South Carolina Antiquities

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Joseph E. Wilkinson, Journal Editor

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LETTER FROM THE EDITOR

JOSEPH E. WILKINSON

The year 2020 rocked the world with a pandemic and forced us all to adapt to new and trying circumstances. While it goes without saying that everyone has been significantly impacted by this, it is also true that the Society faced challenges as well. Thankfully these challenges have been overcome with new approaches to our traditional events, with our Fall Field Day being held virtually this year for the very first time. We are all of course eager to resume our traditional gatherings in person, but it is also important we recognize the impact that this pandemic had on our membership. I hope that everyone has come through this well.

Despite a dramatic shift in how much of our lives functioned day to day, archaeological works continued in our state as evidenced by the papers herein. Whether it is revisiting older projects with fresh perspectives, or new investigations, I hope the papers in this volume will serve as encouragement that there is still much to be done with archaeology and it has not ceased. Just as this Society has thrived over the previous half century, I hope that we are able to sustain our enthusiasm for archaeology despite temporary adversity. Thanks to all who contributed to this volume.

JUGS, DIVERS, AND RECORDING SITES

Carl Steen, Drew Ruddy, and Linda Carnes-McNaughton

> "There seems to have been always a boat belonging to the plantation, sometimes a sloop, sometimes a schooner. Before the days of steamboats and railroads, this boat made frequent trips to the city, and the family often were passengers on her. At such times the hold was arranged like a room, as a calm or a headwind sometimes made the passage long. There used to be at Comingtee a low, brown wooden table, and a cup or two of blue china, which had belonged to the boat" (Deas 1909: 15).

This boat would have been moored at the wharf for the rice mill (Figure 1) at the Stoke Plantation settlement, where all the buildings were painted white, with red trim (Deas 1909: 150). At this settlement there was a threshing mill, a rice barn, a coopers shop, boat houses and houses for the workers. This would have been a colorful landmark for river travelers in the 18th and 19th century, as the old mill ruin is today, and when the plantation was active, it would be the site of much activity, with people loading or unloading the boat, processing rice, making barrels, and, sometimes, fishing for supper.

Stoke and Comingtee are located at the Tee of the Cooper River - the point where the East and West branches diverge (Figure 2). This is roughly 20 miles from downtown Charleston, as the crow flies. There were no stores or shops in the area, and everything had to be purchased in Charleston and transported by boat or wagon. Before the building of hard surface roads in the 20th century the river was a much better alternative, both for casual travel and shipping goods to market.

The first SCUBA dives in the Cooper River in 1969 and 70 were conducted by a handful of underwater explorers in search of submerged history. Diving the plantation waterfronts, they discovered that pretty much every landing was marked by a scatter of artifacts that in some cases included the wrecks of barges, dugout canoes called Periaugers in historic times which were similar to the canoes used by Native Americans before Europeans arrived, as well as river boats and sometimes even ocean-going ships.

At Mepkin Plantation, a couple of miles upriver from the Stokes Mill site, divers found a sloop that contained eleven stoneware jugs, wine bottles and two hammers (Ruddy 2001, Vezeau 2004). While most finds are more along the lines of fragments of the "blue china cups" Anne Simons Deas mentioned in her 1909 book, occasionally divers have found whole bottles, stoneware jugs, colonoware pots, Native American vessels, tobacco pipes, pewter spoons, buttons and coins. In fact, nearly all of the whole colonoware vessels that Dr. Leland Ferguson used for his book "Uncommon Ground" (Ferguson 1993) were found by divers, so the contribution of divers to Historical Archaeology is great.

In an early attempt to bring order to the collecting activity a program of salvage licensing was established. In 1974, SCIAA underwater salvage leases were awarded to Wade Quattlebaum and Kevin Rooney and during that summer, thousands of prehistoric and historic artifacts were recovered from the Cooper River between Mepkin Plantation and Childsbury (Harris et al. 1993).

By the mid-1970s, a few divers were developing an interest in recovering Miocene fossils which were prevalent from when this land was at the bottom of the ocean. Available in large quantities were the huge teeth from the massive Megalodon shark species that lived here between about 3.5 and 25 million years ago. Divers also recovered Pleistocene fossils from the Ice Age megafauna such as the woolly mammoth and mastodon.

In about 1976, sport diver Kevin Rooney found an intact salt glazed stoneware jug at the Stoke landing (Figure 3). This was recorded as site 38BK284 in 1978 by SCIAA diver Ralph Wilbanks, and revisited by SC State Museum divers under the

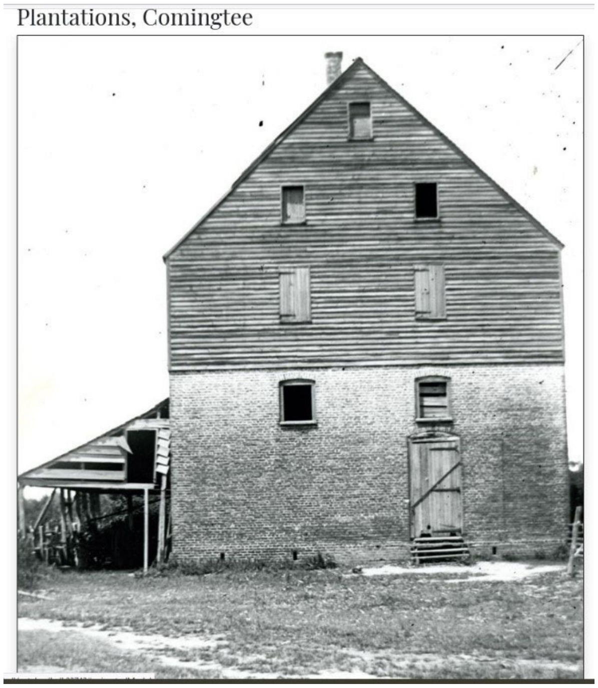

Figure 1: The rice mill at Stoke/Comingtee c. 1930 (W.H. Johnson Scrapbook).

Figure 2: Area of the Tee, showing Comingtee. From A Day on Cooper River (Irving/Stoney 1932).

direction of Julian Wiggins the following year. They were seeking fossils for display, and the stretch of river bottom at this location was an ideal spot. This is a popular dive spot that has been visited, probably, hundreds, if not thousands of times by now.

The stoneware jug mentioned above is particularly interesting in that it bears the stamp of the Goodwin and Webster Pottery, of Hartford, Connecticut (Webster 1980). One of the Mepkin jugs was also made in Hartford at the Peter Cross pottery (c. 1805-1818 - Figure 5), and another was from the Robert and Thomas Swaine Pottery (c. 1825-1845 (Figure 6), of Sutton Heath, in England (Vezeau 2004). Another was made in the Old Edgefield District of SC. The other eight were unmarked, but appear to be domestic in origin. These discoveries provide physical evidence for a practice that was known throughout the Colonial and Antebellum Periods: intercolonial and international trade. Both Comingtee/Stoke and Mepkin were busy rice plantations, serving domestic and foreign markets (Steen 1999).

But the discovery of the Goodwin and Webster vessel is important for another reason as well. Seeing a market opening members of the Webster clan soon "invaded" North Carolina, contributing to the rich pottery history of the state (Zug 1986). The second earliest salt-glazed stoneware production in North Carolina, began in Cumberland County, not far from the town spring of Fayetteville. This was established by entrepreneur Gurdon Robins in 1819-1820, who enticed three potters from the Webster family of Hartford, Connecticut, to join him in the business.

Fayetteville was a budding commercial town, then, located along the Cape Fear River. Brothers Edward Timothy, and Chester moved south to operate this business. For a brief time Robins partnered with Timothy Savage, but that partnership did not last. One whole jug stamped "Gurdon Robins and Co/Fayetteville" documents that early partnership. Edward Webster, born in 1801, was most likely trained by his uncle, McCloud Webster and cousin, Horace Goodwin where the "Goodwin and Webster, Hartford" jug was made. This company was in business from 1810 to 1840. It is not surprising then to find jugs and jars produced by the Webster brothers at the Fayetteville pottery factory strongly resemble those found in Connecticut, as their styles changed very little when they moved south. Some salt-glazed

Figure 3: The Goodwin and Webster jug (photo by Drew Ruddy).

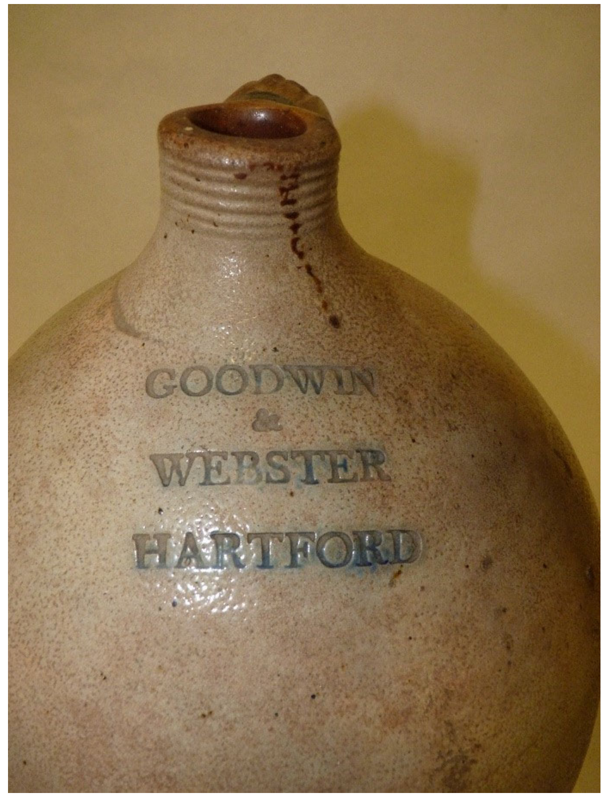

Figure 4:Mark detail (photo by Drew Ruddy).

wares produced at this shop also featured a salt over an iron-bearing slip, commonly found in New England wares too. The shapes were bulbous body with a finely tooled neck and narrow base and strap handles that attached at the shoulder and below the cordoned lip, as seen in Figure 3 and 4.

By the fall of 1823 Robins' stoneware factory failed and he returned to Hartford. Edward Webster (the middle brother) ran the shop for a while longer, until around 1830, and stamped his jugs with the singular "Edward Webster/Fayetteville", several of these survive today in museums and private collections. Records indicate the shop failed by 1837, partially due to the economic collapse and change in markets and the rich variety of imported wares being imported up the Cape Fear River. Chester and Timothy relocated west into Randolph County, North Carolina, where a stoneware industry was blossoming, initiated by the clay clans of Cravens, Coles, Foxes, and Owens. Chester (the older brother) immediately joined up with Bartlet Yancy Craven and began to expand his repertoire of wares beyond jugs and jars to include cups, ring jugs, pitchers, rundlets and crocks. These he incised with elaborate birds, fish, flowers, patriotic and masonic emblems, some with iron or cobalt accents, expressing decorative traits also closely linked to New England salt-glazed stonewares. Examples of his decorated wares bring high dollar at local auctions, many dating between 1840s to 1879 period of production.

The Edgefield piece shown in Figure 7 also reflects the "invisible hand" of the market, as Adam Smith would say. In the first decade of the 19th century trade between Europe and the US was disrupted by the ongoing wars between Britain and France. Northern potters began looking for suitable clays for making stoneware and porcelain, and placed an ad in the Savannah Newspaper. This spurred Dr. Abner Landrum to begin experimenting with pottery manufacture at his brother Rev. John Landrum's farm (Steen 2014). His dream of making "fine wares" soon passed, but he and his brothers established a stoneware facility to serve the local plantation market, as cotton production caused a huge increase in the slave population. The vessel found on the Mepkin vessel is exceptional in in its completeness, but alkaline glazed stoneware sherds are commonly found on plantation sites throughout the state.

This is true of the northern salt glazed vessels as well. Stoneware is extremely valuable for food and liquid storage, and with a burgeoning population, plantations needed to be able to keep food supplies as stable as possible. The fact that we find numerous sherds of these vessels on land, but can only rarely identify their manufacturers makes the few whole pieces found in underwater contexts all the more valuable, from a research perspective.

Recording Sites

Recently co-author Steen (hereafter "I") was doing research on underwater archaeological sites recorded in the Cooper River. What I found, basically, was that when the "Hobby Diver" program was established in the 1970s, a number of active divers reported sites - places where they had found artifacts - to SCIAA. They sent a crew, usually led by staff diver, Ralph Wilbanks, to take a look, make a collection, and record the site with the state site files. This was not intended to be the final word on any of these sites, but simply to say, there's a shipwreck here, or a plantation landing scatter there, or a Native American site, or whatever, to allow someone interested in a given topic to: A) know a site exists and B) relocate it for further work. Unfortunately, after Ralph left SCIAA this effort slowed considerably. In their defense, the Underwater Division at SCIAA was, and for that matter, still is, severely understaffed, and for them, days on the water are sadly lacking. Only a few underwater sites have been recorded in the intervening years even though more people are diving than ever. You, the diving community, can help.

South Carolina is somewhat unique in that our underwater regulations allow divers to collect artifacts in return for sharing the information. While there are some artifacts and some sites we might want to protect and save for the public good, for the most part the folks at the Underwater Division don't have time to visit each site, and don't have space to store any artifacts found there. In other words, while we (by this I mean archaeologists and people interested in history) may think it is really cool that you (the diver) found a whole 18th century wine bottle, we are more interested in knowing where it was found and what else might be there than in confiscating a bottle to sit on a shelf somewhere. And unless an ambitious and energetic graduate student gets involved, it is highly unlikely that the Underwater Division will be able to do much more than take note of your discovery, because they just don't have the crew needed to look at every interesting site they hear of. I have heard divers complain that they reported a site or find to SCIAA only to be ignored. It is not that the folks at SCIAA don't care, they just have too many interesting things reported to check them all out.

When the Hobby Diver program was being developed there were only a few people diving in South Carolina, and many of them were very secretive about where they found things, because there were other divers out there who wanted to find sites as well. When it was discovered that some artifacts were actually worth money, and that there was a market for them, that took the secretiveness to a whole different level. And there's probably justification for this. For example, one site Ralph Wilbanks recorded on the East Branch of the Cooper was said to be a very popular dive site that everyone called "The Bottle Place" because, supposedly, hundreds of bottles had been found there. When Ralph dived the site he found a few potsherds and rusty metal objects, but no bottles at all. Divers had scoured the site.

