). A box plot was used to examine distribution of wood density among analyzed features. When wood weight for each feature was standardized by soil volume, log transformed, and compared, all observations fall within 1.5 hinge-spreads (where hinge-spread is defined as the absolute value of the difference between the values of the upper and lower hinges, or first and third quartiles, of the distribution) (Figure 13). The majority of features appear to have low wood density. The high wood density within Feature 3 may be indicative of the presence of more structural remains or charred fuel wood.

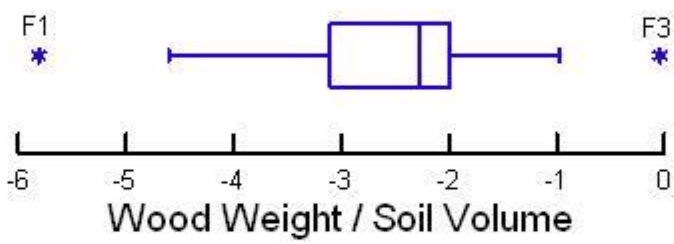


Figure 13. Box plot of wood weights for Wall site features.

Cultigens

Maize

Although maize was introduced from Mesoamerica as early as A.D. 100, it was not intensively cultivated in the Eastern Woodlands until around A.D. 800 or 900, and did not begin to serve as a dietary staple until after A.D. 1000 (Scarry 1993:78). Though this model is convenient, local chronologies of maize incorporation are not uniform in timing, intensity of agricultural production, or development of dietary importance (Scarry 1993). As few earlier Uwharrie (A.D. 800-1200) and Haw River (A.D. 1000-1400) phase sites have been analyzed for botanical remains, the timing of maize intensification in the North Carolina Piedmont is not well known (Ward and Davis 1999:100-105).

Both maize cupule and maize kernel are ubiquitous in features that I analyzed. Two features (Features 1-84 and 5-84) analyzed by Gremillion contain scant evidence of maize remains. Midden contexts contain greater amounts. When counts of maize are standardized, the highest counts are reported for features that I analyzed. Maize cupules were recovered at higher quantities than maize kernels. Maize kernels represent the edible portion of the plant, whereas maize cupules are the inedible sockets that hold the kernel and form the cob. The ratio of maize kernels to maize cupules in a given context is a good indicator of whether recovered remains are the result of consumption or processing activities. Patterning in kernel to cupule ratios will be discussed in greater detail in Chapter 7.

Features containing maize at the Wall site primarily represent evidence of processing activities, with features that I analyzed containing the remains of more intensive processing than those analyzed by Gremillion. All standardized maize cupule values calculated for features that I analyzed exceed the standardized value for the midden, suggesting that the abundance of plant remains in these pits surpassed that accumulated through habitual disposal of trash across the surface of the site. Standardized maize kernel counts for features that I analyzed also exceed the value obtained for midden samples. One feature analyzed by Gremillion, Feature 1-84, has an exceptionally high standardized kernel value. However, this value should be disregarded as it can be attributed to the small size of the sample, which exaggerates the relative prevalence of a low kernel count. Standardized counts emphasize that maize agriculture played a major role in the subsistence practices of Wall site inhabitants.

Common Bean

Bean is far less common than maize at the Wall site. Small quantities of bean were recovered from the sheet midden and two features that I analyzed (Feature 76 and Feature 78). Bean cotyledons represent the edible portions of each plant, which likely contributed to their underrepresentation at the Wall site.

Indigenous Cultigens

Native crops (squash, chenopod, knotweed, sumpweed, and sunflower) appear to have played a minor role in subsistence at the Wall site. Squash (rind or seed) was not identified in any feature at the Wall site. Remains of the other indigenous crops were not recovered from features analyzed by Gremillion and were only recovered in small quantities in three features that I analyzed (Features 77, 78, and 82). In interior parts of the Eastern Woodlands, indigenous cultigens seem to have been more heavily utilized for subsistence purposes. The small number of indigenous cultigens recovered at the Wall site, however, is not unusual for archaeological assemblages in North Carolina dating to the Late Woodland and contact periods (VanDerwarker et al. 2007).

Fruits

Grape, maypop, persimmon and plum/cherry represent the suite of fruits identified in the Wall site assemblage. These wild resources may have been pruned and tended to ensure maximum yields (see Chapter 1 for a description of the ecological preferences of fruits). Gremillion identified one hawthorn seed in Feature 4-84 and grape, hawthorn, maypop, and persimmon in midden samples. I found small quantities of grape, maypop, persimmon, and plum/cherry in Features 71, 76, 78, and 82. When these counts are standardized, the data suggest that fruits represented a minor source of subsistence for the inhabitants of the Wall site. The largest standardized count belongs to maypop (Feature 76) and is still comparatively low. Although a reasonable variety of taxa were exploited, fruits appear to have been eaten in small quantities. As has previously been discussed, archaeological evidence of fruit exploitation is strongly affected by seed consumption and burning practices.

Nuts

Nuts are well represented in the Wall site assemblage. With the exception of Feature 1, hickory shell is ubiquitous at the Wall site. Acorn also appears in all features with the exception of Features 1 and 2. In descending order, shell, nutmeat, and cap represent the most abundant acorn parts present at Wall. Standardized counts reflect a greater abundance of nut resources in features that I analyzed than those analyzed by Gremillion. Additionally, features that I analyzed tend to exhibit much higher standardized counts of one nut taxa (either acorn or hickory shell) than other nut taxa. Features 72, 76, and 78 have the largest standardized abundance of hickory shell. Feature 71 is abundant in acorn. Data for Feature 70 signifies a strong, but balanced, representation of acorn and hickory shell. Walnut is only present in midden samples, and standardized values suggest that this resource has a low representation overall. Nuts appear to have played a major role in the subsistence economy of the Wall site. The implications of nuts for differentiating functions of features will be further examined in Chapter 6.

Miscellaneous

Additional taxa identified in Wall site samples appear to belong to three main categories: medicinal plants, wild subsistence resources, and grasses. Several specimens were also identified to the bean/persimmon category. Miscellaneous taxa largely represent fragmentary specimens and, therefore, interpretation of this taxonomic category is limited. A wider variety of miscellaneous taxa were identified in features that I analyzed than in those analyzed by Gremillion. Generally speaking, Gremillion’s samples tend to include plants that could have been used as medicinal resources, whereas my samples contain purslane (known for its consumable leafy greens) and ecologically important resources such as carpetweed, sedge, and members of the grass family. Nevertheless, my samples do provide evidence for resources with medicinal functions, including black gum and members of the nightshade family. A few weedy members of the legume family, plants with leafy greens (purslane and pokeweed), and the oily kernel produced by bearsfoot appear to have played a role in Wall site subsistence practices. Other plants likely represent wild resources with few cultural uses, the seeds of which could have even been blown into open fires.

CHAPTER 6
JENRETTE SITE (31OR231A) RESULTS

This chapter presents data on the plants recovered from the Jenrette site and examines abundance by taxonomic group. Raw counts for analyses of Jenrette site features are reported below (Tables 13 and 14). These counts were also standardized by total plant weight (TPW) (Tables 15 and 16). Total plant weight, wood weight, and sample volume are reported in raw count tables (Tables 13 and 14). Weight data for both investigations are reported in Appendix A (Tables A-3 and A-4). Cultural importance will be described as needed for taxa not present in the Wall site assemblage.

Table 13. Jenrette Site Seed Counts Recorded by Melton

	F 152	**F 153**	**F 157**	**F 158**	**F 170**	**F 210**
Total plant weight (g)	3.31	0.45	164.67	8.16	4.32	1.49
Wood weight (g)	2.46	0.43	2.57	2.71	0.51	0.46
Volume (L)	20.00	10.00	10.00	10.00	10.00	10.00
Cultigens						
Maize cupule	14	2	16	459	8	3
Maize kernel	7	4	2	3	3	3
Sumpweed	2					
Fruits						
Bramble						2
Grape				1	1	
Maypop					1	
Peach			4			
Nuts						
Acorn nutmeat	4		16	1	1	
Acorn shell	99		2209	19	20	2
Hickory shell	20		2300	31	106	31
Walnut shell				2		
Miscellaneous						
Bean/persimmon	1					
Bedstraw				1		
Legume family			1	1		

Table 14. Jenrette Site Seed Counts Recorded by Gremillion[a]

	F 62	F 63	F 64	F 65	F 66	F 67	F 68	F 70	F 71	F 75	F 77	F 78	F 79	F 84	F 85	F 86	F 87
Total plant weight (g)	2.66	5.61	1.26	3.49	4.01	5.73	4.68	1.82	2.37	8.99	3.36	5.85	2.51	14.63	54.10	4.28	0.85
Wood weight (g)	2.51	5.19	1.20	2.13	3.27	4.47	4.67	1.64	1.96	6.37	3.35	5.17	1.94	13.53	9.35	3.05	0.56
Volume (L)	10.00	10.00	10.00	20.00	10.00	20.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	12.50	20.00	10.00	10.00
Cultigens																	
Common bean													1	2			
Maize cupule[b]	1																
Maize kernel	2	6		2						3			3	2			
Chenopod																	
Knotweed																	
Squash rind[b]										1							
Sumpweed		5															
Fruits																	
Bramble															2		
Grape		1															
Hawthorn																	
Maypop						1									4		
Peach[b]				11				2	2				1	1	27		4
Persimmon		7								1				2	4		
Nuts																	
Acorn nutmeat[b]												1					
Acorn shell[b]		7		17	10	65	3			21	3	52	7	41	7		
Hickory shell[b]	4	8	1	59	43	45		7	21	83		13	16	38	2613	65	
Walnut shell[b]	1	1				8		1					1		65		
Miscellaneous																	
Bearsfoot																	
Bedstraw																	
Black gum																	
Bulrush										1							
Nightshade										1							
Pokeweed																	
Nightshade family					1												
Unidentified		2		1			1	1		1							

[a] Data adapted from Gremillion 1993a: 374-376, 379-381.
[b] Counts extrapolated from weights recorded by Gremillion (see Chapter 3).

Table 14. Jenrette Site Seed Counts Recorded by Gremillion[a] (continued)

	F 90	F 91	F 92	F 95	F 96	F 98	F 99	F 113	F 114	F 116	F 118	F 120	F 121	F 122	F 123	F 124
Total plant weight (g)	0.49	0.69	1.15	18.49	17.44	8.16	10.33	0.98	8.37	5.34	0.37	5.80	5.84	34.13	2.04	1.16
Wood weight (g)	0.31	0.39	0.99	7.14	10.23	5.08	8.90	0.43	7.69	4.35	0.36	2.52	4.54	25.40	1.29	1.15
Volume (L)	10.00	10.00	30.00	20.00	10.00	20.00	30.00	20.00	10.00	2.50	10.00	10.00	15.00	10.00	10.00	10.00
Cultigens																
Common bean																
Maize cupule																
Maize kernel			1	5	2		1	21	4					2	1	
Chenopod															1	
Knotweed	4															
Squash rind														1		
Sumpweed					1											
Fruits																
Bramble	23															
Grape	2									1						
Hawthorn				18												
Maypop													1			
Peach			5			178			11	50				41		
Persimmon	1			5					1				1			
Nuts																
Acorn nutmeat																
Acorn shell	7			3	1217		21					3	14	207		
Hickory shell	6	3	3	523	146	3	66	3	15		1	113	15	348	45	1
Walnut shell		6		56	6		1		4			50		1	1	
Miscellaneous																
Bearsfoot			1													
Bedstraw	1															
Black gum						1										
Bulrush																
Nightshade	6															
Pokeweed	1													3		
Nightshade family																
Unidentified	2			2	1			1		1						

[a] Data adapted from Gremillion 1993a: 374-376, 379-381.
[b] Counts extrapolated from weights recorded by Gremillion (see Chapter 3).

Table 15. Standardized Jenrette Site Seeds Counts Recorded by Melton

	F 152	F 153	F 157	F 158	F 170	F 210
Cultigens						
Maize cupule	4.23	4.44	0.10	56.25	1.85	2.01
Maize kernel	2.11	8.89	0.01	0.37	0.69	2.01
Sumpweed	0.60					
Fruits						
Bramble						1.34
Grape				0.12	0.23	
Maypop					0.23	
Peach			0.02			
Nuts						
Acorn nutmeat	1.21		0.10	0.12	0.23	
Acorn shell	29.91		13.41	2.33	4.63	1.34
Hickory shell	6.04		13.97	3.80	24.54	20.81
Walnut shell				0.74		
Miscellaneous						
Bean/persimmon	0.30					
Bedstraw				0.12		
Legume family			0.01	0.12		

Table 16. Standardized Jenrette Site Seed Counts Recorded by Gremillion

	F 62	F 63	F 64	F 65	F 66	F 67	F 68	F 70	F 71	F 75	F 77	F 78	F 79	F 84	F 85	F 86	F 87
Cultigens																	
Common bean													0.40	0.14			
Maize cupule	0.38																
Maize kernel	0.75	1.07		0.57						0.33			1.20	0.14			
Chenopod																	
Knotweed																	
Squash rind										0.11							
Sumpweed		0.89															
Fruits																	
Bramble															0.04		
Grape		0.18															
Hawthorn																	
Maypop						0.17									0.07		
Peach				3.15				1.10	0.84				0.40	0.07	0.50		4.71
Persimmon		1.25								0.11				0.14	0.07		
Nuts																	
Acorn nutmeat												0.17					
Acorn shell		1.25		4.87	2.49	11.34	0.64			2.34	0.89	8.89	2.79	2.80	0.13		
Hickory shell	1.50	1.43	0.79	16.91	10.72	7.85		3.85	8.86	9.23		2.22	6.37	2.60	48.30	15.19	
Walnut shell	0.38	0.18				1.40		0.55					0.40		1.20		
Miscellaneous																	
Bearsfoot																	
Bedstraw																	
Black gum																	
Bulrush										0.11							
Nightshade										0.11							
Pokeweed																	
Nightshade family					0.25												
Unidentified		0.36		0.29			0.21	0.55		0.11							

Table 16. Standardized Jenrette Site Seed Counts Recorded by Gremillion (continued)

	F 90	F 91	F 92	F 95	F 96	F 98	F 99	F 113	F 114	F 116	F 118	F 120	F 121	F 122	F 123	F 124
Cultigens																
Common bean																
Maize cupule																
Maize kernel			0.87	0.27	0.11		0.10	21.43	0.48					0.06	0.49	
Chenopod															0.49	
Knotweed	8.16															
Squash rind														0.03		
Sumpweed					0.06											
Fruits																
Bramble	46.94															
Grape	4.08									0.19						
Hawthorn				0.97												
Maypop													0.17			
Peach			4.35			21.81			1.31	9.36				1.20		
Persimmon	2.04			0.27					0.12				0.17			
Nuts																
Acorn nutmeat																
Acorn shell	14.29			0.16	69.78		2.03					0.52	2.40	6.07		
Hickory shell	12.24	4.35	2.61	28.29	8.37	0.37	6.39	3.06	1.79		2.70	19.48	2.57	10.20	22.06	0.86
Walnut shell		8.70		3.03	0.34		0.10		0.48			8.62		0.03	0.49	
Miscellaneous																
Bearsfoot			0.87													
Bedstraw	2.04															
Black gum						0.12										
Bulrush																
Nightshade	12.24															
Pokeweed	2.04													0.09		
Nightshade family																
Unidentified	4.08			0.11	0.06			1.02		0.19						

Wood

Pit features from the Jenrette site that I analyzed do not demonstrate an unusual abundance of structural remains. When wood weights are standardized by soil volume and log transformed, box plot analysis illustrates that all features exhibit similar values of wood density. The absence of outliers suggests that evidence of large structural remains is not apparent in flotation samples analyzed from the Jenrette site.

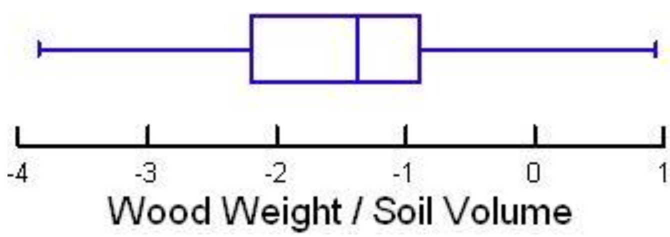


Figure 14. Box plot of wood weights for Jenrette site features.

Cultigens

Maize

Maize appears to have been present in greater relative abundance in features analyzed by me than in those analyzed by Gremillion. Raw counts reveal that maize cupule was rarely identified among features analyzed by Gremillion. Maize cupule is ubiquitous in features that I analyzed. Though the higher ubiquity of maize cupule in features analyzed by me could ostensibly be attributed to sample size or differences in analytical procedures, the standardized count data reveal discrepancies in maize cupule abundance between the two groups. One feature analyzed by Gremillion, Feature 113, exhibits the highest standardized count of maize kernel among all features analyzed for the Jenrette site. Features analyzed by Gremillion demonstrate a near absence of debris related to maize processing and one (Feature 113) exhibits a high quantity of maize consumption debris. Features that I analyzed demonstrate a high prevalence of maize processing debris with maize kernel debris being ubiquitous and relatively moderate in amount.

Common Bean

Common bean is poorly represented at the Jenrette site. Two features analyzed by Gremillion, Features 79 and 84, contain few specimens identified as common bean.

Indigenous Cultigens

Indigenous cultigens present at the Jenrette site include: chenopod, knotweed, squash, and sumpweed. Similar to the Wall site, these cultigens are present in very small quantities. Although knotweed has the highest standardized count, only four seeds were identified from one context, suggesting a low prevalence overall. Sumpweed recovered from the Jenrette site represents the most recent archaeological evidence of domesticated sumpweed in the Eastern Woodlands (Gremillion 1993a:382). Low quantities may represent minor investment in sumpweed cultivation at this site, or underestimated presence due to seed consumption.

Squash was not identified at the Wall site, but does appear in Jenrette contexts. Squash is present in two features, Features 75 and122. One fragment of squash rind was identified in each.\

Fruits

Fruits present at the Jenrette site include: bramble, grape, hawthorn, maypop, peach, and persimmon. All of these fruits are indigenous to the Eastern Woodlands with the exception of peach. Indigenous fruits and peach will be discussed separately as they were incorporated into Jenrette site subsistence through different trajectories.

Indigenous Fruits

Bramble, grape, hawthorn, maypop, and persimmon all thrive in disturbed edge areas. Based on standardized counts, indigenous fruits appear to have contributed highly to the contents of Feature 90, located in the southeast plaza (Figure 15). However, the total plant weight of this feature is low and relative quantities of indigenous fruits may be over represented for this feature. An alternative explanation is that Feature 90 may represent a specialized deposit related to fruit processing or consumption activities.