Under the law this is fair enough. If a diver collects a hundred bottles somewhere and reports them on their Hobby License report, again, fair enough. The diver gets the bottles, the archaeological community gets the knowledge. Unfortunately, from a research perspective, in their zeal to protect diver privacy, the people who designed the program tied the reports to the individual divers, not the sites. An individual diver might visit four or five sites on a single trip, and thus the objects they find might get reported, but specifically where they were found might not be reported.

So this is why it is important to accurately record sites. The site files are confidential, and would only be shared with people with a "need to know." For example, when Nucor Steel built their dock facilities it was at the site of an old plantation

Figure 5: The Peter Cross jug (photo by Drew Ruddy, from Vezeau 2004: 32).

Figure 7: The Edgefield jug. From the John Landrum pottery (c. 1810-1847) (photo by Drew Ruddy, from Vezeau 2004: 30).

Figure 6: The Swaine jug (photo by Drew Ruddy, from Vezeau 2004: 38).

Figure 8: Mepkin Divers, from left Drew Ruddy, Julian Muckenfuss, Captain Bob Densler, Robert Densler Sr. (photo by Drew Ruddy, from Vezeau 2004: 24).

landing where multiple artifact scatters and sunken boats had been reported. Before they could get their permits Nucor had to have the sites examined and assessed by professionals. SCIAA shared their information with the professionals hired for the job, but the site files are not open to the public. They will not disclose this information to just anyone. So reporting sites is valuable for research and site protection purposes, but it is not intended to be a guide for random people to find sites and collect everything they see.

Before the days of GPS and online maps reporting sites was complicated. Without good maps finds were often reported as being "in the middle of the channel on the first major bend of the river above the mouth of French Quarter Creek" or something like that. More often than not the sites could not be relocated. And the site form was a problem too, because it called for information most of us did not have right at hand: USGS quad maps, soil surveys, UTM coordinates, and so on. It was such a hassle, in fact, that many professionals fail to report sites. This was the case for land sites as well as underwater sites. Last year an "Avocational Site Form" was developed that makes the task much easier. Further information can be found here: http://artsandsciences.sc.edu/sciaa/division-state-archaeologist

Go to the bottom of the page and there will be links to the manual, the avocational site form, and a guide to using Google Earth to map your site. Further information on underwater sites can be found at the Maritime Research Division's web site: https://www.artsandsciences.sc.edu/sciaa/mrd/hobbydiverlicense. You can also call the state archaeologist or state underwater archaeologist at 803-777-8170.

In summary, we need to know where people are finding artifacts, not just that artifacts are being found, and we need your help. You don't have to worry about the archaeological community confiscating your finds, or telling the world where you found them. Filling out site forms used to be a daunting task, but nowadays it is much easier. Recording sites helps us to preserve and understand them. So, please help!

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Lithic Technology at Precontact Site 38LA355 and the Exploitation of Locally Available Raw Materials in the Haile Gold Mine Region of South Carolina

Shawn M. Patch

Site 38LA355 was first identified by Pluckhan and Braley (1993). Cable and Price (2009) conducted additional archaeological work that yielded a large lithic assemblage (n=8,208) dominated by debitage, with high frequencies of locally available silicates, metavolcanic, and quartz materials. Archaic and Woodland diagnostic artifacts were present, including a possible cache of Middle Woodland Copena points. Patch et al. (2011) conducted data recovery investigations that yielded a large lithic assemblage (n=39,246) and identified 21 distinct activity areas defined by different raw materials (e.g., metavolcanics, quartz, silicate) (Figure 1). The premise in defining these activity areas was that precontact knappers would have focused on a single raw material type during any given site use episode.

This paper summarizes the results of detailed lithic attribute analysis for six activity areas. Based on the lithic data, site-specific activities were focused on producing flakes and early stage bifaces that were then transported off-site. Site 38LA355 was much like quarry, near-quarry, expedient quarry, and quarry-workshop locations (Abbott 1987, 2003; Daniel 2001; Stewart 1987). One of the major interpretations from this study is that the Haile Gold Mine region was specifically visited throughout the precontact period because of its locally available, high quality, and relatively easily accessible lithic raw materials.

Information about the geologic setting is important for understanding the lithic technology of various precontact groups (Andrefsky 1994). Because lithic resources are scarce in the Upper Coastal Plain, any primary and secondary sources in the Haile Gold Mine region would have been attractive to precontact groups. Site 38LA355 is located in the Carolina Slate Belt, which extends from northeast Georgia through the Carolinas into Virginia. The Carolina Slate Belt is well known for its diversity of rock types that were used as sources of stone tools throughout the precontact period (Steponaitis et al. 2006). Raw materials including local silicates (i.e., chert-like, but not defined as a specific type or to a specific geologic formation), quartz, quartzite, a range of metavolcanics (rhyolite, andesite, dacite, tuff), and metasedimentary (argillite, siltstone) are locally available in the Haile Gold Mine region in both primary (outcrop) and secondary (stream beds and gravel deposits) contexts (Overstreet and Bell III 1965). Volcanic and metasedimentary rocks have been mapped northwest of the site and in adjacent drainages (Patch, Seramur, et al. 2011:8). Informal, non-systematic, and opportunistic reconnaissance surveys in and around Haile Gold Mine by both archaeologists and mine staff recorded multiple stone sources of varying quality (Patch, Seramur, et al. 2011:13). In short, the geologic setting indicates the presence of locally available lithic raw materials.

Lithic Assemblage

Of the two excavation blocks excavated at site 38LA355, Block 1 (110 square meters) accounted for the highest artifact frequencies (n=31,103) and was identified as an area of intensive lithic reduction activity (Table 1). Local silicates (n=20,078) dominate the sample with approximately 65 percent of the total, followed by metavolcanic (n=7699) with 25 percent, quartz (n=2,890) with 9 percent, and quartzite (n=417) with 1 percent, and other materials making up the difference. The overwhelming frequencies of local silicate and metavolcanics indicate intensive reduction of locally available materials.

The formal tool assemblage included bifaces (n=49), projectile points (n=16), and cores (n=17)(Table 2, Figures 2 and 3). The entire tool collection is dominated by silicate (49%). Silicate

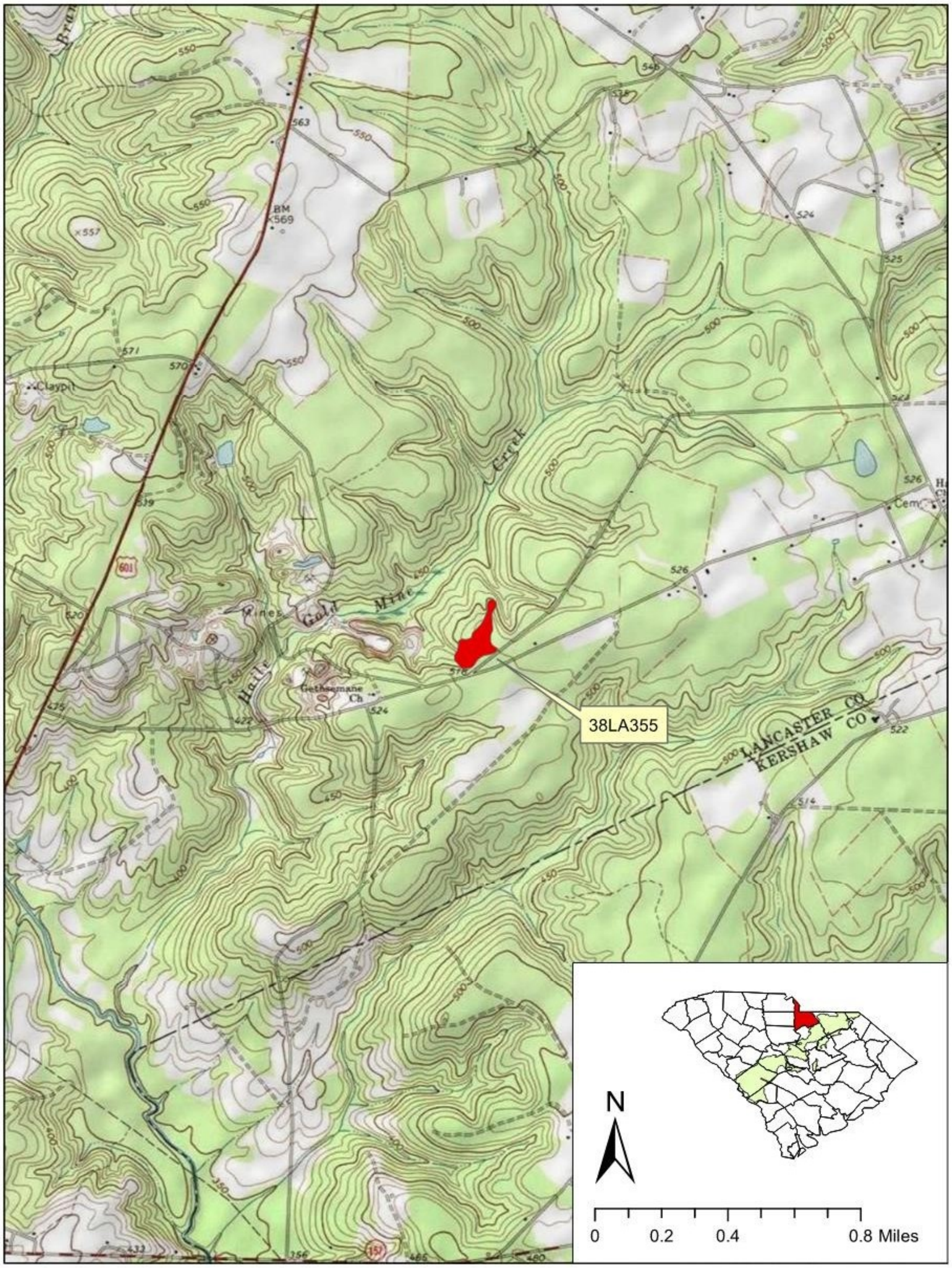


Figure 1: Map of Site 38LA355 from Data Recovery Investigations.

Table 1: Artifacts by Raw Material for Block 1 at Site 38LA355.

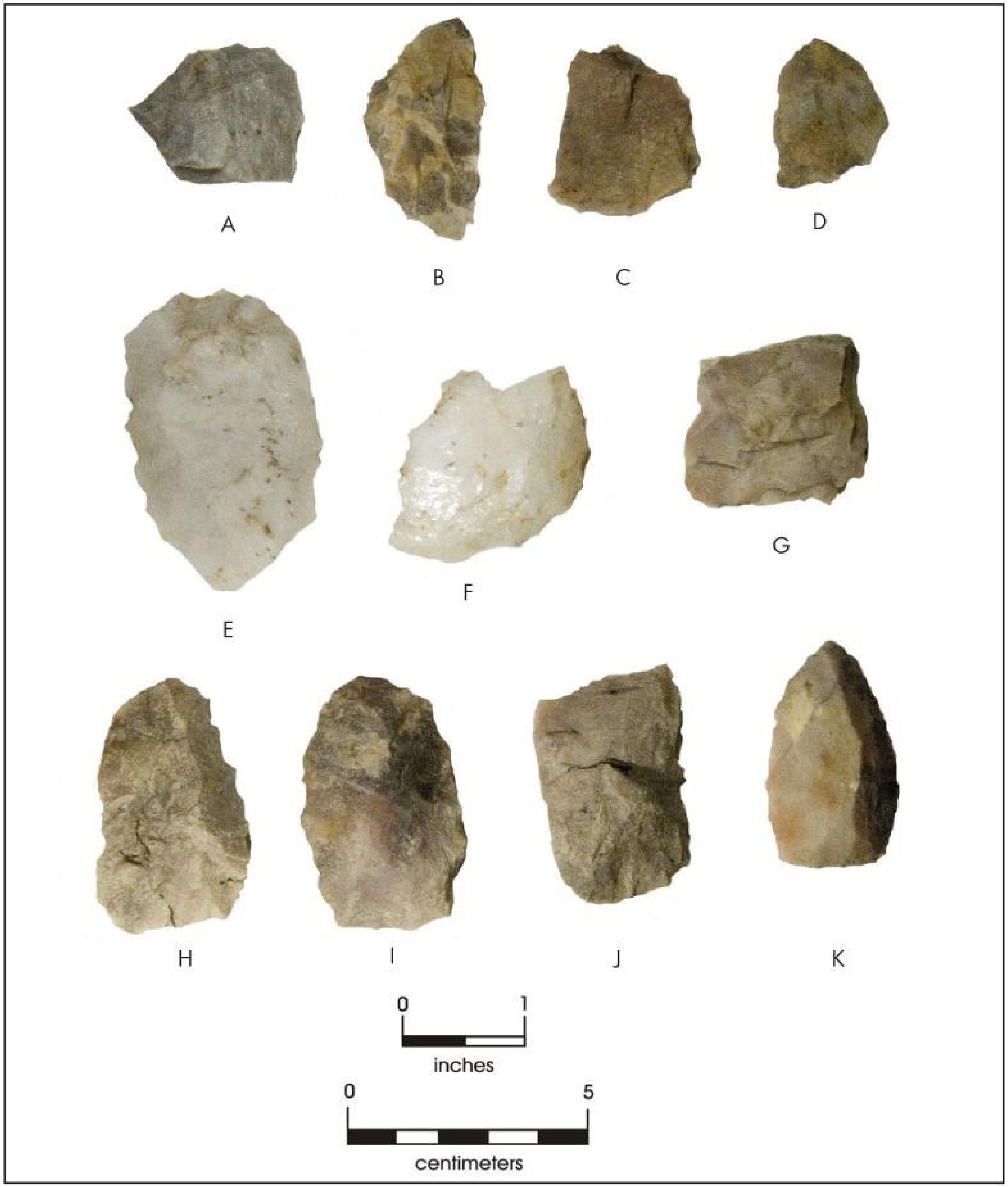
Material	Bannerstone	Biface	Core	Debitage	Projectile Point/Knife	Scraper	Uniface	Total
Chert				3				3
Metavolcanic		12	2	7674	9	1	1	7699
Quartz	1	5	2	2876	6			2890
Quartzite		1	1	415				417
Silicate-Unidentified		31	12	20031	1		3	20078
Unidentified Lithic				16				16
Total	1	49	17	31015	16	1	4	31103

bifaces comprise 70 percent of the early stage, 59 percent of the middle stage, and 65 percent of the late stage, but only six percent of the projectile points. These two trends indicate an overwhelming emphasis on biface production from local silicate materials. Metavolcanics and quartz were also used for biface production, but in lower overall frequencies, except for projectile points where they account for 38 percent and 56 percent of the total, respectively. The higher frequencies of these two materials in this category suggest they were brought to the site and then discarded for a number of reasons. It is unlikely they were manufactured on site. Groups exploiting the local silicate materials would have had the opportunity to replace broken, worn, or otherwise undesirable tools as part of their other activities, such as retooling or gearing up prior to departure (Binford 1978). From that perspective, it makes sense to see higher frequencies of non-silicate materials among projectile points.