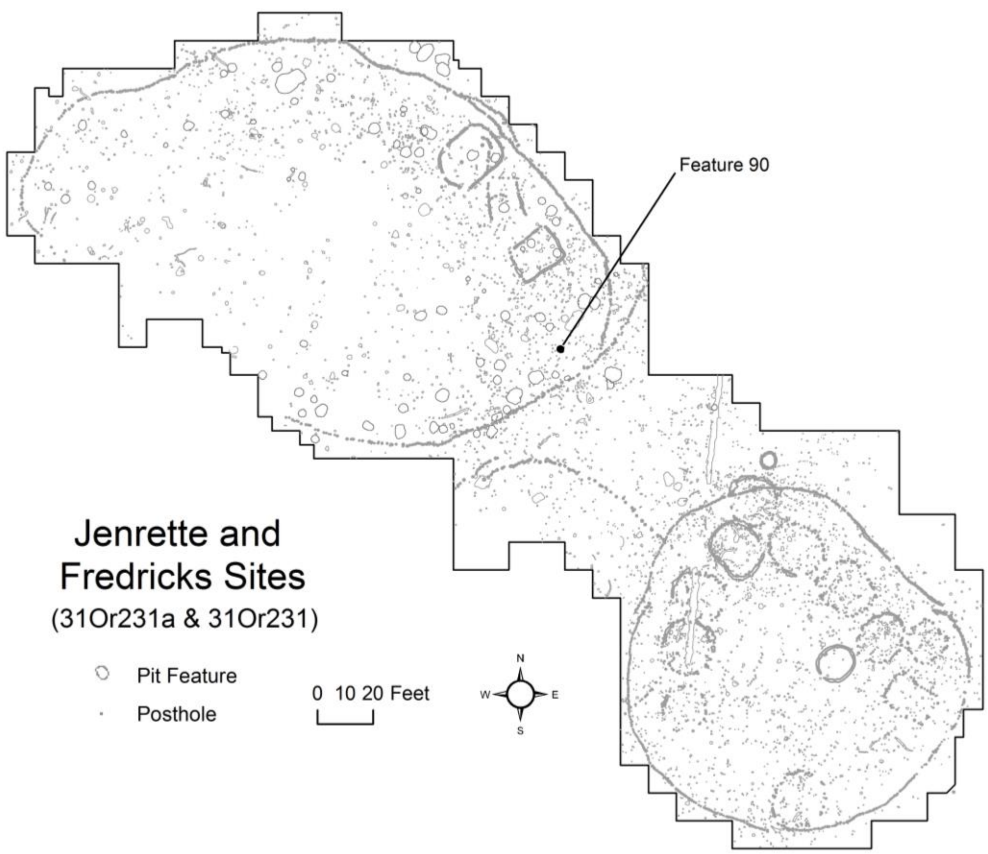


Figure 15. Map identifying Feature 90 at the Jenrette site.

Peach

Introduced to Florida by Spaniards in the sixteenth century, peach spread quickly throughout the region (Gremillion 1993b:16; Reitz and Scarry 1985). The Southeast proved to be an ideal habitat for peaches to such an extent that Lawson notes that: “A Peach falling to the Ground, brings a Peach-Tree that shall bear in three years, or sometimes sooner. Eating Peaches in our Orchards makes them come up so thick from the Kernel, that we are forced to take a great deal of Care to weed them out” (Lefler 1967:115; Gremillion 1993b:17). In contrast to fruits such as bramble and hawthorn which were usually more dispersed, peach trees often grew in dense arrangements that resembled orchards in the eyes of early European ethnographers (Gremillion 1993b:17).

The Jenrette site represents evidence of the role that peach played in Native subsistence during the historic period. Once peach was introduced after the occupation of the Wall site, it became more common than any other fruit. Standardized counts reveal high quantities of peach that are not typically associated with contexts having low values of total plant weight. The presence and density of peach at the Jenrette site is perhaps a reflection of intensive cultivation practices among site inhabitants.

Nuts

Three nut taxa, acorn, hickory, and walnut, were identified in the Jenrette site assemblage. Out of a total of 39 features, hickory shell is present in 34 features, acorn shell is present in 23, walnut shell is present in 15, and acorn nutmeat is present in five. Hickory and acorn shell are the two most common plant components at the Jenrette site and walnut shell is the fourth. Standardized counts indicate that nut remains constitute a considerable amount of the total plant weight for certain features, namely Features 85, 95, 120, 123, 152, 157, and 170. Gremillion analyzed four of these features (Features 85, 95, 120, and 123) and I analyzed the remaining features. Feature 157, located outside of the palisade walls, demonstrates especially high counts of both acorn and hickory shell (Figure 16). The high quantity of nuts present in the

Jenrette assemblage indicates that site inhabitants were utilizing acorn and hickory as staple resources. The importance of nuts at Jenrette could be linked to their long storage life, which allowed them to serve as crucial resources during periods of food scarcity.

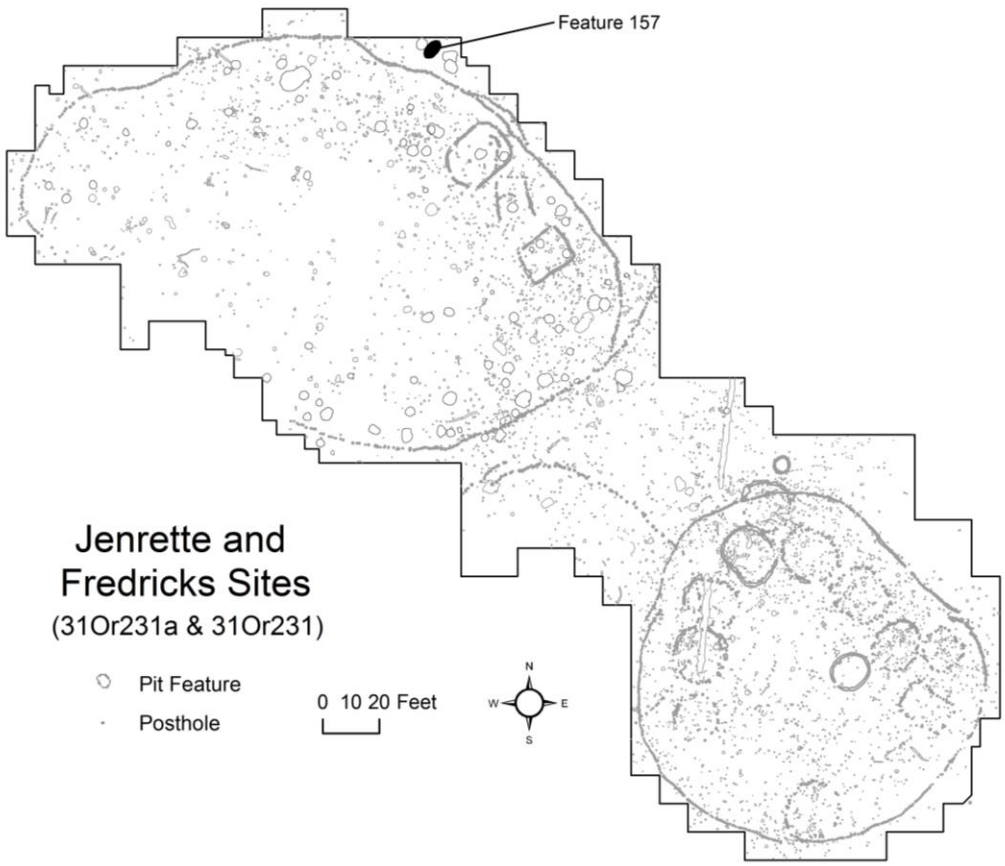


Figure 16. Map identifying Feature 157 at the Jenrette site.

Miscellaneous

The range of miscellaneous taxa identified for Jenrette site contexts is similar in character to those identified at the Wall site. A greater variety of these resources were identified in features analyzed by Gremillion than those that I analyzed. However, none of these taxa were present in large quantities. Three or more miscellaneous taxa are present in two features (Features 75 and 90). Densities of other taxa, with the exception of nuts, are comparably low for these features, suggesting that they may represent generalized domestic refuse rather than indicate evidence of processing events related to a specific suite of taxa. Miscellaneous taxa appear to have played a relatively uniform and minor role in Jenrette foodways.

CHAPTER 7
INTER-SITE ANALYSIS

Statistical analysis builds upon site-specific assessments of plants from the Wall and Jenrette sites thereby facilitating the identification of temporal trends in pit function. In addressing possible functions of pits at the Wall and Jenrette site, spatial arrangement of pit features and evidence of foodways were considered. Correspondence analysis and box plots were used to examine the importance of specific plants in the overall subsistence base and demarcate outliers. Outliers in both of these analyses signify deposits for which one or few taxa constitute the majority of identified plants, and have the potential to represent large processing or cooking events perhaps on the communal level (VanDerwarker and Idol 2008; VanDerwarker et al. 2007). Features with no outliers and relatively even abundances of a wide range of taxonomic groups likely indicate evidence of generalized, domestic refuse.

Correspondence Analysis

Correspondence analysis is a statistical approach that has been used with archaeobotanical data to provide indications of the most prevalently utilized resources by taking into account the abundance of a variety of taxa (Bush 2004; Hollenbach 2005; VanDerwarker 2010). Through spatially arranging observations according to two program-generated variables that reduce statistical noise by accounting for variance in the assemblage, correspondence analysis proves useful for defining patterns and identifying strong trends in the overall composition of archaeological features. Using the statistical program STATA, counts for chosen taxa were entered in a two-dimensional data matrix with rows representing taxa and columns representing features. All Wall and Jenrette features analyzed for botanical remains were included in the analysis. Raw counts were used, as the program applies measures to adjust for differences in sample size. Certain taxonomic categories low in both ubiquity and counts (Common Bean, Indigenous Cultigens, Fruits, Miscellaneous) were excluded from this analysis to aid in interpretation.

Collectively, the two dimensions in the resulting correspondence analysis explain 85.2% of the inertia (variation) in the assemblage (Figures 17 and 18). Dimension 1, representing 55.8% of the overall inertia, has a high contribution value for maize cupule, which suggests that this dimension is largely representative of variation in maize (Table 17). Dimension 2 represents 29.4% of the overall inertia and contribution values appear to indicate a relationship between Dimension 2 and nutshell (acorn and hickory) (Table 17). Maize cupule, acorn shell, and hickory shell are responsible for explaining the majority of patterning present in the Wall and Jenrette assemblages.