Projectile points (n=16) included only a few identifiable types, such as Piedmont Allendale (Bag 1057), Savannah River (Bags 933, 941, 971), Lafayette (Bags 916 and 1019), Otarre (Bag 1068), and general Woodland (Bag 1086) (Figure 4). Two of the Savannah River types have slightly bifurcated bases and clear stems (Figure 4 B and C). Stylistically these are consistent with regional variations noted in other parts of the Sandhills (Patch, Espenshade, et al. 2011). The unidentified tool in Figure 4 H is well executed, but lacks the base, which is typically the most diagnostic element. Spatially, projectile points were distributed across the block, but there were notable concentrations and outliers. For example, several of the unidentified specimens occurred in a rough line from north to south through the central section away from almost all activity areas. The three Savannah River specimens were all recovered from three adjacent units on the eastern edge of the block. The Piedmont Allendale was isolated on the western edge of block away from most activity areas. One of the two Lafayette points was located in the northwestern portion of the block near multiple activity areas, and the other was somewhat isolated in the central section.

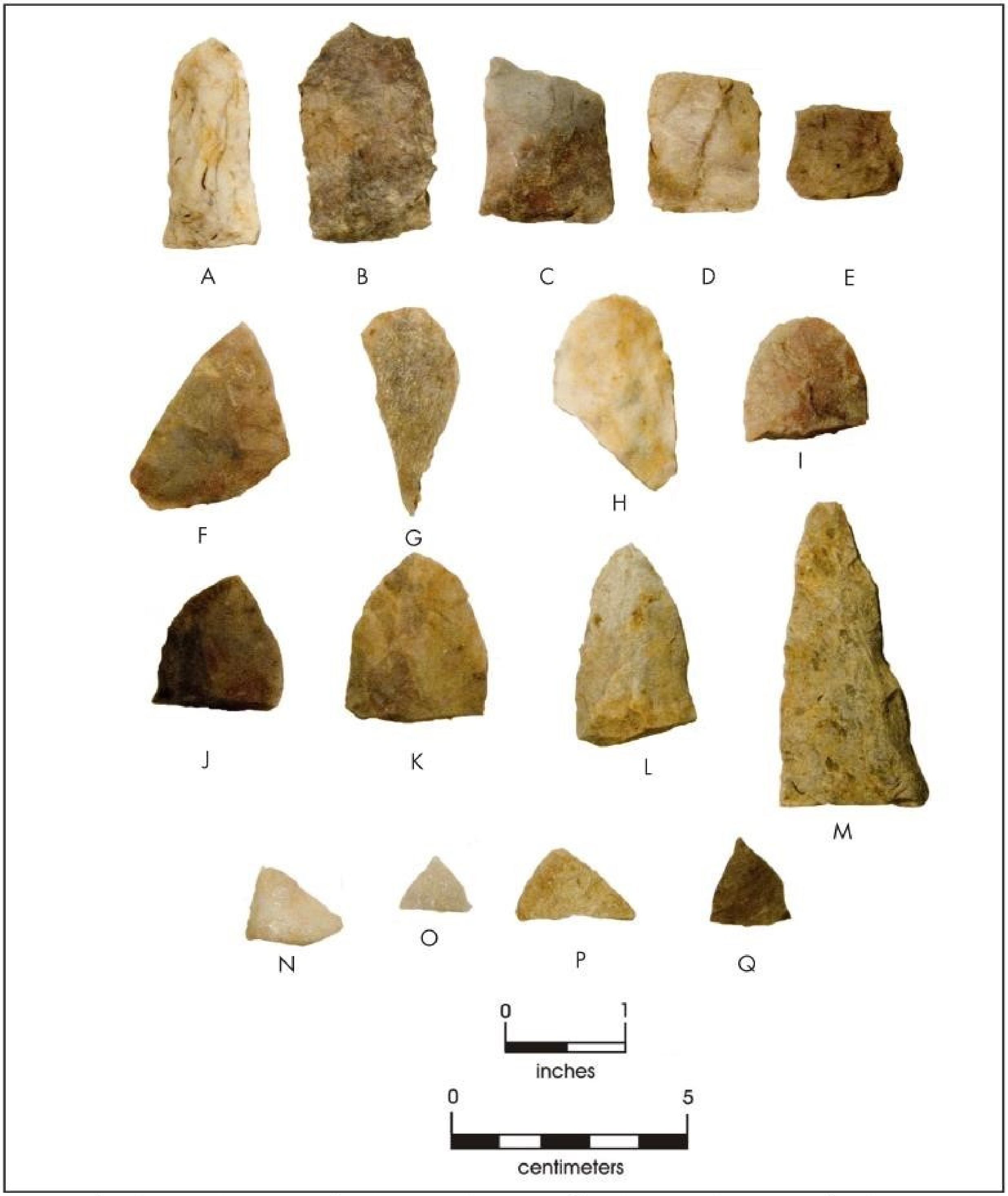
Cores (n=17) recovered from Block 1 and included silicate (n=12), metavolcanic (n=2), blocky quartz (n=2), and quartz (n=1) (Figures 5-8). A single specimen (Bag 761) was classified as bifacial, while all the rest were generalized flake cores. With two exceptions (Bag 1070 and Bag 1241), which had single platforms, all other cores were multidirectional and had multiple platforms. Many of the cores exhibited evidence of multiple step fractures that would have made further flake detachments increasingly difficult. Cortex was present on only a few specimens. These data suggest little preparation was exerted and that cores were exploited in an opportunistic manner to produce useable flakes for other purposes.

A single retouched flake (Bag 871) was the only other lithic tool from Block 1. It had bimarginal



A: Early Biface (Bag 925), B: Early Biface (Bag 937), C: Early Biface (Bag 963), D: Early Biface (Bag 1231), E: Middle Biface (Bag 781), F: Middle Biface (Bag 898), G: Middle Biface (Bag 1044), H: Middle Biface (Bag 1241), I: Middle Biface (Bag 969), J: Middle Biface (Bag 1076), K: Middle Biface (Bag 1087)

Figure 2: Early and Middle Stage Bifaces Recovered from Block 1.



A: Late Biface (Bag985), B: Late Biface (Bag 927), C: Late Biface (Bag1056), D: Late Biface (Bag 1264), E: Late Biface (Bag 998), F: Late Biface (Bag 1038), G: Late Biface (Bag 969), H: Late Biface (Bag 927), I: Late Biface (Bag 1244), J: Late Biface (Bag 868), K: Late Biface (Bag1040, L: Late Biface (Bag 951), M: Late Biface (Bag 746), N: Late Biface (Bag 879), O: Late Biface (955), P: Late Biface (Bag 1062), Q: Late Biface (Bag 894)

Figure 3: Late Stage Bifaces Recovered from Block 1.

Table 2: Bifaces Recovered from Block 1 at Site 38LA355.

Material	Early		Middle		Late		Projectile Points		Grand Total	
	n	%	n	%	n	%	n	%	n	%
Silicate	7	70.00	13	59.09	11	64.71	1	6.25	32	49.23
Metavolcanic	2	20.00	6	27.27	4	23.53	6	37.50	18	27.69
Quartz		0.00	3	13.64	2	11.76	9	56.25	14	21.54
Quartzite	1	10.00		0.00		0.00		0.00	1	1.54
Total	10	100.00	22	100.00	17	100.00	16	100.00	65	100.00

retouch and likely was used for a specific task and then discarded. The almost total lack of expedient tools is a strong indication that most activities in Block 1 were related to lithic reduction rather than processing plant or animal resources.

Activity Areas

The 17 activity areas identified in Block 1 were distributed over a broad area with minimal overlap (Figure 9). Patch et al. (2011:239) conducted detailed lithic attribute analysis of activity areas 355-2, 355-4, 355-6, 355-7, 355-8, and 355-10. The lithic sample (n=3937) represents approximately 12.6 percent of the total assemblage (n=31,094), excluding microdebitage. The six activity areas represent a range of raw materials, including quartz (355-2), silicate (355-4,355-6, 355-7), and metavolcanics (355-8, 355-10, vertical distribution in the block, overall size in square meters, and density (from relatively low to very high)(Table3). More information about sampling procedures can be found in Patch et al. (2011:239–242). Because no features were identified with suitable radiocarbon samples, no absolute dates for available for any of these activity areas. Instead, it was necessary to rely on vertical distributions and associated diagnostic artifacts to infer relative age.

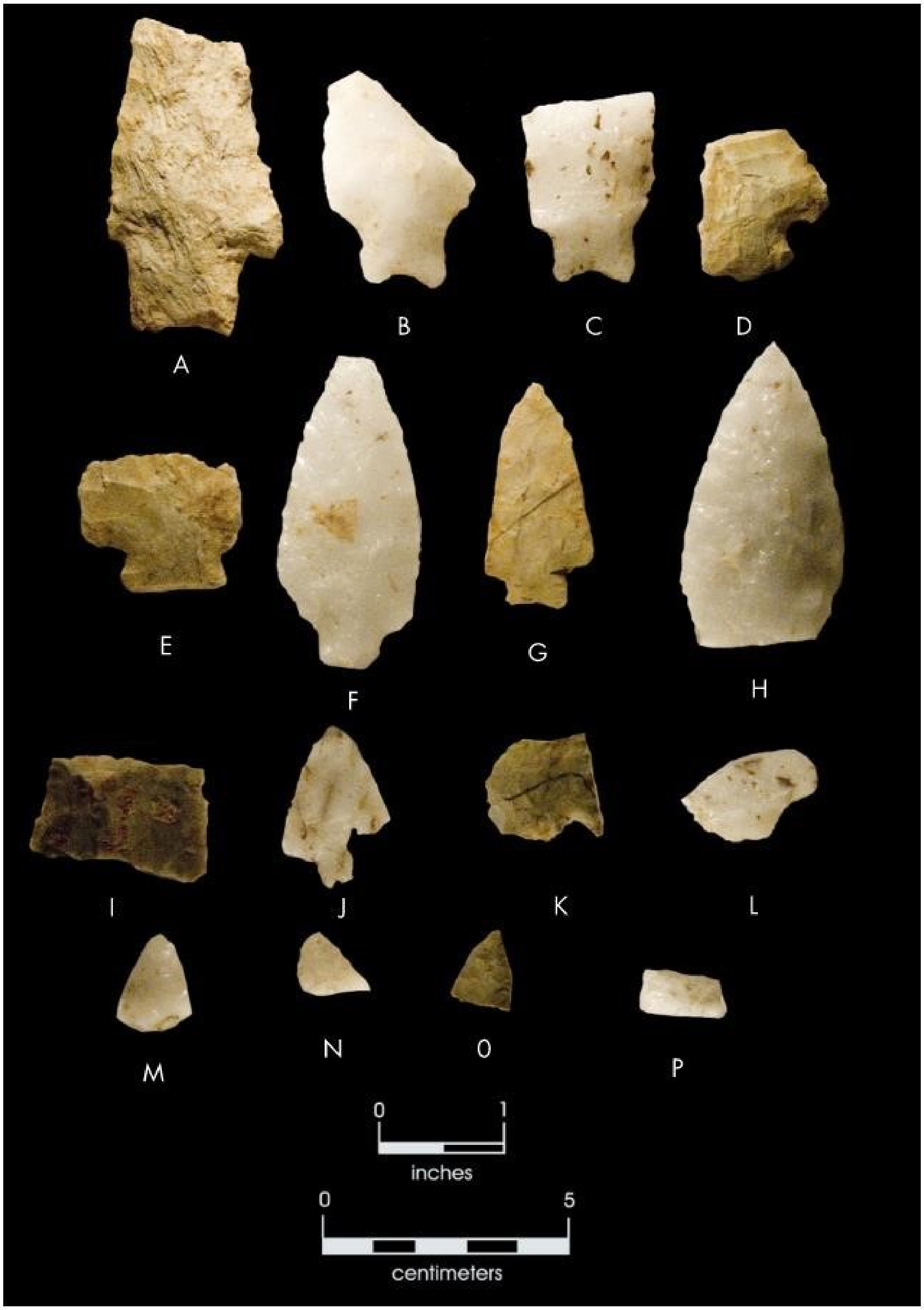
Lithic Attribute Analysis

Debitage is often the most common artifact type at precontact sites (especially quarry and near-quarry sites) and can be highly informative for a variety of research questions (Andrefsky 1998; Blades 2003; Dunnell and Simek 1995; Odell 2003; Patterson 1990; Shott 1989; Sullivan and Rozen 1989,1985). This analysis focused on platform remnant condition, presence/absence of dorsal cortex, completeness, detachment method, termination type, flake size, and flake weight.

Debitage (n=31,015) was by far the most common lithic techno-type. Detailed attribute analysis for debitage focused first on sorting the artifacts into flake type (biface or core reduction), flake fragment, or angular debris (Table 4). Core reduction flakes are indicative of generalized flake production that are more prevalent in early stage reduction (Odell 2003:74). Biface flakes are indicative of biface production that represents an advanced reduction stage. The low frequency of biface flakes in all samples indicates that late stage, intensive, finished tool production was not a major focus. Core reduction flakes show a relatively high frequency of 62 percent for 355-6 but are much more variable in the other samples. Angular debris varies from a low of 14 percent (355-10) to a high of 45 percent (355-7). These data indicate an emphasis on early stage reduction that resulted in high frequencies of core reduction flakes and flake fragments.