Table 17. Metadata for Correspondence Analysis

Overall			
Taxon	Mass	Quality	% Inertia
Maize cupule	0.098	0.996	0.497
Maize kernel	0.010	0.031	0.150
Acorn shell	0.337	0.998	0.202
Hickory shell	0.555	0.998	0.151
Dimension 1 (55.8% total inertia)			
Taxon	Coordinate	Squared Correlation	Contribution
Maize cupule	2.655	0.995	0.886
Maize kernel	0.796	0.031	0.008
Acorn shell	-0.248	0.073	0.026
Hickory shell	-0.333	0.292	0.079
Dimension 2 (29.4% total inertia)			
Taxon	Coordinate	Squared Correlation	Contribution
Maize cupule	0.106	0.001	0.002
Maize kernel	-0.096	0.000	0.000
Acorn shell	-1.033	0.925	0.634
Hickory shell	0.609	0.707	0.364

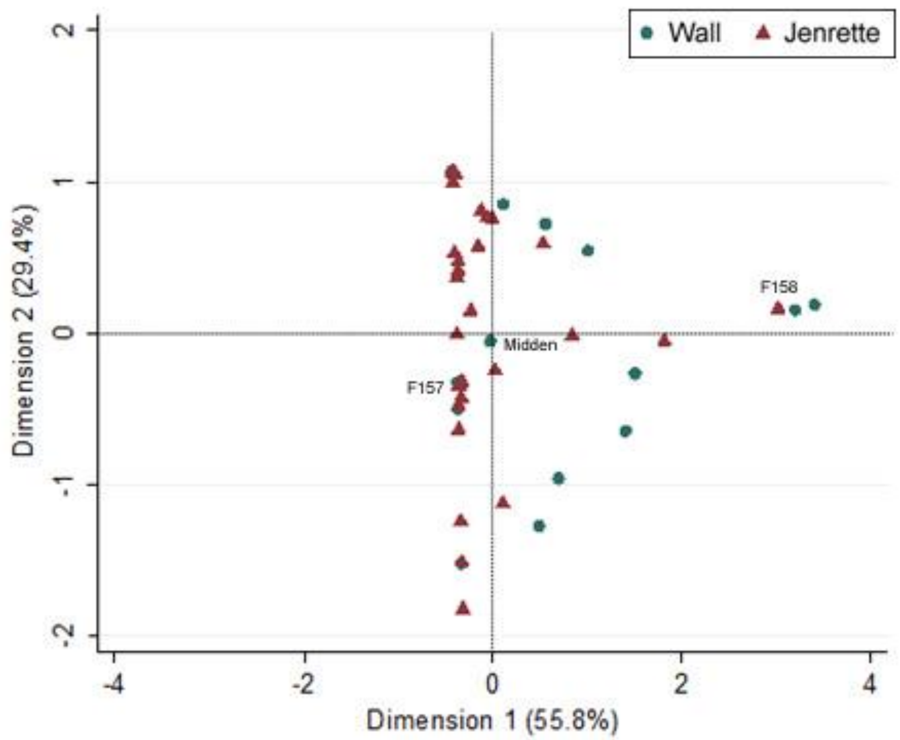


Figure 17. Correspondence analysis for Wall and Jenrette, features only.

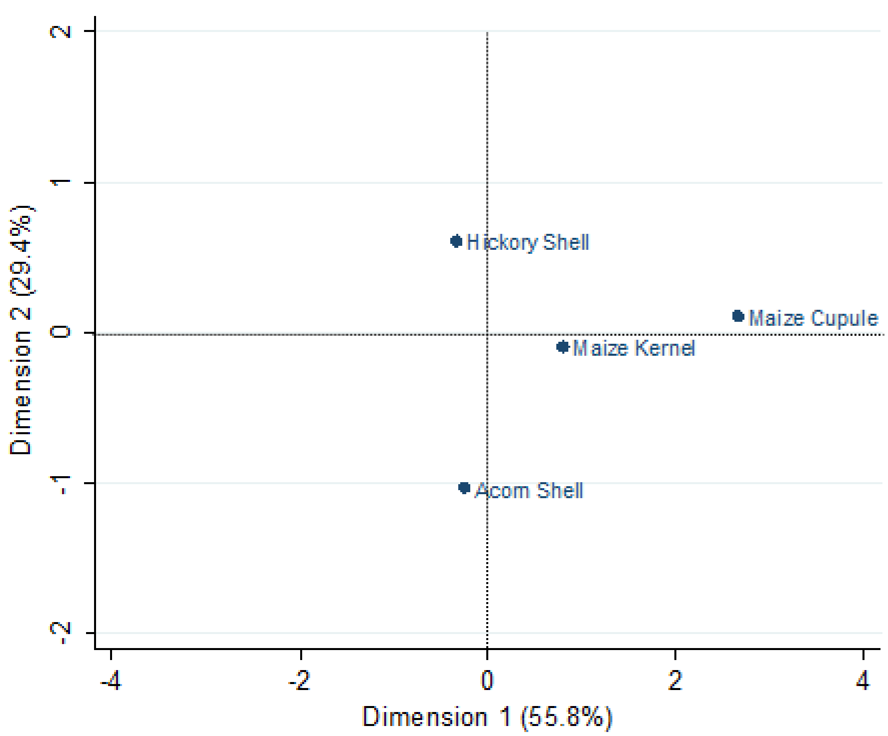


Figure 18. Correspondence analysis for Wall and Jenrette, taxonomic groups only.

Similar scores highlight site-level distinctions that are designated by clusters on each graph. Several Jenrette features, as well as a few disturbed Wall features (including the midden), cluster near the origin. This arrangement indicates that these three Wall features and seven Jenrette features exhibit relatively low scores on each dimension and may represent evidence of subsistence debris from a mix of taxonomic categories rather than more heavily emphasizing maize and nut processing debris. This trend is largely reinforced by raw counts. However, Feature 157 has high standardized acorn and hickory values that cause it to have a value near the origin (-0.343) on Dimension 2 in the correspondence analysis. Although Feature 157 plots near the Wall site midden, this feature appears to rich in nut processing refuse. Three Wall features and five Jenrette features correlate with acorn shell. Two Wall features (Features 1-84 and 79) as well as one Jenrette feature (Feature 158) correlate with maize cupule and have low values on Dimension 2. Lastly, a large cluster of features from both sites plots near hickory shell.

The correspondence analysis demonstrates that certain features are largely composed of acorn, hickory, maize kernel, or maize cupule. However, those that have high scores in Dimension 1 or 2 do not often have high scores in the other dimension. For example, features that correlate strongly with maize cupule are not also dominated by nutshell. A second trend involves features that exhibit a wider range of taxa and do not strongly correlate with either type of processing debris. Both sites have a large number of features that either exhibit high quantities of hickory shell or represent a more generalized suite of taxa. The Wall site presents better evidence of features that are primarily composed of maize cupule, whereas the Jenrette site presents features that align well with acorn shell or are composed of similar quantities of acorn and hickory shell. In sum, correspondence analysis illustrates that features at both sites either depict generalized subsistence debris or strongly correlate with the processing debris of one taxon. The relative amount of a strongly correlated taxon represented in each feature will be revealed in greater detail through the use of box plots. Features that are statistical outliers will be discussed in relation to their spatial position.

Box Plots

Box plots are useful in differentiating trends in feature composition as one can easily isolate outliers in a single variable and provide evidence of statistical significance. Statistically significant differences reveal distinctions in pit composition and function. Examining whether the site-specific trends demonstrated in the correspondence analysis are statistically significant when compared to values for the other site will inform understandings of the dependability of these trends. Box plots with notches to indicate medians will be used to achieve this goal. If the notches on two box plots do not overlap, these groups are significantly different at a 95% confidence interval (0.05 significance level) (Velleman and Hoaglin 1981:73-74). All box plots presented in this chapter reflect counts of taxa standardized by total plant weight (TPW) or comparison ratios relating counts of two different variables. These box plots have been log transformed to improve readability.

Maize kernel is centrally located in the correspondence analysis, indicating that this taxon was often present in features that demonstrated a mix of other taxa. In order to better assess differences between sites, standardized values of maize kernel for each site were evaluated (Figure 19). The box plot suggests that maize consumption debris was deposited in greater quantities at the Wall site, though this discrepancy is not statistically significant at a 95% confidence interval. The Jenrette site exhibits two outliers: Feature 113 and Feature 157. Feature 113 has a high quantity of maize kernel, whereas Feature 157 has an especially low quantity. Feature 113 should not be interpreted as containing a large quantity of maize, as the total plant weight for this feature is low. Contrary to its position on the boxplot, Feature 113 does not appear to signify a maize cooking or storage accident.

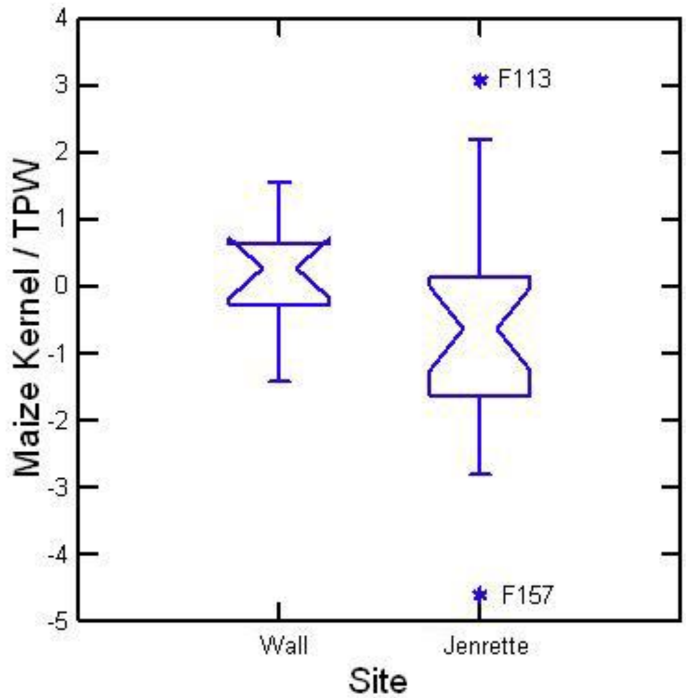


Figure 19. Box plots of maize kernel counts standardized by total plant weight.

The Wall site also provides higher standardized values for maize processing debris (Figure 20). The boxed distributions for cupules in the Wall and Jenrette assemblages do not overlap, meaning that the difference in abundance is statistically significant. Feature 158, an outlier in the Jenrette assemblage, contains primarily maize cupule and clusters close to this taxon in the correspondence analysis (Figures 17 and 18). This feature belongs to a cluster of pits to the northwest of all identified houses (Figure 21). Although the Wall site features contain significantly more maize cupule than those at the Jenrette site, Feature 158 at the Jenrette site appears to have been specialized for the deposition of maize processing debris. The extra-household location of the feature suggests that perhaps the maize cupule debris in Feature 158 indicates that this production activity took place on a neighborhood or community level.

Interestingly, Feature 158 is located outside of the palisade. Interpretations of this feature will be discussed further in Chapter 8.

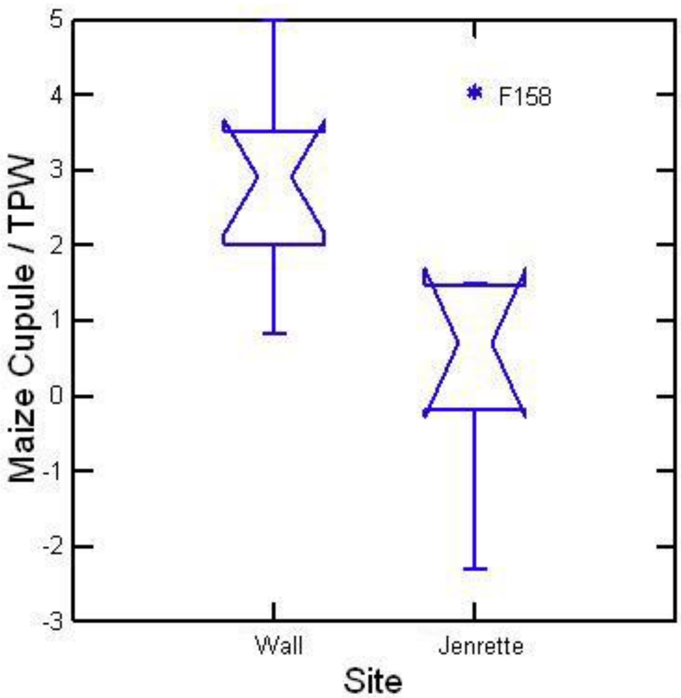


Figure 20. Box plots of maize cupule counts standardized by total plant weight.

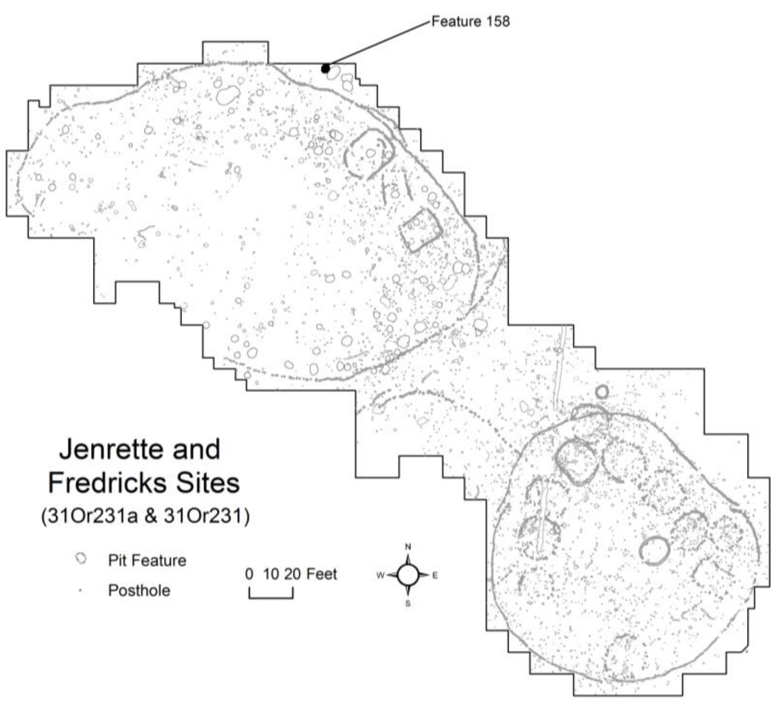


Figure 21. Map of the Jenrette site identifying Feature 158.

Maize kernel to cupule ratios provide additional evidence for the patterns noted in box plots of standardized maize kernel and cupule counts (Figure 22). Although the Wall site exhibits a slightly higher median value of maize kernel in comparison to the Jenrette site, the large amount of maize cupule in Wall site features causes the median maize kernel to cupule ratio at the Wall site to be lower than the median ratio for the Jenrette site. Feature 158 is again an outlier due to its high cupule content. Wall site features have higher densities of both maize kernel and cupule than the later Jenrette site, perhaps suggesting the inhabitants of the Wall site were growing and eating more maize.

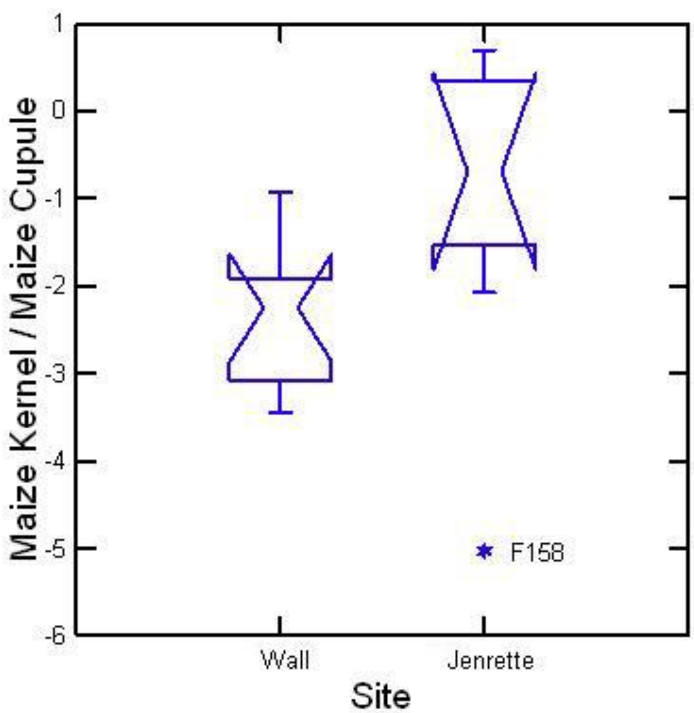


Figure 22. Box plots of maize kernel to cupule count ratios.

Patterning in acorn and hickory shell abundance necessitated further examination as the large number of features clustering around each of these taxa in the correspondence analysis does not provide ample evidence of inter-site variation. When plotted, the median value of standardized acorn shell is higher for the Wall site than the Jenrette site (Figure 23). However, this difference is not statistically significant. The fences of the Jenrette box plot have a broader range, but the majority of the values fall at or below the middle 50% of Wall site values. The intensity of acorn processing does not appear to have varied significantly over time.

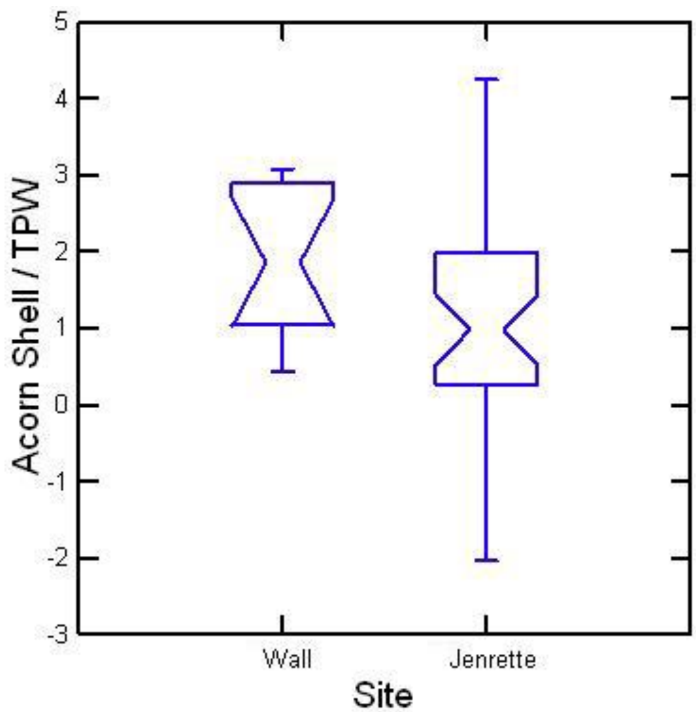


Figure 23. Box plots of acorn shell counts standardized by total plant weight.

Evidence of hickory shell processing is very similar for the Wall and Jenrette sites (Figure 24). Although the median value at the Wall site exceeds that of the Jenrette site, the difference is not significant. The range of the fences is similar for both plots. Hickory was a staple resource at both sites that appears to have been evenly and intensively exploited over time.

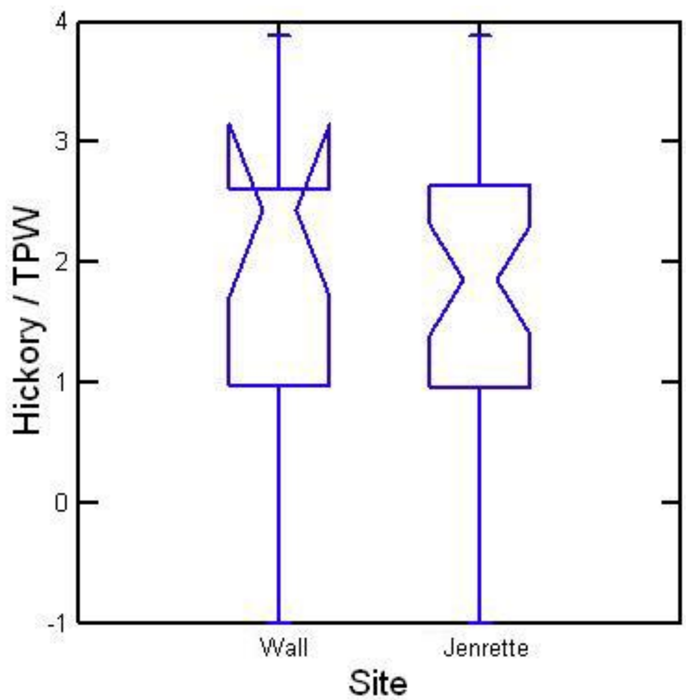


Figure 24. Box plots of hickory shell counts standardized by total plant weight.