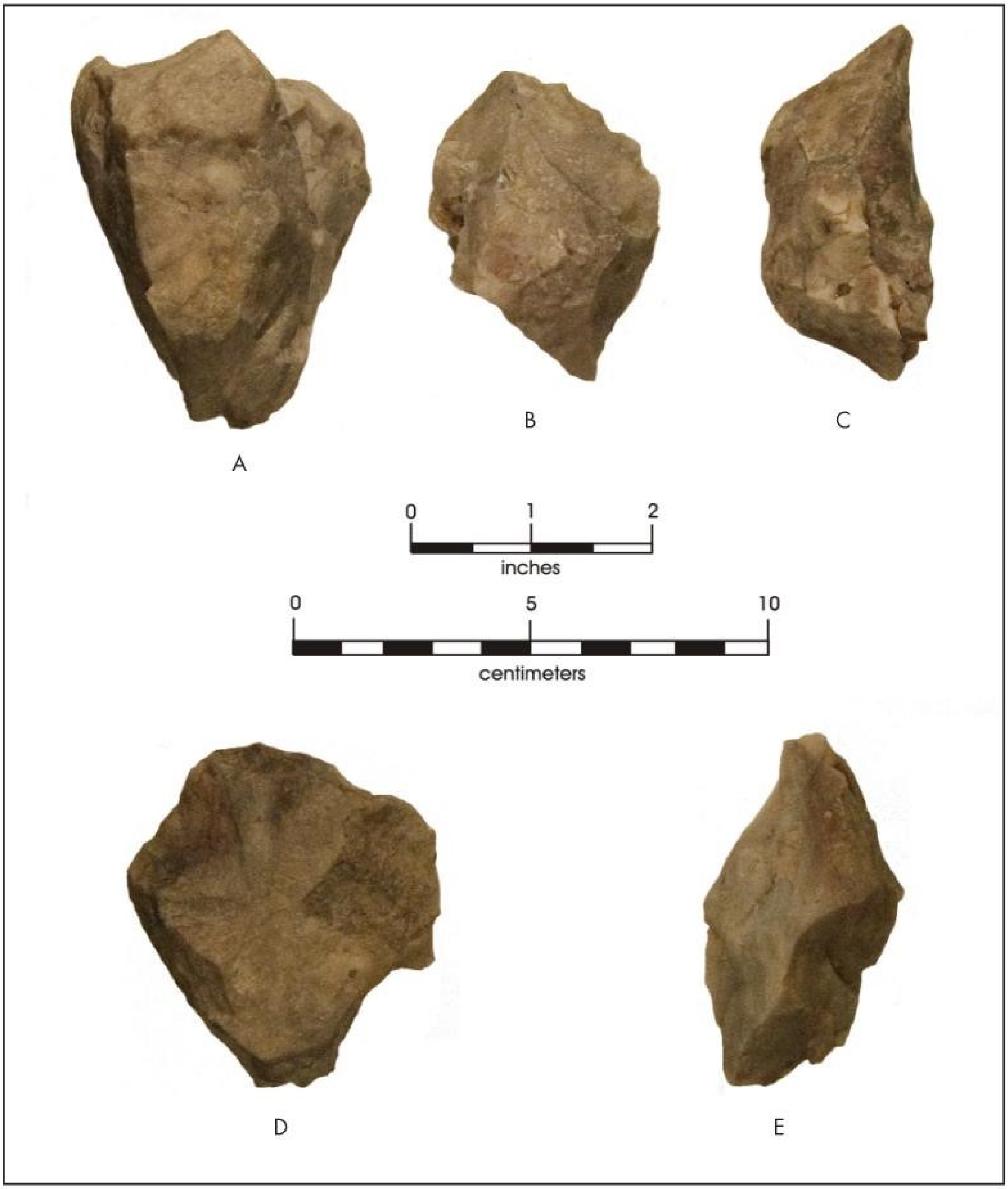
Platform Remnant Condition

Platform remnants have been shown to be the most sensitive to changes in reduction strategies (Andrefsky 1998:88–96). Seven different classes were recorded for the platform remnant (Table 5). However, double-struck (n=5) and faceted (n=21) types occurred in very low frequencies. Four flakes appeared to have no platform remnant. Flat platforms are by far the dominant type for the combined samples with more than 72 percent of the total. In fact, they dominate all samples, from a low of 56 percent to a high of 81 percent. Abraded platform remnants account for approximately 10 percent of the total, followed by cortical at 7.5 percent and crushed at 7 percent. Across all six samples, there was an emphasis on early stage reduction.



A: Savannah River (Bag 941), B: Savannah River (Bag 319), C: Savannah River (Bag 933), D: LaFayette (Bag 916), E: Piedmont Allendale (Bag 1057), F: Otarre (Bag 1068), G: Unidentified (Bag 1059), H: Unidentified (Bag 1265), I: Woodland (Bag 1086), J: Unidentified (Bag 1103), K: Unidentified (Bag 1091), L: Unidentified (Bag 1252), M: Distal (Bag 1234), N: Distal (Bag 1050), O: Distal (Bag 941), P: Distal (Bag 1027)

Figure 4: Projectile Points Recovered from Block 1.



A: Core (Bag 762), B: Core (Bag 762), C: Core (Bag 762), D: Core (Bag 757), E: Core (Bag 757)

Figure 5: Representative Cores from Block 1 (1 of 4).

Table 3: Raw Material frequencies for Analyzed Activity Areas.

Material	355-10		355-2		355-4		355-6		355-7		355-8		Grand Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Blocky Quartz	6	1.41		0.00	2	0.45		0.00	2	0.12	3	1.19	13	0.33
Chert	129	30.28	392	41.57	420	95.24	148	76.29	1592	94.71	14	5.56	2695	68.45
Metavolcanic	264	61.97	55	5.83	14	3.17	42	21.65	72	4.28	226	89.68	673	17.09
Quartz	19	4.46	487	51.64	3	0.68	4	2.06	15	0.89	6	2.38	534	13.56
Quartzite	7	1.64	3	0.32	2	0.45		0.00		0.00	3	1.19	15	0.38
Smokey Quartz	1	0.23	6	0.64		0.00		0.00		0.00		0.00	7	0.18
Grand Total	426	100.00	943	100.00	441	100.00	194	100.00	1681	100.00	252	100.00	3937	100.00

Table 4: Counts and Percentages of Debitage Classes for Analyzed Samples at Site 38LA355.

Debitage Type	355-10		355-2		355-4		355-6		355-7		355-8		Grand Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Angular Debris	36	13.64	190	39.01	131	31.19	7	4.73	720	45.23	54	23.89	1138	36.28
Biface Flake	6	2.27	3	0.62		0.00	5	3.38	12	0.75	6	2.65	32	1.02
Core Reduction Flake	106	40.15	138	28.34	175	41.67	91	61.49	410	25.75	90	39.82	1010	32.20
Flake Fragment	116	43.94	156	32.03	114	27.14	45	30.41	450	28.27	76	33.63	957	30.51
Grand Total	264	100.00	487	100.00	420	100.00	148	100.00	1592	100.00	226	100.00	3137	100.00

Table 5: Frequencies of Platform Remnant Types for Lithic Samples at Site 38LA355.

Platform Remnant Type	355-10		355-2		355-4		355-6		355-7		355-8		Grand Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Abraded	25	23.58	4	2.96	10	5.71	20	21.05	23	5.48	19	22.09	101	9.93
Absent		0.00		0.00		0.00		0.00	4	0.95		0.00	4	0.39
Cortical		0.00	45	33.33	1	0.57	5	5.26	23	5.48	2	2.33	76	7.47
Crushed	2	1.89	9	6.67	18	10.29	3	3.16	40	9.52	1	1.16	73	7.18
Double Struck	1	0.94		0.00		0.00		0.00	4	0.95		0.00	5	0.49
Faceted	3	2.83	1	0.74	5	2.86		0.00	11	2.62	1	1.16	21	2.06
Flat	75	70.75	76	56.30	141	80.57	67	70.53	315	75.00	63	73.26	737	72.47
Grand Total	106	100.00	135	100.00	175	100.00	95	100.00	420	100.00	86	100.00	1017	100.00

Dorsal Cortex

The presence of dorsal cortex is often an indication of how much reduction has occurred, although it depends on source material, as well (Andrefsky 1998:101–107; Odell 2003:126–127). The premise is that the frequencies of flakes with dorsal cortex should decrease through the reduction arc of a given lithic package. Frequencies of dorsal cortex are presented in Table 6. Results indicate an overwhelming trend toward flakes with no cortical material. Five of the six samples have relative frequencies of 92 percent or more, with three approaching or at 100 percent. The exception is 355-2 (quartz), which has the highest frequency of material with dorsal cortex (39%). The similarities of 355-4, 355-6, and 355-7 (all silicate) to 355-8 and 355-10 (both metavolcanic), and their difference from 355-2, suggests different sources for each material. Silicate material is more likely to form cortex as a result of chemical weathering, so the lack of dorsal cortex in these samples may indicate it was being acquired directly from primary outcrops.

Completeness

Completeness can be an indication of reduction stage and was recorded for all debitage when possible (Andrefsky 1998:87; Odell 2003:123)(Table 7). In general, the rates of incomplete flakes are very high, with an average of almost 77 percent for all samples. However, there is more variation within and between samples. For example, 355-6 has 46 percent complete and 54 percent incomplete and 355-8 has 35 percent complete and 65 percent incomplete. The other samples follow the general pattern of fewer complete than incomplete flakes and are interpreted as the result of early stage reduction when large volumes of waste material is produced.

Detachment Method

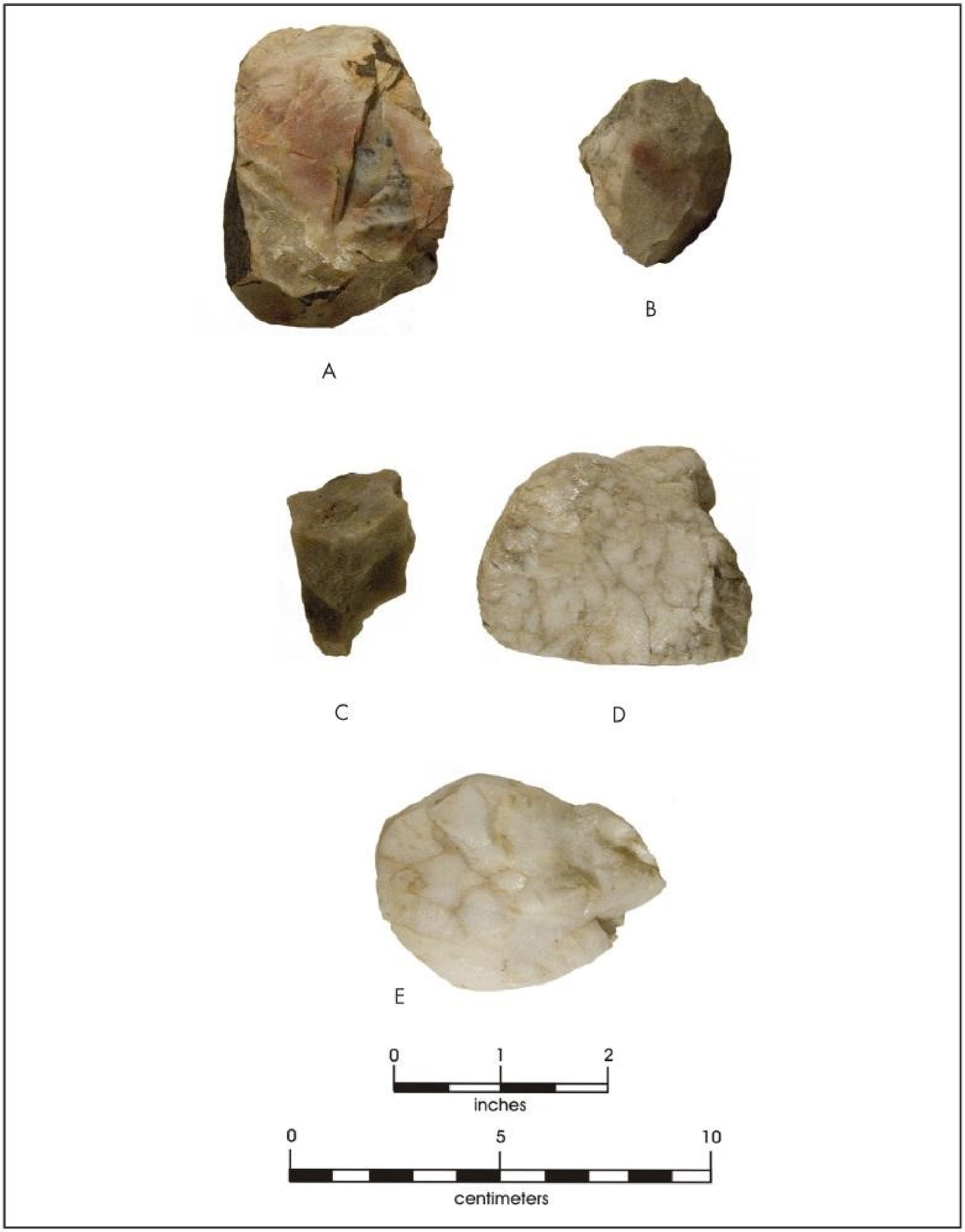
Methods of flake detachment were recorded as either hard- or soft-hammer when possible (Andrefsky 1998:11; Crabtree 1982; Odell 2003:58–62)(Table 9). Not surprisingly for a near-quarry site, hard hammer percussion dominates each sample and the combined results with almost 92 percent of the total (Table 8). The lowest frequency of hard hammer percussion occurred in 355-10, but it was still 70 percent of the total. The remaining samples all had relative frequencies of hard hammer percussion at 88 percent or more, with four samples at 94 percent or greater. In general, these results indicate a reliance on hard hammer percussors such as hammerstones for flake removal. Hard hammer percussion is typically associated with flake removals early in the reduction sequence when the emphasis is simply on obtaining useable flakes for other purposes. The relatively low frequencies of soft hammer percussion suggest that intensive biface production was not a major activity at any of these activity areas. No hammerstones were recovered in from the block excavations, which suggests they were not discarded on-site.

Termination Type

Frequencies of termination types were recorded and calculated for all complete and distal flake fragments (n=1,132) and defined as either feather or hinge (Andrefsky 1998:85–88; Odell 2003:56–58) (Table 9). Feather terminations dominate all samples and the combined samples (87%). Samples 355-2, 355-6, 355-8, and 355-10 have relative frequencies of hinge terminations below 10%. Samples 355-4 and 355-7 have relative frequencies of hinge terminations between 15 percent and 18 percent, respectively, which is almost double those for other samples. The generally high frequencies of feather terminations are indicative of successful flake removals, which is likely an indication of both skilled production and high quality raw material.