Quantities of acorn and hickory were also considered collectively to identify site-specific preferences regarding whether acorn or hickory was exploited more intensively (Figure 25). In features for which acorn and hickory shell were identified, Wall site features had a higher median proportion of acorn. Two features at Jenrette, Feature 85 and Feature 95, have very low standardized values of acorn shell that caused these observations to plot as outliers. Although the amount of acorn in these features is low, their standardized hickory values do not plot as outliers in Figure 24. The hickory values for these features, therefore, are not substantial enough to label them as evidence of large-scale hickory processing. Rather, these features should be seen as pits with moderately sized contents for which more hickory was deposited than acorn. Proportions of acorn to hickory exploitation appear to have been fairly similar for both sites, with the Wall site exhibiting only a slight preference towards acorn.

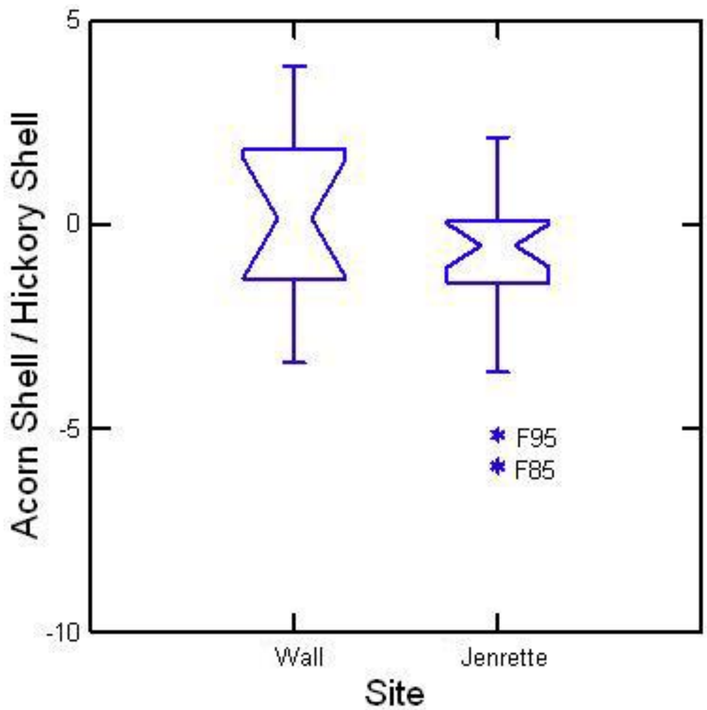


Figure 25. Box plots of acorn to hickory count ratios.

An examination of the relationship between maize and nutshell taxa at each site allows for a more comprehensive assessment of differences in subsistence strategies (Figures 26 and 27). For this purpose, counts of maize cupules and kernels were combined in order to obtain a more complete estimate of its overall contribution to foodways.

Comparisons of maize with both acorn and hickory shell counts are affected by the greater recovery of maize at Wall. Maize cupule counts were also compared to the total count of nutshell in order to measure the impact of each taxonomic group on processing debris at each site (Figure 28). Feature 158 is still plotted as an outlier due to its abundance of maize cupule, whereas Feature 170 appears as an outlier due to its low quantity of maize cupule and not an excess quantity of nutshell. Feature 79 is differentiated from the rest of the assemblage due to extremely low acorn and hickory counts (less than 30 pieces of nutshell total). The outcomes of the two previous assays suggest that the inhabitants of Wall invested more energy in maize agriculture than nut collection and Jenrette inhabitants had a diet that contained a more even distribution of maize and nuts. Analysis of ceramics from the Wall site suggests that the inhabitants of the Wall site were newcomers to the North Carolina Piedmont (Ward and Davis 1999:115). Early on, they may have found it safer to grow maize nearby, as they had not yet built relationships with nearby groups. By the time that the Jenrette site was occupied, they may have found it safer to venture farther from the settlement to forage for nuts.

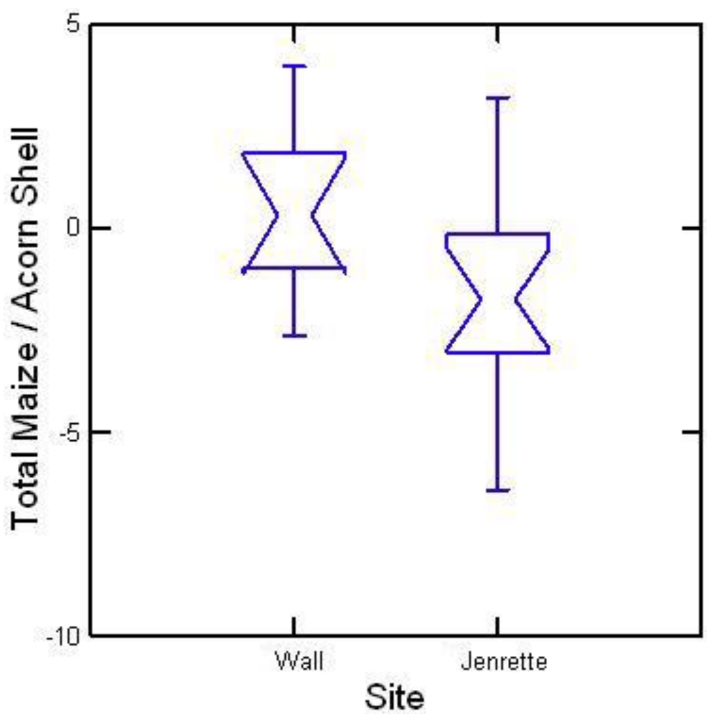


Figure 26. Box plots of maize (cupule and kernel combined) to acorn shell count ratios.

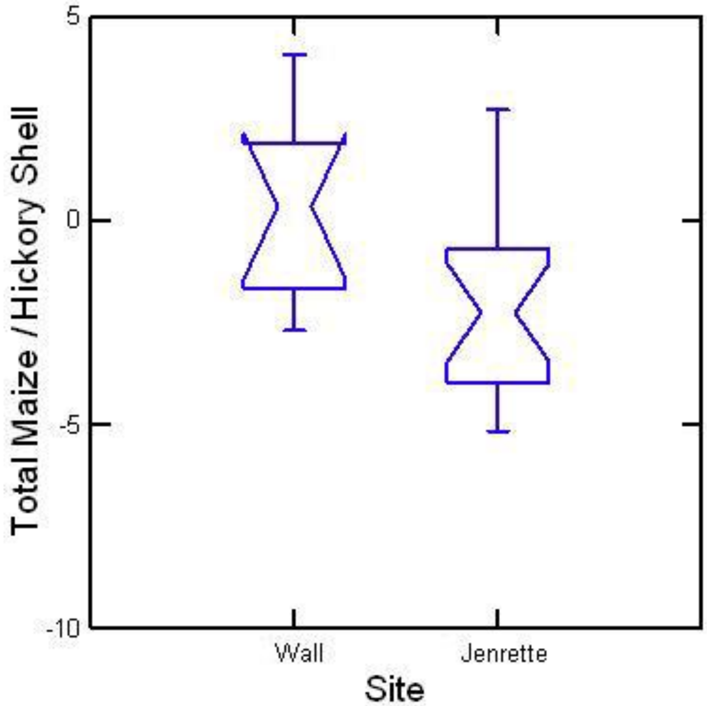


Figure 27. Box plots of maize (cupule and kernel combined) to hickory shell count ratios.

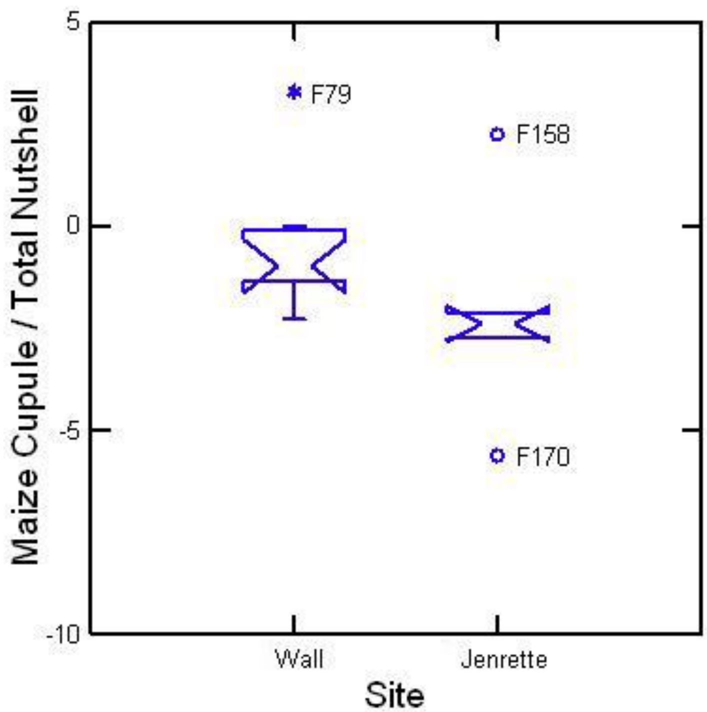


Figure 28. Box plots of maize cupule to total nutshell count ratios.

Summary

Archaeobotanical analysis of features at Wall and Jenrette reveals that both sites exhibited a broad-spectrum subsistence strategy involving cultigens, fruits, nuts, and miscellaneous taxa. The majority of identified specimens belong to four taxonomic categories: acorn shell, hickory shell, maize cupule, and maize kernel. Correspondence analysis and box plots suggest that nut resources played an important and similar role in Wall and Jenrette foodways. Hickory is the most ubiquitous taxon at both sites and is abundant in a number of features at each. Acorn is slightly more abundant at the Wall site than the Jenrette site. In features containing acorn and hickory, Wall site features contain a greater proportion of acorn than Jenrette features. Feature 157 appears to represent evidence of nut processing debris. The low density of nuts in other features suggests that they may have also been processed on an as-needed basis. Inhabitants of both sites utilized wild resources while also cultivating indigenous and introduced resources that required more intensive management.