Flake Size

Table 10 presents summary statistics for maximum flake dimension for all complete flakes from the six samples. Mean sizes range from a low of 15.47 millimeters (355-6) to a high of 26.75 millimeters (355-4). Two samples with the largest mean sizes (355-4 and 355-7) are both of local silicate, and the sample with the lowest value (355-6) is also of silicate; these differences may be an indication of the source material. Samples 355-8 and 355-10, both of metavolcanic material, have mean flake sizes of 25.22 and 21.63, respectively, which puts them close to the silicate samples. Sample 355-2, of quartz, has a mean size of 15.58, which places it well below the other samples. Flake size may be



A: Core (Bag 762), B: Core (Bag762), C: Core (Bag 762), D: Core (Bag 757), E: Core (Bag 757)

Figure 6: Representative Cores from Block 1 (2 of 4).

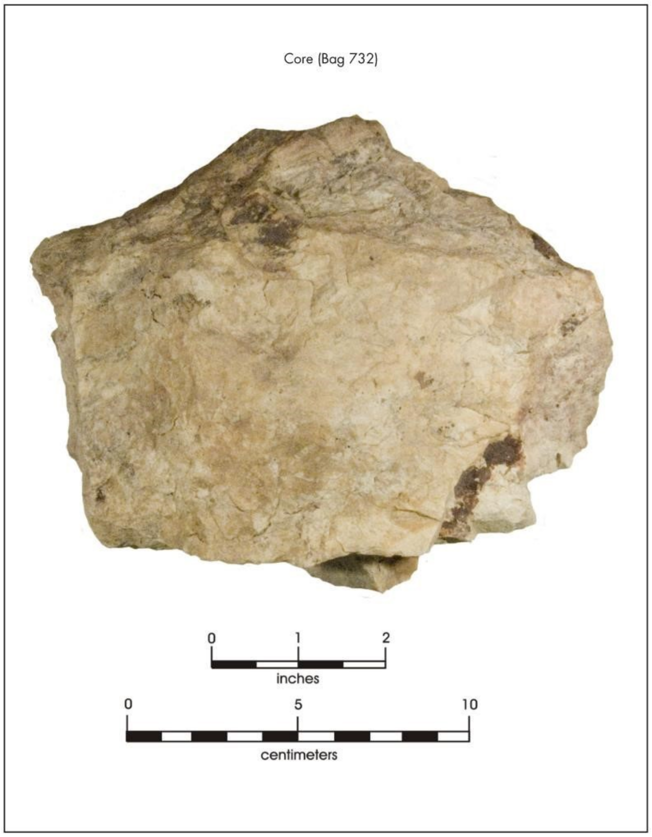
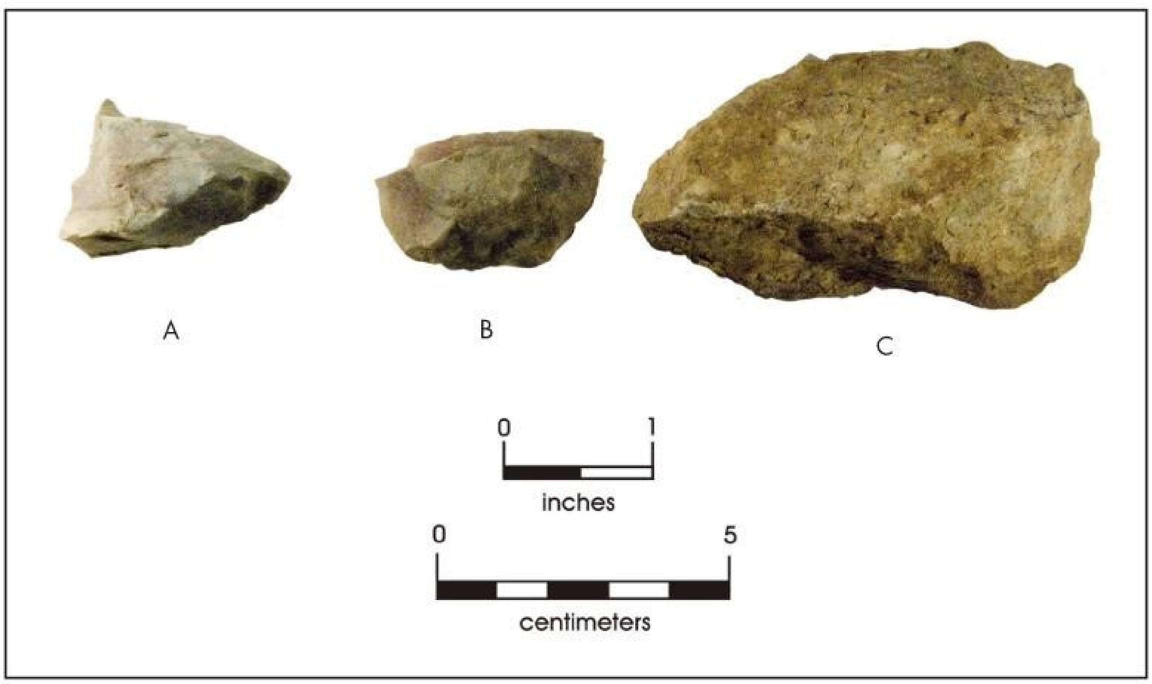


Figure 7: Representative Cores from Block 1 (3 of 4).



A: Core (Bag 1070), B: Core (Bag 1070), C: Core (Bag 834)

Figure 8: Representative Cores from Block 1 (4 of 4).

Table 6: Frequencies of Dorsal Cortex for Analyzed Samples at Site 38LA355.

Cortex	355-10		355-2		355-4		355-6		355-7		355-8		Grand Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Absent	260	100.00	292	60.96	412	98.10	132	91.67	1507	94.84	161	97.58	2764	90.42
Present		0.00	187	39.04	8	1.90	12	8.33	82	5.16	4	2.42	293	9.58
Grand Total	260	100.00	479	100.00	420	100.00	144	100.00	1589	100.00	165	100.00	3057	100.00

Table 7: Frequencies of Debitage Completeness for Site 38LA355.

Complete	355-10		355-2		355-4		355-6		355-7		355-8		Grand Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
No	200	75.76	376	77.21	303	72.14	80	54.05	1303	81.85	148	65.49	2410	76.82
Yes	64	24.24	111	22.79	117	27.86	68	45.95	289	18.15	78	34.51	727	23.18
Grand Total	264	100.00	487	100.00	420	100.00	148	100.00	1592	100.00	226	100.00	3137	100.00

Table 8: Frequencies of Flake Detachment for Analyzed Samples at Site 38LA355 (Complete and Proximal Flakes Only).

Detachment	355-10		355-2		355-4		355-6		355-7		355-8		Grand Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Hard Hammer	49	70.00	39	97.50	161	94.71	58	87.88	316	94.05	68	97.14	691	91.89
Soft Hammer	21	30.00	1	2.50	9	5.29	8	12.12	20	5.95	2	2.86	61	8.11
Grand Total	70	100.00	40	100.00	170	100.00	66	100.00	336	100.00	70	100.00	752	100.00

Table 9: Frequencies of Terminations for Lithic Samples at Site 38LA355.

Termination	355-10		355-2		355-4		355-6		355-7		355-8		Grand Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Feather	74	91.36	175	92.59	129	84.87	83	92.22	401	82.34	121	90.98	983	86.84
Hinge	7	8.64	14	7.41	23	15.13	7	7.78	86	17.66	12	9.02	149	13.16
Grand Total	81	100.00	189	100.00	152	100.00	90	100.00	487	100.00	133	100.00	1132	100.00

related to either reduction stage or the original size of the raw material (Andrefsky 1998:96). For example, a flake cannot be larger than the maximum dimension of the core from which it originated. Likewise, earlier stage reduction tends to produce larger flakes and late stage reduction tends to produce smaller flakes.

Flake Weight

Flake weight is a good indicator of reduction stage (Odell 2003:126). Table 11 presents summary statistics for maximum flake weight for all complete flakes. The results are similar to those observed for maximum flake dimension. Sample 355-4 has the highest mean at 5.31 grams, followed by 355-8 at 4.62 grams, and 355-7 at 3.68 grams. Samples 355-10 and 355-2 have means of 1.53 and 1.24, respectively, and are closer to each other than the previous samples. Sample 355-6 has a mean weight of 0.59 gram, and is by far the lowest of all samples.

Results for maximum flake dimension and weight are measures of the overall size of the assemblage and offer insight into reduction stage, technology, and raw material differences. The samples comprised of local silicate tend to be larger, on average, than other materials. These data suggest that local silicate was being reduced very close to its source(s).

Interpretations

Lithic artifacts from six of the 17 activity areas in Block 1 were analyzed in detail and used to characterize the general range of activities at the site (Table 12). Lithic technology was organized around the production of flakes and early stage bifaces for future tool uses, which is a pattern noted at other sites in the Carolina Slate Belt (Daniel 1998:139). Daniel (1998:196) referred to the theoretical possibility of "expedient quarries", which would have served as intermittent sources of stone for groups traveling between other major sources such as Morrow Mountain and the Allendale area. The data derived from this study suggest that at least portions of Haile Gold Mine represented sources of known material types throughout the precontact period that were themselves the focus of specific visits. These sites saw extended site use episodes in which significant reduction efforts were undertaken.

Activities at site 38LA355 are generally consistent with expectations for near-quarry workshop locations (Stewart 1987). Previous research at quarries has indicated these locations typically have high debitage densities, early stage reduction, and often-times discarded tools that were broken in manufacture (Abbott 1987, 2003). The general behavior is focused on acquiring sufficient raw materials for immediate or future tool needs. Given the high cost of transporting stone over long distances, knappers typically reduce the material into portable items such as large flakes or bifaces that will then be transported or exchanged. These items may in turn be cached around the landscape as a hedge against uncertainty.

Other datasets support the inferences drawn from lithic attribute data. Aside from a single knapping episode, no other features were identified. The limited archaeobotanical data indicate a generalized pattern of minimal plant exploitation. Very few ceramics were recovered. All lines of evidence indicate an overwhelming emphasis on intensive lithic reduction activities likely spanning the tail end of the Late Archaic through Middle Woodland periods. There is very little evidence of generalized domestic behavior at this site. The lack of identified features with organic material cannot be attributed to preservation as other sites in the Haile Gold Mine and Sandhills regions are known (Keith et al. 2012; Patch, Espenshade, et al. 2011; Patch, Seramur, et al. 2011; Patch and Espenshade 2020).

Daniel (1998, 2001) offered a model of Early Archaic settlement that was based on the importance of high quality stone from the Uwharrie Mountains region. Data presented in the current study offer significant support for Daniel's (2001, 1998) model. This particular section of the Sandhills may be unique precisely because of its geology and surface conditions. The high level of intensity offers insight into lithic procurement and tool production strategies during the Early and Middle Woodland periods. Implications of these findings for the larger Haile Gold Mine area suggest that the presence of locally available, diverse, high quality lithic materials in both primary and secondary contexts was the major attraction for precontact groups. In that sense, the region functioned much like other known areas of the Carolina Slate Belt, with intensive quarry and near-quarry activity. The importance of raw material

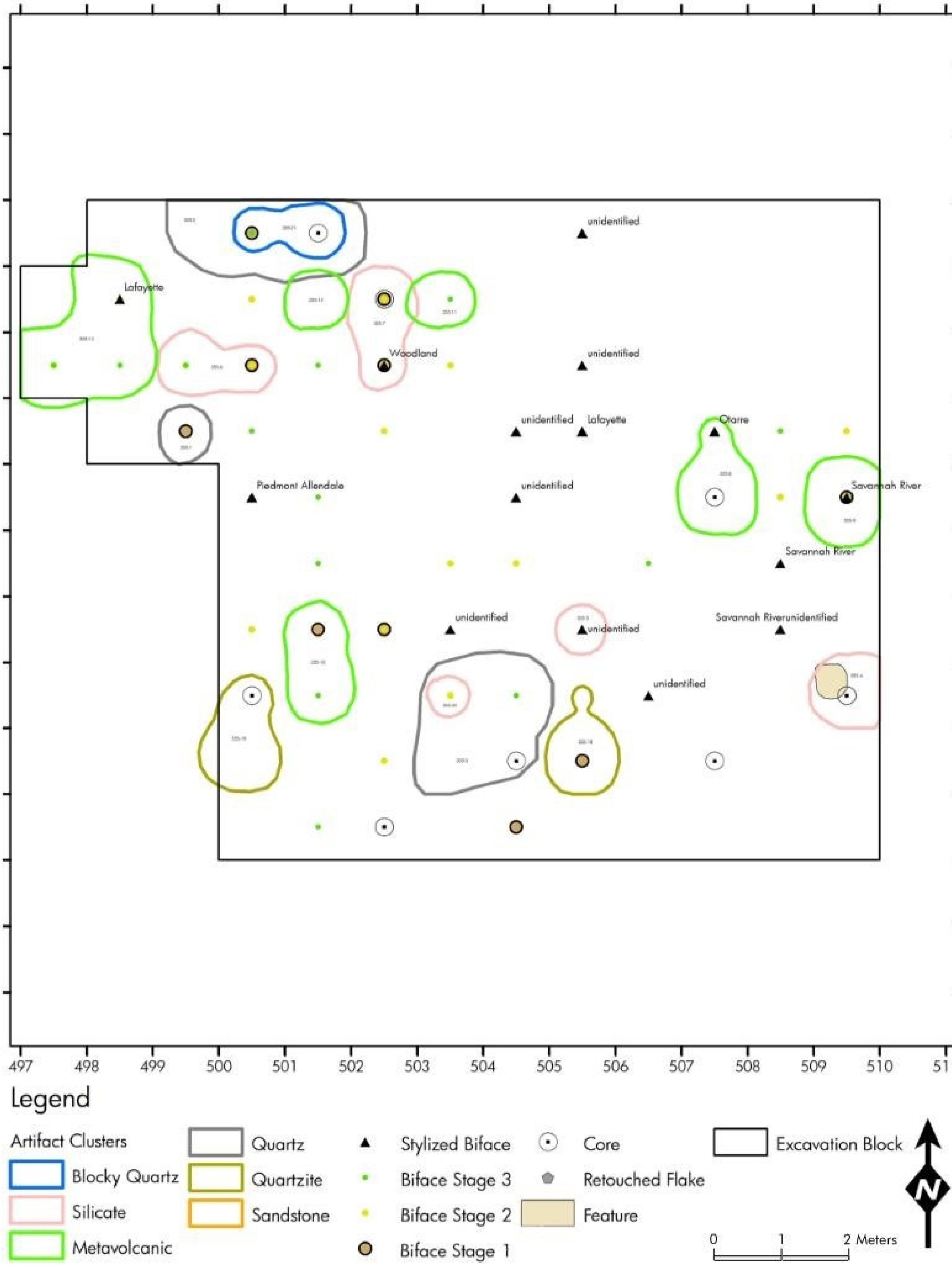


Figure 9: Activity Areas in Block 1.