Maize was also well represented in subsistence evidence for Wall and Jenrette. Unlike nuts, however, maize appears to have been exploited more intensively at the Wall site than the Jenrette site. Debris resulting from maize processing events at the Wall site was similar among several features and events appear to have been small in scale, as no features had high quantities of maize cupule that plotted as outliers in the box plots. Feature 158 at the Jenrette site demonstrates a standardized value of maize cupule that falls in the range of values in the upper fence for the Wall site (Figure 20). A tentative explanation may be that maize was procured and processed in greater quantities during the occupation of the Wall site. During the period in which the Jenrette site was occupied, evidence of maize production was less widespread across the site and households may have pooled their labor and refuse during these events, resulting in more substantial deposits of processing debris as seen in Feature 158.

CHAPTER 8
DISCUSSION

Community, diet, and identity are interwoven themes that are performed simultaneously through the mundane rituals of eating and disposal. Gathering and farming practices are linked to human behaviors that are motivated by seasonal availability as well as nutritional and cultural preferences. Kent Flannery perhaps best describes the interpretive potential of food remains in stating that, through the exploitation of subsistence resources, "man was not simply extracting energy from his environment, but participating in it" (1968:69). What was the relationship between participation in built and natural environments and communal foodways at the Wall and Jenrette sites? Through utilizing data from nearby sites, an attempt will be made to summarize the results presented in this thesis and explain the significance of pits that I analyzed in regards to current literature regarding landscape use and specialized eating events.

From A.D. 1100 to 1600, the preferred settlement pattern in the North Carolina Piedmont changed from dispersed hamlets to compact villages (Ward and Davis 1999:98). This trend, known as the Piedmont Village Tradition, transformed the manner in which people managed the territory surrounding them. A likely response to increased raiding, the emergence of more permanent palisaded settlements restricted the usable landscapes of village inhabitants during the Late Woodland and contact periods, resulting in an increased reliance on crop cultivation (Ward and Davis 1999:99). Resource management strategies were refined to meet the needs of more permanent sedentary communities (Ward and Davis 2001:128). The Dan River, Haw River, and Eno River drainages were areas in which the construction of a series of residential complexes increasingly reflected changes in community relations and, perhaps, the beginnings of distinct tribal identities referenced in ethnohistoric records (Ward and Davis 1999:99).

Occupations at the Upper Saratown sites (31Sk1 and 31Sk1a) provide a case study for examining the impact that temporal changes in settlement had on subsistence strategies in the North Carolina Piedmont. Both sites are located within close proximity to one another on the Dan River floodplain in present day Stokes County, North Carolina and provide evidence of human activity during Late Woodland (beginning A.D. 1450) and through the Late Contact period (ending A.D. 1710) (VanDerwarker et al. 2007:19). Excavations conducted by the RLA in 1981 at Early Upper Saratown (31Sk1) revealed bell-shaped storage pits as well as features used for food preparation, including hearths and earth ovens (Wilson 1983). Archaeobotanical remains have not been analyzed for the Late Woodland occupation of the site. However, plant remains have been analyzed for the Dan River phase (A.D. 1000-1450) Powerplant site (31Rk5), which may provide evidence regarding trends at the Early Upper Saratown site. Maize was recovered from nearly every pit feature at the Powerplant site; fragments of bean and sunflower were also identified (Gremillion 1989:334-335). The Powerplant site provides evidence of the adoption of a narrow subsistence economy, primarily consisting of introduced cultigens that were supplemented by nuts and indigenous seeds.

The Upper Saratown site (31Sk1a) was occupied during the Middle (A.D. 1650-1670) and Late (A.D. 1670-1710) Contact periods. During these periods, the site plan remained relatively consistent. The palisaded village contained extra-household communal work areas (storage pits, shallow basins, earth ovens, and refuse pits) situated near the palisade walls (Eastman 1999:215). Circular wall-post houses were erected within the walls of the settlement. Archaeobotanical analysis of water-screened samples, first worked on by Jack Wilson, later re-examined by students in C. Margaret Scarry's archaeobotany class at UNC, and published by VanDerwarker, Scarry, and Eastman (2007) provides the opportunity to study the relationship between settlement patterning and food use at Upper Saratown. Ten features were analyzed in total. The complete list of taxa identified from Upper Saratown includes introduced and indigenous cultigens, small and large fruits, nuts, and miscellaneous resources (VanDerwarker et al. 2007:26-28). Identified crops compare well with those recovered from contemporaneous contact period sites in the North Carolina Piedmont (Gremillion 1993a). Indigenous seed crops were used in small quantities and could have perhaps served as cultivated or wild resources included in breads or stews (VanDerwarker et. al 2007:25). Fruits and nuts were gathered from the wild and had the potential to be processed for use in future months. Maize, beans, and peach constitute the introduced cultigens present at the site. Maize was most often stored on the cob or bare cobs were used as sources of fuel (VanDerwarker et al. 2007:25). Although most features contained similar quantities of taxa included in the overall plant assemblage, two features, Features 52 and 170, were designated through Principal Components Analysis as special features that differ from the general domestic assemblage and have the potential to explain communal foodways.

Feature 52, dated to the Middle Contact period, contains primarily processing debris, including maize cobs, maize cupules, and hickory shell (VanDerwarker et al. 2007:41). Large fruits were also present, and their late summer ripening period suggests an early maize harvest. The abundance of maize and other processing debris in Feature 52 has been tentatively interpreted as the remains of the busk or Green Corn ceremony, a ritual event involving the harvesting and consumption of newly ripened maize (VanDerwarker et al. 2007:18, 34). The busk ceremony was used to restore balance and solidify communal identity during the contact period (Hudson 1976:366). In the Lower Southeast, this ceremony may have been used during Mississippian times (A.D. 1000-1550) to reinforce status distinctions (Knight 2010). Among egalitarian groups, the busk ceremony likely served as a means of renewal that fostered solidarity among community members (Hudson 1976:371-375).

Dated to the Late Contact period, Feature 170 contains the largest quantity of bean at Upper Saratown and is dominated by maize kernel and acorn remains (shell and nutmeat) (VanDerwarker et al. 2007:41). Relatively few fruit seeds were recovered from Feature 170, a phenomenon that may be attributed to a growing reliance on agricultural activity in response to increased warfare (VanDerwarker et al. 2007:44). Providing evidence of the destruction of consumable foods, Feature 170 has been interpreted as representing an attempt at community renewal through ritual (VanDerwarker et al. 2007:44). Although the site plan for Upper Saratown changed relatively little over the course of the Middle and Late contact periods, botanical evidence reveals potential differences in the subsistence behaviors that site inhabitants performed over time. Ritual eating events are associated with the intentional deposition of plant consumption debris. The differential representation of resource density at the Upper Saratown site raises important questions for archaeologists' current understandings of feasting behaviors.

Descriptions of feasts range widely in scale, menus, and cultural intent (Dietler and Hayden 2010; Twiss 2007; Kassabaum 2010). Recently, discussions pertaining to feasting and communal eating practices have diverged from the dichotomy of feasts and non-feasts to a more continuous model, which incorporates middle-ground characteristics (Twiss 2007; Kassabaum 2010). Although the word feast typically invokes images of exotic foods, episodes involving increased abundance of common domestic resources may also be considered special eating events that broadcast social messages (Van der Veen 2003:408; see Appadurai 1986). Upper Saratown provides an example of the operation of an abundance model of middle-ground specialized eating practices in the North Carolina Piedmont. Specialized features at Upper

Saratown contain ordinary taxa that link people, landscape, and community in a ritual manner that reflects the performance of social constructions.

When examined with a broad understanding of feasting in mind, comparative evidence of subsistence practices and specialized eating events during the Late Woodland and Contact periods sheds light on foodways practiced by Wall and Jenrette inhabitants. My archaeobotanical analysis of large pits at the Wall and Jenrette sites reveals changes in foodways over time. Additionally, plant remains recovered from these pits suggest that Wall and Jenrette residents processed small quantities of food as a community in a manner that differs from the ritual activities taking place at Upper Saratown.

Preference for specific subsistence taxa at Wall and Jenrette aligns with trends in landscape use associated with the construction of palisaded villages in the North Carolina Piedmont. Wall and Jenrette inhabitants ventured outside of the palisade walls to cultivate maize fields, collect wild fruits, and harvest nut resources. The nearby Eno River likely functioned as a rich area for fruit exploitation and modern forest coverage surrounding the Hillsborough Archaeological District may signify locations of nut groves in earlier periods. Indigenous plant resources appear to have played a minor role in foodways and, as suggested by VanDerwarker et al. (2007) for the Upper Saratown site, some may have been collected from the wild rather than cultivated.

Wall site pits analyzed in this thesis conform to the general subsistence strategy of the Late Woodland period demonstrated by the Powerplant site, while also providing plausible evidence of communal processing of everyday foods. The pits that I analyzed provide the first archaeobotanical evidence from intact secondary contexts at the Wall site. Maize, acorn, and hickory were among the most common and abundant resources exploited. All of these taxa could be harvested near the village and stored for long periods, likely in above ground facilities (Ward and Davis 1999). Counts for maize, acorn shell, and hickory shell far exceed those demonstrated for the earlier Powerplant site (Gremillion 1989:325). The widespread abundance of maize cupule, acorn shell, and hickory shell at the Wall site suggests that if processing activities took place close to where processing debris was deposited then these activities occurred outside of houses and across the northern portion of the site. However, the number of palisades erected at the site makes it unclear whether these activities took place outside of the palisade wall. The labor required to process such quantities of maize cupule, acorn, and hickory could have represented the collaborative efforts of community members living within the palisade. Indigenous cultigens are few in number and appear to have played a minor role in subsistence at the Wall site.