Table 10: Summary Statistics for Whole Flake Maximum Dimension for Activity Areas at Site 38LA355.

Statistic	355-2	355-4	355-6	355-7	355-8	355-10
Mean	15.58	26.75	15.47	25.39	25.22	21.63
Standard Error	0.54	1.33	0.57	0.68	0.94	1.09
Median	14.3	23.5	14.8	22.9	23.95	20.05
Mode	12.7	18.5	18.1	30.9	26.6	19
Standard Deviation	5.67	14.37	4.73	11.53	8.29	8.69
Range	34.3	84.1	27	63.6	40.1	39.5
Minimum	7.2	10	8.6	8.4	8.6	8.3
Maximum	41.5	94.1	35.6	72	48.7	47.8
Sum	1729.7	3130.1	1052.2	7338.1	1966.8	1384.3
Count	111	117	68	289	78	64

Table 11: Summary Statistics for Complete Flake Weight for Lithic Samples at Site 38LA355.

	355-2	355-4	355-6	355-7	355-8	355-10
Mean	1.24	5.31	0.59	3.68	4.62	1.53
Standard Error	0.22	1.23	0.08	0.32	0.58	0.21
Median	0.5	1.1	0.35	1.3	3.4	1.1
Mode	0.2	0.3	0.2	0.1	3.9	0.2
Standard Deviation	2.29	13.25	0.65	5.47	5.12	1.65
Range	16.2	114.3	4	38.7	27.1	8.7
Minimum	0.1	0.1	0.1	0.1	0.1	0.1
Maximum	16.3	114.4	4.1	38.8	27.2	8.8
Sum	137.8	621.6	39.8	1062.4	360	96.4
Count	111	117	68	289	78	63

availability for understanding precontact behavior cannot be overstated and should be considered carefully in future studies.

Acknowledgments

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Table 12: Summary of Activity Identified at Site 38LA355.

Activity Area	Material	Attribute Analysis	Size (surface area)	Cultural Affiliation	Interpretation
355-1	Quartz	No	1x1	Early or Middle Woodland	Low intensity early stage reduction
355-2	Quartz	Yes	1x3	Late Archaic or Early Woodland	Moderate intensity early stage lithic reduction
355-3	Quartz	No	2x2	Late Archaic	Low intensity early stage reduction
355-4	Silicate	Yes	1x2	Middle Woodland	Single knapping episode for early stage lithic reduction
355-5	Silicate	No	1x1	Middle or Late Woodland	Moderate intensity early stage lithic reduction
355-6	Silicate	Yes	1x2	Late Archaic or Early Woodland	Intensive early reduction (near-quarry)
355-7	Silicate	Yes	1x2	Late Archaic or Early Woodland	Intensive early reduction (near-quarry)
355-8	Metavolcanic	Yes	1x1	Late Archaic or Early Woodland	Low intensity early stage reduction
388-9	Metavolcanic	No	1x1	Late Archaic	Low intensity early stage reduction
355-10	Metavolcanic	Yes	1x2	Late Archaic or Early Woodland	Low intensity early stage reduction
355-11	Metavolcanic	No	1x1	Middle or Late Woodland	Low intensity early stage reduction
355-12	Metavolcanic	No	1x1	Early or Middle Woodland	Low intensity early stage reduction
355-13	Metavolcanic	No	Unknown	Late Archaic or Early Woodland	Intensive early stage reduction (near-quarry)
355-14	Metavolcanic	No	2x2	Late Archaic or Early Woodland	Low intensity early stage reduction
355-15	Quartz	No	1x2	Late Archaic or Early Woodland	Low intensity early stage reduction
355-16	Silicate	No	2x2	Early or Middle Woodland	Intensive early stage reduction (near-quarry)
355-17	Sandstone	No	1x2	Unknown	Probable hearth
355-18	Quartzite	No	1x1	Late Archaic or Early Woodland	Low intensity early stage reduction
355-19	Quartzite	No	1x2	Late Archaic or Early Woodland	Low intensity early stage reduction
355-20	Silicate	No	1x1	Early or Middle Woodland	Low intensity early stage reduction
355-21	Blocky Quartz	No	1x2	Early or Middle Woodland	Low intensity early stage reduction; probable hearth

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The Congaree Creek Locality: Archaeological Investigation of Native American Land Use in a Fall Line/Sandhills Setting in South Carolina

David G. Anderson

Abstract

Native American land use of the Fall Line/Sandhills area along and just to the west of the Congaree River in central South Carolina is examined here, through analyses of artifact assemblages and site environmental characteristics. The study area encompasses terrain across the river and a few miles southwest of downtown Columbia, in the Congaree Creek area near the modern town of Cayce, a locality that has received extensive archaeological examination for many decades by the state's professional and avocational communities. The history of this research is briefly summarized, with an emphasis on evidence for Native American settlement, documenting the scale of activity that has occurred, and why it took place. Analyses of materials from both surface and excavation assemblages are then conducted using assemblages from archaeological sites yielding temporal diagnostics, by period and setting, including variables such as distance to water, nearest stream rank, and extent of surrounding microenvironmental zones, documenting clear and changing patterns of land use. While intensive use of some settings occurs throughout the precontact and early Euroafrican contact eras, notably on terraces near swamp/wetland areas, over time use of an increasing array of microenvironmental zones, and more diverse locations within these zones, is documented. Site location, while favoring specific settings in different periods, also quite clearly reflects selection for constellations of microenvironments, rather than individual zones. Even with the extensive research that has occurred in the Congaree Creek locality, the analyses demonstrate that much more remains to be learned. Deeply buried deposits are likely present in many settings, particularly in floodplain areas both along and at a considerable distance away from the Congaree River, where the age and extent of channel migration and deposition remains to be fully determined. Swamps and permanently saturated wetland areas are other settings only minimally examined. Given the changes in geomorphology, climate, and biota that have occurred over time, these settings, and not merely their margins, may have once been more attractive for settlement. While the greatest use of the floodplain occurs during the Mississippian period in the assemblages examined here, the limited deep testing undertaken to date near the Congaree River, as well as materials found washed out onto nearby sandbars, documents extensive earlier use, showing that even the most intensively examined localities have much remaining to tell us.

In this paper, the nature of Native American land use at a Fall Line/Sand Hills locality in the Inner Coastal Plain of South Carolina is examined in detail. The analysis focuses on the microenvironmental setting of archaeological sites found in the floodplain and adjoining uplands along and short distances away from the Congaree River, at and immediately below the Fall Line, the major physiographic boundary between the Coastal Plain and Piedmont physiographic provinces, near the modern city of Columbia (Figure 1). Although the Sandhills are sometimes perceived as a poor environment for settlement and use by First Peoples due to the xeric conditions in the uplands, the Fall Line area itself, at the extreme upper reaches of this physiographic zone, was an important focus of activity and settlement throughout the period of human occupation across the region. This study examines the archaeological record within one such Fall Line/Sandhills locality, along and near Congaree Creek, an area that has witnessed decades of archaeological investigation, and yielding an impressive and apparently continuous record of settlement for upwards of 12,000 years. A goal of the research is understanding how Native populations made use

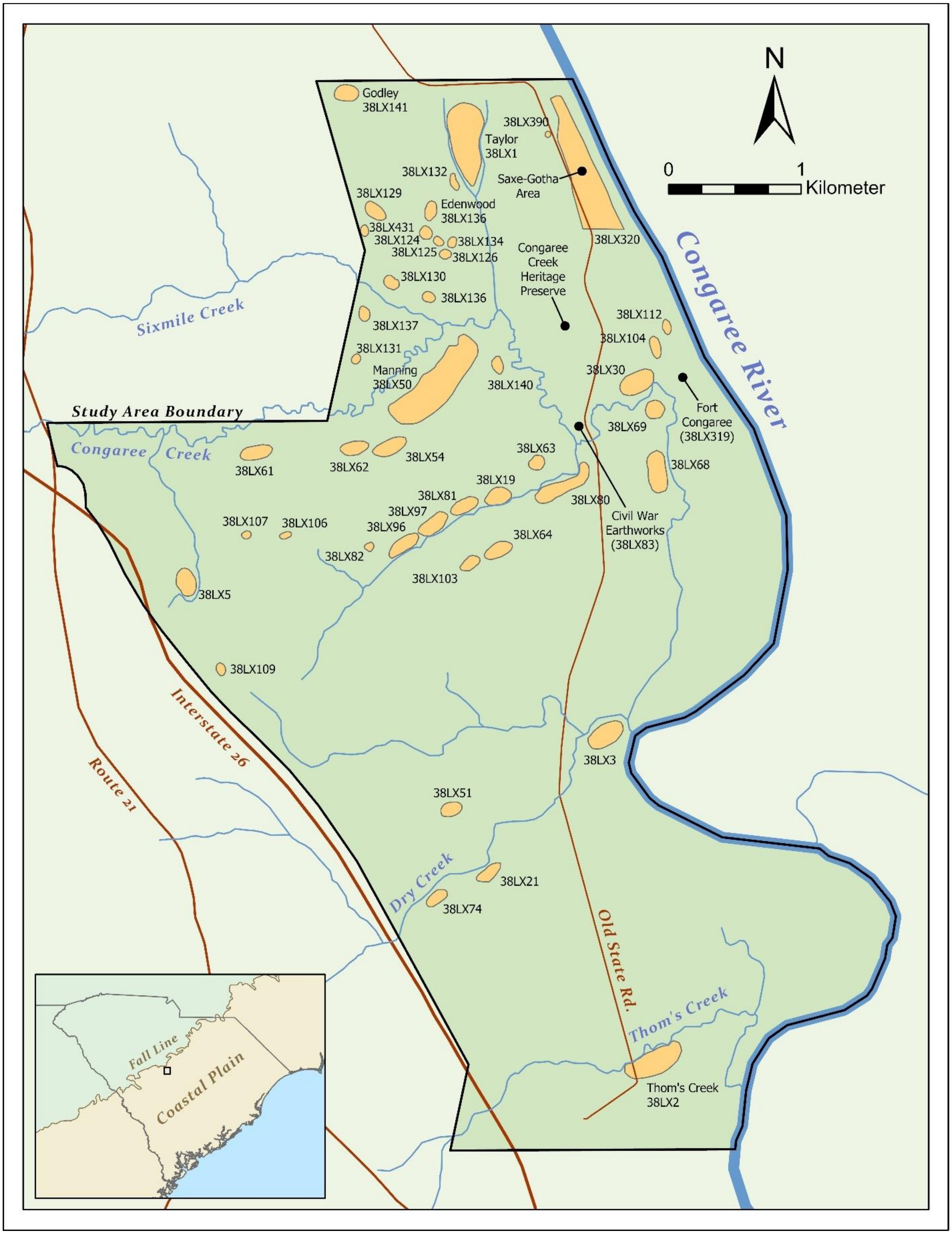

Figure 1: The Congaree Creek Study Locality, Lexington County, South Carolina. Archaeological sites shown are those with Native American assemblages.

of the complex environmental mosaic that characterizes this macroecotone over time. Basic premises of the analyses that follow are that site location and function are to some extent related, and that these characteristics are in turn related to the structure of the immediate and surrounding environment.

The Congaree Creek Study Area

Locational Data

The Congaree Creek locality is situated in the upper Congaree River valley, just below the confluence of the Broad and Saluda Rivers, two of the major drainages of the South Carolina Piedmont. These drainages originate on the eastern slope of the Appalachians, and are characterized by deeply downcut channels with minimal terrace and floodplain development where they flow through the Piedmont. These rivers come together at Columbia to form the Congaree River. At and just downstream from the confluence, the river channel is characterized by rocky shoals, demarcating the transition from the comparatively resistant crystalline rocks of the Piedmont to the poorly to unconsolidated sediments of the Coastal Plain, and in the interior the highly desiccated Sandhills of the Inner Coastal Plain give way to the rolling hills of the Piedmont. This transitional zone has long been called the "Fall Line" due to the rocks, shoals, and falls that occur in the rivers at this point throughout the region (Cooke 1936; Fenneman 1938). These shallows constitute natural fording places for people traveling up and down the river, and mark the point where portages for watercraft become necessary. Rich archaeological sites and large modern cities occur where rivers crosscut the Fall Line along the Atlantic and Gulf slopes of the Southeast, making them attractive areas for archaeological research (Ward 1965, Ferguson 1971; Anderson and Hanson 1988:270–271; Anderson and Sassaman 2012:52; King 2016).

Below the Fall Line the Congaree River floodplain broadens dramatically, becoming a wide meander belt as the river channel migrates laterally through the less resistant sands and other sediments of the Inner Coastal Plain. The floodplain is wide and flat, and is characterized by oxbow lakes, swales, sloughs, and old meander scars, and large sandbars in the channel itself. Immediately below the Fall Line, in the vicinity of the Congaree Creek study locality, the river floodplain is comparatively narrow, and fingers of the upland xeric Sandhills that give the region its name occur in close proximity to the main channel. The study locality examined here encompasses a ca. 5678 acre/2300 ha irregularly shaped tract adjacent to and extending up to roughly 2 miles/3 km west of the Congaree River, which serves as its eastern boundary. The modern city of Cayce, South Carolina immediately to the north, the I-26 interstate corridor to the west, and the vicinity of Thom's Creek to the south, where the floodplain narrows, further delimit the locality. Extensive archaeological research has occurred over the past half century in the area, and many sites have been found and examined. Three major creeks flow through the locality; from north to south these are Congaree/Sixmile Creek, Dry Creek, and Toms (or Thom's) Creek. The name given the study area is taken from the largest of these drainages, Congaree Creek, which with its tributaries has been where most of the archaeological investigations have occurred.

Located in eastern Lexington County, approximately four miles to the southwest of Columbia and on the opposite side of the river, the Congaree Creek area was sparsely populated farmland for much of the nineteenth and twentieth centuries until about thirty five years ago, when a major east-west interstate highway corridor, I-77, the Southeastern Columbia Beltway, bisected the locality, and a north-south connector off it, the 12th Street Extension, effectively quartered it (Figure 2). Since that time, residential and industrial development has been progressing rapidly. Fortunately, beginning in the late 1960s a major program of archaeological survey, testing, and excavation activity was conducted in the area by the state's avocational and professional communities, work that has continued to this day, and that has resulted in the collection of appreciable information and, importantly, the preservation of a number of major sites. The study boundaries reflect the area where the greatest effort occurred, and where the terrain has received near 100% surface survey coverage, at least in cultivated areas, which were formerly quite extensive. How Native peoples made use of the appreciable topographic and microenvironmental variability in the locality forms the subject of the present research.

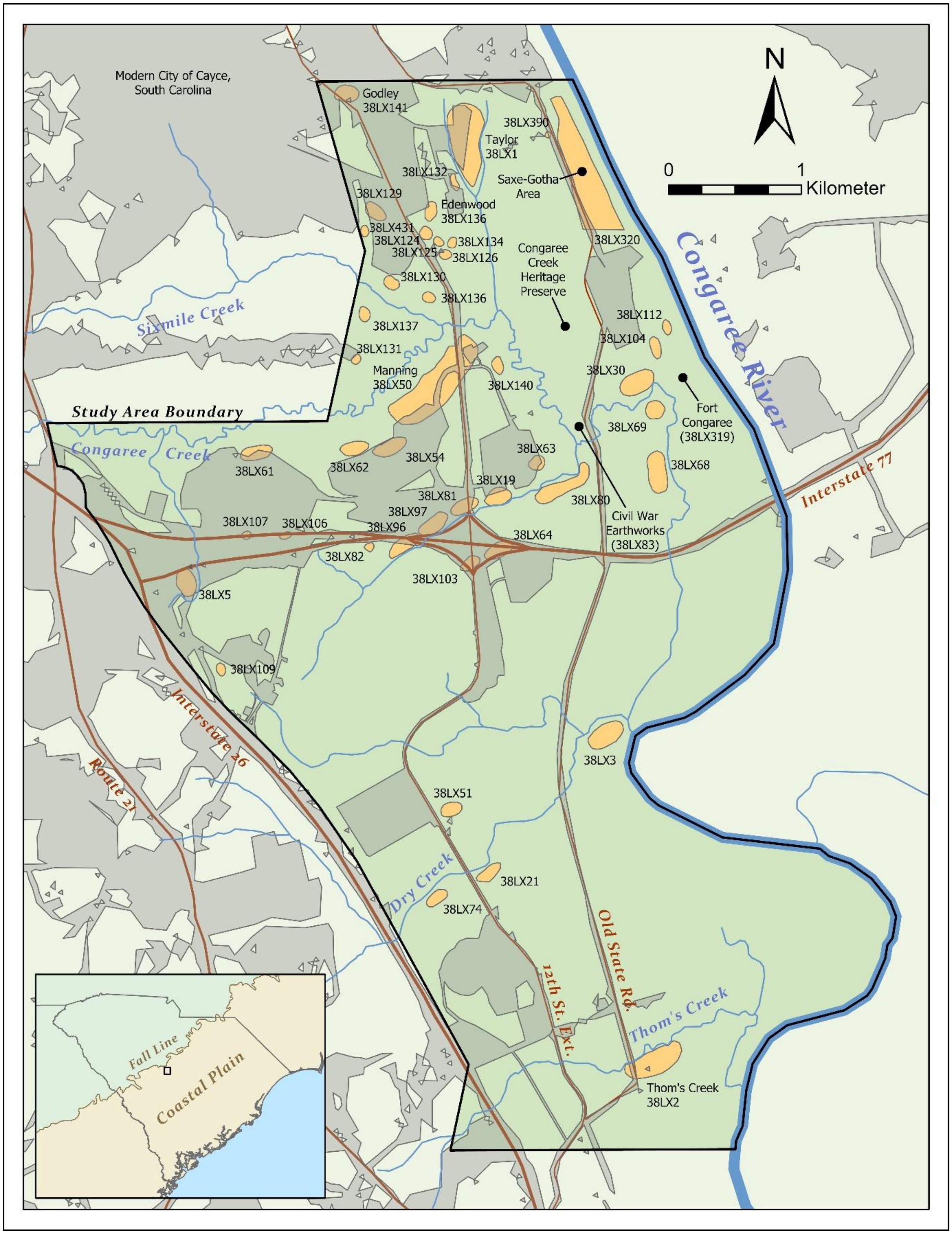

Figure 2: Modern Development in the Congaree Creek Study Locality, Lexington County, South Carolina. Archaeological sites shown are those with Native American assemblages. Development data (shading) is from the USGS National Land Cover Database, with edits based on recent aerial imagery.

The study area, long a focus of attention by the avocational and professional archaeological communities in South Carolina, has recent years become increasingly well-known and appreciated by the general public as well. The Congaree Creek Heritage Preserve, a 627 acre (253.7 ha) area with walking trails and a visitors center managed by the city of Cayce and the South Carolina Department of Natural Resources, was established in 2008 in the northern part of the locality. It documents and commemorates the area's long history of use, from the areas used for millennia by First Peoples, who colonized the region at the end of the last Ice Age, through sites from the exploration, settlement, and sometimes conflicts by Old World peoples and their descendants within the past 500 years. The establishment and maintenance of the heritage preserve reflects the hard work of many people, and is a culmination of the dreams of earlier generations of archaeologists who worked in the locality. The 12,000 Year History Park on Congaree Creek, with its associated visitor's center and walking trails, has itself prompted new research and fieldwork (e.g., Kane and Keeton 2007; Adams 2015; Poplin 2013; Poplin and Jateff 2008, Poplin and Baluha 2013; Poplin et al. 2015), and is where the Archaeological Society of South Carolina (ASSC) has held its annual Fall Field Day in 2018 and 2019. The importance of the locality to local and state history helped inspire the current study, above all because it is where many friends and colleagues conducted fieldwork over the years, including by the author in the 1970s, when he was in his 20s and just getting started in archaeology (e.g., Anderson 1974, 1975, 1979; Anderson et al. 1974a).

Previous Archaeological Investigations

From an archaeological perspective, the Fall Line in the vicinity of Congaree Creek is one of the most intensively studied localities of its size in South Carolina (see summaries in Anderson 1979:6–13; Goodyear 1976; Michie 1979:11–17; Steen 1992; Wogaman et al. 1976:9–13; Adams et al. 2000; Southerlin et al. 2000: 29–39; O'Steen et al. 2003:7–24; Kane and Keeton 2007; Dodge 2018). Interest in Native American archaeological remains in the upper Congaree valley dates to the middle of the nineteenth century, and probably considerably before this time. This interest can be attributed to the early, intensive colonial settlement of the area, near to what later became the state capitol of Columbia. A trading post, Fort Congaree, was established along lower Congaree Creek, and was in use from 1718–1722 (Anderson 1975a; Meriwether 1940; Michie 1989; Adams et al. 2000; Stewart 2013, Stewart and Cobb 2018). The location of this fort was long unknown, and finding it occupied the attention of many early historians and archaeologists. Ultimately discovered in 1989 by James L. Michie (1941-2004), a local draftsman and avocational in the 1960s and early 1970s, but who quickly went on to become a professional archaeologist with an impressive career in South Carolina archaeology, the Fort Congaree area is now designated 38LX319, the 319th archaeological site recorded in Lexington County in South Carolina, the 38th state alphabetically at the time the 'trinomial system' was widely established by Smithsonian Institution River Basin Survey archaeologists in the 1940s (Thiessen and Roberts 2009). Settlement in the locality was nearly continuous thereafter, and in 1733 the township of Saxe Gotha was laid out along the Congaree River immediately to the north and northeast of Congaree Creek, and settled by Swiss and German immigrants; this area has since been designated site 38LX320 (Meriwether 1940:52–53; Adams et al. 2000:5–18).

Although the main locus of settlement soon moved to the north and across the river, to what later became known as Cayce and Columbia, scattered farmsteads were located throughout the study area until the middle of the 20th century. A Civil War battle was fought along Congaree Creek on February 15, 1865, where Old State Road crosses the creek, and an extensive series of well-preserved earthworks from that conflict are still present, and walking trails associated with the modern heritage preserve pass by them (the earthworks and battlefield area are designated 38LX83; see Anderson 1974, 1975a; Roberts 2003, Kane and Keeton 2007; Poplin et al. 2015). With the rise of mechanized agriculture, most of the small farmsteads were abandoned shortly after 1940, although intensive cultivation has continued, albeit with open fields and pastures giving way to pine plantations, and more and more of the area subject to commercial and residential development in recent decades (Figure 2). The study area is thus characterized by a 300 year record of historic settlement and land use, which while unquestionably taking a toll on the ca. 13,000 year record of Native American settlement that preceded it, has also contributed to its documentation.

The first recorded archaeological collecting activity along the upper Congaree River dates to the 1840s, and was summarized by George Howe in an 1857 article entitled "An Essay on the Antiquities of the Congaree Indians of South Carolina" (in Schoolcraft 1857, VI:155–168). Howe provided general descriptions of artifacts uncovered by floods and plowing in the general Columbia area, and documented the state of relic collecting at the time: "I have many hundred arrow and spear heads, and many more are in the possession of others" (Schoolcraft 1857, VI:159). Howe's paper is important in that it demonstrates a long tradition of artifact collecting in the general study area, necessitating careful, critical evaluation of surface assemblage data. A site that now appears devoid of diagnostic artifacts, particularly projectile points, may have once had many, that have been picked up through many generations of collecting, particularly when the area was under cultivation. Many places now grown up in forest and pine plantations in the locality, it must be remembered, were once cleared fields, some as recently as 20-30 years ago. Cycles of clearing and regrowth have been operating in the locality for centuries, well back into the precontact era, when Native American farmers were present in the Mississippian period, and possibly much earlier.

The earliest documented archaeological collections from the Congaree Creek locality were made in the 1920s and 1930s. In 1939, Robert Wauchope (1909-1979), who was born and raised in Columbia, South Carolina, and went on to have a long and distinguished career in Mesoamerican and North American archaeology, described a number of fluted projectile points that had been collected in central South Carolina, including several that might have come from the Taylor site (38LX1), in the northern part of the study area (Wauchope 1939; see also Michie 1971, 1977, 1996). In 1945, James B. Griffin (1905-1997) described a surface collection of pottery from a site along Thom's Creek at the southern end of the locality, and now designated 38LX2 in the state site files (Griffin 1945:465; see also Michie 1969, Trinkley 1974a). The material had been sent to him in 1942 by an Army Air Force officer stationed in the area at the time, Colonel Daches M. Reeves, who had been awarded the Distinguished Service Cross in World War I, and who had been taken to what is now known as the Thom's Creek site by Chapman J. Milling (1901-1981), a local historian of South Carolina's native peoples (Milling 1940). Griffin's descriptions were careful and detailed, and encompassed most of the Native American wares now known to occur in the general area, from the Late Archaic through the Mississippian/early contact era. The paper is particularly noteworthy in providing the first description of Thom's Creek Punctate pottery, a distinctive sand tempered Late Archaic ware now known to be roughly coeval with Stallings fiber tempered pottery, and common throughout the South Carolina area (Anderson 1975b; Trinkley 1974a, 1980a; Waddell 1963; Sassaman 1993, 2002; Steen 2018). By the late 1950s the archaeological potential of the Congaree Creek area was well known in local collecting circles, and many of the larger sites were visited repeatedly by people who later went on to become early members of the state archaeological society, or ASSC, and who told younger members like myself stories of their activities. Extensive surface collections made at and after this time by the responsible amateurs among them, recording site and collection locations, cataloging their finds, and curating their records and artifacts for posterity, have proven invaluable research assets in many subsequent studies (e.g., Anderson 1979; Charles 1981, 1983), including the present investigations.

Systematic, scientific investigation and reporting of archaeological remains in the Congaree Creek area were initiated in the late 1960s and early 1970s under the leadership of James L. Michie, with the support of then State Archaeologist, Robert L. Stephenson (1919-1992). These two had co-founded the ASSC in 1968, and worked closely together to grow the society for many years. The first few years the investigations in the locality were largely conducted by ASSC members, but who were advised and assisted by professional archaeologists working at the South Carolina Institute of Archaeology and Anthropology (SCIAA) and in later years personnel from other governmental agencies and private companies and foundations in the Columbia area as well, a pattern that continues to this day. In 1969 Michie opened a

20x20 ft block units (ca. 37.2 square meters) at the Thom's Creek site (Michie 1969), where he found stratified Early Archaic through Woodland remains, demonstrating the applicability of Coe's (1964) North Carolina Archaic cultural sequence to central South Carolina. The site saw further excavation in 1970 by a USC field school run by Donald Sutherland (1971) and later reported by Michael Trinkley (1974a), who was an undergraduate student on the project, and who went on to a distinguished career in South Carolina archaeology. In 1969 and 1970 Michie (1971, 1996) also conducted excavations at the Taylor site, where Late Paleoindian/Early Archaic Dalton and Palmer hearth and tool clusters were found below the plowzone. The excavations at Thom's Creek and Taylor documented the presence of stratified deposits, features, and occupation floors at sites in the upper Congaree River valley, and provided direction to subsequent work in the area, notably that significant undisturbed archaeological remains were present, covering many time periods.