Maize seems to have been more heavily exploited at the Wall site than the later Jenrette site. Standardized cupule values are significantly greater for the Wall site, but no features are designated as outliers. Maize processing at the Wall site does not appear to have been a ritual activity. Whereas Features 52 and 170 at Upper Saratown contain large quantities of maize cob suggesting the consumption of unprocessed maize, cobs are absent from Wall site features abundant in maize cupule remains (VanDerwarker et al. 2007:42). Increased reliance on maize at the Wall site in comparison to the Jenrette site may be related to the newcomer status of the inhabitants of the Wall site. Anxious to forage in territories far outside of the settlement, Wall site inhabitants may have found growing maize to be a subsistence strategy that kept them close to the palisade. An alternative explanation is that the population of the Wall site was greater than that of the later Jenrette site. Maize harvests provided quick sources of carbohydrates and could have met the subsistence needs of more people with less labor than foraging.

At the Jenrette site, archaeobotanical study of larger pits contributes a sense of the subsistence-related activities that occurred in the northern portion of the site. Nearly all taxa identified in these features were also identified in features located in the central and southeast regions of the site. Acorn and hickory are comparable in abundance to the Wall site and utilization of these nearby staples appears to have been similar over time. However, box plot analysis of maize to acorn shell and maize to hickory shell ratios suggest a change in subsistence resources that were relied on over time. Fruits resources used by the inhabitants of the Jenrette site are identical to those used by Wall site inhabitants with the exception of peach. A weedy crop, peach spreads rapidly in disturbed areas and has the potential to germinate spontaneously (Gremillion 1993b:17). Peach may have been more intensively utilized than other fruits at the Jenrette site as much of the flesh can be preserved through drying and trees may have been actively managed and cultivated close to the palisade wall as well as along the banks of the Eno River. Indigenous cultigens play a minor role in subsistence at the Jenrette site. However, evidence of domesticated sumpweed suggests horticultural investment in this crop that may be indicative of intentional planting in small garden plots inside and outside of the palisade wall.

Two large pits differ in composition from the rest of the Jenrette assemblage. Feature 157 is rich in hickory and acorn shell and appears to indicate an area in which burned nut processing debris, potentially used as fuel, was consolidated. Primarily composed of maize cupule and distinctly separated in both correspondence analysis and box plot assays, Feature 158 appears to signify a specialized deposit representative of a maize processing event. The absence of cob fragments makes explanations of this feature as a smudge pit or busk ceremony refuse unlikely. Features 157 and 158 are located adjacent to each other and outside of the palisade walls.

Whereas maize processing events appear to have been widespread on the Wall site, they may have been more spatially consolidated on the Jenrette site.

Archaeobotanical remains recovered from the Wall and Jenrette sites further understandings of domestic and communal foodways during the Late Woodland and Early Contact periods. Intra-site analysis of large pit features from both sites qualifies the intensity of adaptations in site plan, landscape use, and agricultural investment that occurred during the Piedmont Village Tradition phase and afterwards. Wall and Jenrette should be seen as providing examples of group processing of everyday foods that contrast the intensive communal rituals that took place at Upper Saratown during the Middle and Late Contact periods. Features with a richer diversity of plant foods may represent other communal activities, such as the collective deposition of household sweepings or processing debris used as fuel. Large pit features at Wall and Jenrette reflect attention to community in the North Carolina Piedmont, a trend that withstood the test of time even as European contact began to threaten their very infrastructure.

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Appendix A
Botanical Weight Data for Wall and Jenrette

In Appendix A, I present botanical weights collected during analyses performed by Gremillion and myself. Although weights were not incorporated in the statistical assays performed for this thesis, weight data serves as another means of measuring the abundance of plant taxa in a given assemblage.

Table A-1. Wall Site Plant Weights Recorded by Melton

	F 70	**F 71**	**F 72**	**F 76**	**F 77**	**F 78**	**F 79**	**F 82**
Total plant weight (g)	2.54	1.63	0.66	1.77	4.40	10.40	3.41	8.05
Wood weight (g)	1.36	1.35	0.38	0.48	3.77	1.98	0.90	6.64
Volume (L)	10.00	10.00	10.00	10.00	10.00	30.00	20.00	60.00
Cultigens								
Common bean						0.01		
Maize cupule	0.35	0.08		0.09	0.13	0.28	2.39	0.12
Maize kernel						0.02		0.03
Fruits								
Persimmon								0.27
Nuts								
Acorn nutmeat	0.03				0.05			0.17
Acorn shell	0.24	0.09	0.02		0.22	0.03	0.01	0.59
Beech nut	0.03							
Hickory shell	0.53	0.11	0.26	1.20	0.23	8.09	0.11	0.04
Miscellaneous								
Bean/persimmon								0.19

Table A-2. Wall Site Plant Weights Recorded by Gremillion[a]

	F 1-84	**F 2-84**	**F 3-84**	**F 4-84**	**F 5-84**	**Midden**
Total plant weight (g)	0.15	0.17	13.49	3.70	1.32	106.94
Wood weight (g)	0.03	0.10	12.46	3.32	0.95	67.75
Volume (L)	10.00	10.00	13.00	28.00	10.00	200.00
Cultigens						
Common bean						0.25
Maize cupule	0.06					2.69
Maize kernel						0.45
Nuts						
Acorn nutmeat			0.08			0.23
Acorn shell			0.09	0.05	0.04	2.76
Hickory shell		0.04	0.42	0.04	0.24	23.07
Walnut shell						1.10
Miscellaneous						
Seeds	0.02		0.01	0.04		0.36
Monocot stem						0.19
Unknown	0.04	0.03	0.43	0.25	0.09	8.09

[a]Adapted from Gremillion 1989:276-277

Table A-3. Jenrette Site Plant Weights Recorded by Melton

	F 152	F 153	F 157	F 158	F 170	F 210
Total plant weight (g)	3.31	0.45	164.67	8.16	4.32	1.49
Wood weight (g)	2.46	0.43	2.57	2.71	0.51	0.46
Volume (L)	20.00	10.00	10.00	10.00	10.00	10.00
Cultigens						
Maize cupules	0.06		0.05	3.93	0.04	
Maize kernels	0.06	0.02	0.05	0.02	0.03	
Fruits						
Peach			1.44			
Nuts						
Acorn nutmeat	0.13		0.69	0.13	0.07	
Acorn shell	0.45		17.67	0.09	0.09	
Hickory shell	0.15		142.04	0.94	3.58	1.03
Walnut shell				0.34		
Miscellaneous						
Probable fruit			0.16			

Table A-4. Jenrette Site Plant Weights Recorded by Gremillion[a]

	F 62	F 63	F 64	F 65	F 66	F 67	F 68	F 70	F 71	F 75	F 77	F 78	F 79	F 84	F 85	F 86
Total plant weight (g)	2.66	5.61	1.26	3.49	4.01	5.73	4.68	1.82	2.37	8.99	3.36	5.85	2.51	14.63	54.10	4.28
Wood weight (g)	2.51	5.19	1.20	2.13	3.27	4.47	4.67	1.64	1.96	6.37	3.35	5.17	1.94	13.53	9.35	3.05
Volume (L)	10.00	10.00	10.00	20.00	10.00	20.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	12.50	20.00	10.00
Cultigens																
Common bean																
Maize cupule	0.01															
Maize kernel	0.03	0.05		0.04						0.01			0.07	0.04	0.08	
Gourd rind										0.01						
Fruits																
Peach				0.17				0.03	0.04				0.01	0.02	0.43	
Nuts																
Acorn nutmeat												0.06				
Acorn shell		0.02		0.05	0.03	0.19	0.01			0.06	0.01	0.15	0.02	0.12	0.02	
Hickory shell	0.06	0.13	0.02	0.94	0.68	0.71		0.11	0.34	1.32		0.20	0.25	0.60	41.54	1.03
Walnut shell	0.02	0.01				0.22		0.01					0.04		1.89	
Miscellaneous																
Cane															0.03	
Pedicel/petiole																
Seeds										0.02				0.07	0.12	
Unidentified nutmeat						0.08										
Unidentified													0.02	0.01		
Unknown plants		0.05	0.04	0.16	0.03	0.04		0.03	0.03	1.20		0.27	0.16	0.24	0.64	0.20

[a]Adapted from Gremillion 1993: 374-378

Table A-4. Jenrette Site Plant Weights Recorded by Gremillion[a] (continued)

	F 87	F 90	F 91	F 92	F 95	F 96	F 98	F 99	F 113	F 114	F 116	F 118	F 120	F 121	F 122	F 123	F 124
Total plant weight (g)	0.85	0.49	0.69	1.15	18.49	17.44	8.16	10.33	0.98	8.37	5.34	0.37	5.80	5.84	34.13	2.04	1.16
Wood weight (g)	0.56	0.31	0.39	0.99	7.14	10.23	5.08	8.90	0.43	7.69	4.35	0.36	2.52	4.54	25.40	1.29	1.15
Volume (L)	10.00	10.00	10.00	30.00	20.00	10.00	20.00	30.00	20.00	10.00	2.50	10.00	10.00	15.00	10.00	10.00	10.00
Cultigens																	
Common bean																	
Maize cupule																	
Maize kernel				0.01	0.06	0.02			0.50	0.12					0.04	0.01	
Gourd rind															0.01		
Fruits																	
Peach	0.07			0.08			2.83			0.18	0.79				0.66		
Nuts																	
Acorn nutmeat																	
Acorn shell		0.02			0.01	3.53		0.06					0.01	0.04	0.60		
Hickory shell		0.09	0.05	0.05	8.32	2.32	0.05	1.05	0.05	0.24		0.01	1.79	0.24	5.54	0.71	0.01
Walnut shell			0.18		1.62	0.17		0.02		0.11			1.45		0.02	0.03	
Miscellaneous																	
Cane																	
Pedicel/petiole								0.01									
Seeds		0.05			0.52	0.01	0.02			0.01	0.01			0.02			
Unidentified nutmeat															0.01		
Unidentified					0.07												
Unknown plants	0.22	0.02	0.07	0.02	0.75	1.16	0.18	0.29		0.02	0.19		0.03	1.00	1.85		

[a]Adapted from Gremillion 1993: 374-378