Extensive volunteer fieldwork continued in the Congaree Creek locality from 1974 to 1978 by members of the ASSC, with professional direction provided by SCIAA staff. The work was prompted by planning for an interstate highway corridor, the I-77 Southeastern Columbia Beltway, construction for which was assumed to be imminent. Although the project wasn’t completed until the 1980s and after, the corridor, major connectors, and associated entrance and exit ramps eventually quartered the locality, and has led to continued development (Figure 2) and, fortunately, the establishment of a living history park, the Congaree Creek Heritage Preserve. Beginning in February 1974, ASSC members began reconnaissance level pedestrian surface surveys over much of the study area, with a particular emphasis on the proposed route for the highway, locating many of the sites subsequently recorded in greater detail during the funded cultural resource management (CRM) projects that followed. The work was initiated and conducted with a considerable sense of urgency, because the proposed route of the highway corridor ran just south of Manning (38LX50), a 50 acre (20.2 ha) site located on an elevated terrace remnant overlooking Congaree Creek, and the proposed Twelfth Street Extension exit and road cut right through it. In March 1974, the ASSC board and State Archaeologist Robert L. Stephenson approved an excavation program at several sites in the locality, with an emphasis on Manning (Anderson et al. 1974b). The site was named after a prominent local landowner and farmer who gave permission for the fieldwork to occur in part because of his opposition to the proposed highway corridor, which would cut through his land. The ASSC Manning site fieldwork was initially directed by Michie, Anderson, and Trinkley and ran for three months from March through May 1974, with a second phase run by Albert C. Goodyear, James L. Michie, Sammy T. Lee, and A. Robert Parler from October 1977 through 1978. While much of the labor was provided by local volunteers, many local professional archaeologists were also involved in the work, and over the years the site was also visited many times as work on the highway project continued, as discussed below. The ASSC work resulted in a large block unit (ca. 300 square meters) in the north-central part of the Manning site. Undisturbed, artifact bearing deposits were documented to a depth of 30-60cm, and Early Archaic through Mississippian remains were found, as well as evidence for a mid-eighteenth century farmstead; although brief summaries of this work have appeared, the assemblage warrants detailed analysis and reporting (Goodyear 1975, 1978; Goodyear et al. 1978; Wogaman et al. 1976:21–22; Adams and Cable 1996; Cable 1996:1-5; Southerlin et al. 2000:36–39; O’Steen et al. 2003:16–18). Perhaps a young researcher or team will take on the task, much as I worked through the mid-1970s with Sammy T. Lee and A. Robert Parler to report on the fieldwork they had conducted in 1972 and 1973 at Cal Smoak (38BM4), in Bamberg County at the junction of the North and South Forks of the Edisto River, another early ASSC project, that became the society’s first Occasional Paper (Lee and Parler 1972; Anderson et al. 1979).

In the spring of 1974, ASSC members also attempted to locate the 1718–1722 Fort Congaree trading post, an effort also led by James L. Michie, Anderson, and Michael B. Trinkley (Anderson 1975, Michie 1989; Trinkley 1974b). Again, a strong sense of urgency guided the work that was done, since the initial route for the proposed beltway ran just a few hundred feet to the north of Congaree Creek, which at the time was one of the locations where Fort Congaree was thought to have been situated. The proposed corridor also ran where Civil War earthworks and a battlefield were located, although these were not recognized and documented archaeologically until August and September 1974, during the survey of the Alternate Two Route for the corridor (Anderson 1974:142-147)[1]. While the search for Fort Congaree was unsuccessful at the time—the location of the post was only discovered in the late 1980s by James L. Michie (1989, see also Stewart 2013; Stewart and Cobb 2018)—several new sites were found along Congaree Creek, including 38LX30, where machine stripping revealed both a mid-eighteenth century house site and an earlier, Mississippian component (Anderson 1975a; Trinkley 1974b, 1976; Michie 1989; Adams et al. 2000; Stewart 2013; Poplin et al. 2015). The uncertainty about the location of Fort Congaree, and the significance of the many other sites located in the Congaree Creek locality, resulted in considerable professional archaeological work in the years to come.

Professionally directed archaeological survey, testing, and excavation in the Congaree Creek area, in fact, started soon after the ASSC activities began, work conducted by archaeologists from SCIAA and sponsored by the South Carolina Highway Department (now the South Carolina Department of Highways and Public Transportation, or SCDHPT), to meet their environmental and historic preservation mandates associated with the proposed beltway construction. Three different routes for the primary east-west corridor and a major north-south exit road, the 12th Street Extension, were surveyed from 1974 to 1976 in the central and northern portions of the Congaree Creek locality, documenting some 50 historic and Native American archaeological sites (e.g., Anderson 1974; Anderson et al. 1974a; Goodyear 1975; Wogaman et al. 1976) (Table 1). General and/or controlled surface collections were made at all of them, and test units were opened at approximately one-third of them. Once the final Southeastern Beltway route was selected, well south of the area originally planned, more intensive excavations were conducted at four sites in the right-of-way—38LX5, 38LX64, 38LX82, and 38LX106—in 1978 and 1980 (Anderson 1979; Trinkley 1980b). Roughly contemporaneous CRM surveys associated with the construction and development that was occurring located a number of additional sites in the study area, and several sites were revisited, including the Manning, Taylor, Edenwood (38LX135), and Godley (38LX141) sites (e.g., Ackerly 1976; Cable and Cantley 1978; Drucker and Anthony 1979; Garrow et al. 1977; Michie 1979; Perlman et al. 1977; Smith 1977; Trinkley 1978).

Intensive testing operations conducted near the Congaree River in December 1975, at 38LX104 and 38LX112, documented deeply buried artifact-bearing strata in the alluvial floodplain (Ackerly 1976; Goodyear and Colquhoun 1980). Subsequently, remote sensing and deep testing efforts by Michie (1989:34) located the buried remains of Fort Congaree at >1m in depth near Congaree Creek, and showed that undisturbed Mississippian and Woodland materials were present at depths of from 2 to 3 m in the same area. The possibility that these kind of assemblages exist has received further consideration in the locality in recent years, both in terms of excavation and the recovery of Native American ceramic artifacts on sandbars in the adjacent river channel, thought to have washed out from adjoining sites (e.g., Adams

[1] The earthworks greatly puzzled those of us working along Congaree Creek in 1974, since they were very oddly built and placed to be flood control structures, our initial guess. In August of that year, during the Alternate Two highway corridor survey, I told some older men sitting outside a country store near where we were working about them, and one of them said 'Oh, you're down by the old Civil War earthworks.' A lightbulb went off in my head, and I asked Dr. Francis A. Lord (1911-2006), a distinguished historian at USC where I might find more information about whether there were indeed Civil War remains present. He pointed me to the "Rebellion Records," the Official Records of the Union and Confederate Armies in the War of Rebellion, and there in volume XLVII, Pt 1, I found many accounts of how the area had been fought over on 15 February 1865, which I added to my reports on work in the area (Anderson 1974, 1975). The location, where both Fort Congaree and the Civil War battle occurred, has since seen superb archival and archaeological documentation, and popular interpretation and illustration (e.g., Michie 1989, Stewart 2013, Kane and Keeton 2007; Poplin et al. 2015; including several magnificent paintings by Martin Pate); work supported by the 12,000 Year History Park Working Group, led by John Jameson, then with the National Park Service's Southeast Archeological Center.

Table 1: Congaree Creek Locality: Native American Components by Site. Page numbers in reports indicate where temporally diagnostic Native American artifacts are documented.

Site Number	Paleo Indian	Early Archaic	Middle Archaic	Late Archaic		Woodland		Mississippian		Env Zone	Stream Rank	References*
				Bifaces	Pottery	Bifaces	Pottery	Bifaces	Pottery			
38LX1 (Taylor)	1	1	1	1	1	1	1	1	1	PT	3	Wauchope 1939; Michie 1971, 1996; Goodyear 1976:5, 8; Wogaman et al. 1976:11, 20; Adams and Cable 1997:58-68
38LX2 (Thom's Creek)		1	1	1	1	1	1	1		PT	2	Griffin 1945; Michie 1969; Trinkley 1974
38LX3				1	1	1	1			PT	2	State Site Form Data
38LX5			1	1	1	1	1	1	1	F/SM	3	Anderson et al. 1974:12-13; Anderson 1974:138-140, 1979:55-127; Goodyear 1975:17-19, 1976:11; Trinkley 1980b
38LX19		1	1	1	1	1	1			PT	3	Anderson et al. 1974:12-13; Anderson 1974:142: Goodyear 1976:8; Wogaman et al.1976: 11-12, 22-23
38LX21	1	1	1	1	1	1	1			MF/T	2	State Site Form Data
38LX30/38LX319 (Fort Congaree)							1	1	1	PF	2	Anderson 1974:147-148, 1975a; Goodyear 1976:11; Wogaman et al. 1976: 11-12, 22-23; Poplin et al. 2015; Michie 1989:34, 37; Stewart 2013:78
38LX50 (Manning)	1	1	1	1	1	1	1	1	1	PT	2	Anderson et al. 1974:12-13; Anderson 1974:142, 1979:243-245; Goodyear 1976:5, 8, 11: Wogaman et al. 1976: 11, 21-23; Cable 1996; Adams and Cable 1997; Southerlin et al. 2000:91-102; Collins and Southerlin 2003; O'Steen 2003:143
38LX51			1	1			1			MF/T	3	State Site Form Data
38LX54		1	1	1			1			F/SM	2	Anderson et al. 1974:9; Wogaman et al. 1976: 11, 21-23
38LX61						1	1			S	2	Anderson et al. 1974:8
38LX62					1	1	1			F/SM	2	Anderson et al. 1974:8-9
38LX63			1	1		1				MF/T	4	Anderson et al. 1974:13-15
38LX64		1	1	1	1	1				PF	3	Anderson et al. 1974:15-16, 1979:159-207; Goodyear 1975:28; Wogaman et al. 1976:11-12, 22-23
38LX68								1	1	PF	2	Anderson 1974:148-150; Goodyear 1976:11
38LX69									1	PF	2	Anderson 1974:148; Goodyear 1976:11
38LX74				1	1	1	1			MF/T	2	State Site Form Data
38LX80								1		PF	2	Anderson 1974:142
38LX81		1	1	1		1	1			MF/T	3	Anderson 1974:140
38LX82				1						PT	4	Anderson 1974:140, 1979:141-157: Wogaman et al. 1976:32
38LX96		1	1	1			1			PT	3	Goodyear 1975:22-28, 1976:8
38LX97			1	1		1	1			MF/T	3	Goodyear 1975:22-28, 1976:8; Wogaman et al. 1976:32
38LX103			1							PF	3	State Site Form Data
38LX104									1	PF	1	Ackerly 1976:15-27; Goodyear 1976:11
38LX106				1						S	4	Goodyear 1975:20-22: Anderson 1979:129-140
38LX107						1				S	5	Goodyear 1975: 19-20
38LX109							1			S	5	State Site Form Data
38LX112									1	PF	1	Ackerly 1976:28-33: Goodyear and Colquhoun 1980:497-501
38LX124		1	1	1			1			MF/T	3	Wogaman et al. 1976: 12, 24-25; Adams and Cable 1997:68-69
38LX125								1		MF/T	3	Wogaman et al. 1976: 13, 15
38LX126			1				1			MF/T	3	Wogaman et al. 1976: 25-27
38LX129			1				1			MF/T	3	Wogaman et al. 1976: 26-29
38LX130				1			1			PT	2	Wogaman et al. 1976: 12, 30
38LX131			1		1	1				S	2	Wogaman et al. 1976:13, 31
38LX132		1								PT	3	Wogaman et al. 1976:20; Garrow et al. 1977; Adams and Cable 1997:70-72
38LX134								1		MF/T	3	Wogaman et al. 1976:13, 25
38LX135 (Edenwood)		1	1	1	1	1	1			PT	3	Wogaman et al. 1976:24; Michie 1979; Adams and Cable 1997:72-76
38LX136			1							MF/T	3	Wogaman et al. 1976:39
38LX137								1		S	3	Wogaman et al. 1976:30-33
38LX140							1			MF/T	3	Wogaman et al. 1976:27
38LX141 (Godley)		1	1	1	1	1	1	1	1	F/SM	3	Wogaman et al. 1976:12, 17-18; Trinkley 1978; Steen 1992; Roberts 1996; Adams and Cable 1997:111-112; Southerlin et al. 2000:110-111
38LX320** (Saxe Gotha)								1	1	PF	1	Adams and Cable 1997:82-110; Adams et al. 2000:34-35; Adams 2003:27-29, 2004:25, 30-32, 35
38LX431**				1	1					PF	1	Adams 2000:29-30
TOTALS	**3**	**13**	**21**	**22**	**14**	**18**	**24**	**12**	**10**			**GRAND TOTAL = 137**

Key to Microenvironmental Zone:

PF Prime Floodplain
PT Prime Terrace
MF/T Marginal Floodplain/Terrace
F/SM Floodplain/Sandhills Margin
S Sandhills

*** Page Numbers indicate where temporally diagnostic Native American artifacts are reported.**

**** Not used in the site catchment analyses.**

2004; Adams et al. 2000, 2015; Dodge 2018). What this work demonstrated is that extensive historic sedimentation has covered some areas of the study locality along and away from the river, as discussed below. While protecting the archaeological remains from collecting, cultivation, and shallow subsurface construction activity, the possibility that deeply buried deposits are present must be factored into future work in threatened areas, and offers challenges to land use studies like those reported here.

Intensive fieldwork in the Congaree Creek locality decreased in the 1980s, save for the important work by Michie in locating Fort Congaree. In the 1990s and after, work resumed at a high level, with funding from various sources including the SCDHPT and other public and private utilities, to mitigate the impact of development due to the highway and energy transmission projects and, increasingly, to assist in heritage management. Extensive excavations occurred at the Godley site under the direction of Carl Steen (1992), and surveys occurred in other nearby areas (Drucker 1990, 1992). A major survey of a ca. 498 acre area known as the Otarre Tract in the northern part of the locality was conducted in the middle 1990s, land under the stewardship of the South Carolina Electric and Gas Company, to assess the significance of cultural properties located on it (Adams and Cable 1997; Cable 1996; Goodyear 1996). Many previously recorded sites were in the tract and were revisited, such as Taylor, Manning, and Godley, and intensive excavations were subsequently conducted at the latter two (Roberts 1996; Southerlin et al. 2000; O'Steen et al. 2003). The area of the town of Saxe-Gotha has been intensively examined both archaeologically and historically in recent years, documenting numerous historic remains, as well as a spatially extensive but somewhat diffuse Mississippian assemblage (Adams and Cable 1997; Adams et al. 2000, 2003, 2004; Green 2008, 2011; Poplin et al. 2015).

The recent establishment of the Congaree Creek Heritage Preserve and 12,000 Year Living History Park and associated recreation and tourism projects, such as the development of exhibits and walkways, has led to a renewed interest in the area. Extensive archival research and archaeology has occurred at the Civil War Battlefield site, 38LX83 (Adams 2015; Poplin 2013; Poplin and Jateff 2008, Poplin and Bahula 2012; Poplin et al. 2015), and at the location of Fort Congaree (Stewart 2013; Stewart and Cobb 2018). Sites have been found or revisited associated with development projects like a water intake station, the expansion of the City of Cayce Wastewater Treatment Plant just north of Congaree Creek near the Congaree River (Adams 2000, 2003, 2004), industrial park development, and powerline corridors (Collins and Southerlin 2003; Southerlin et al. 2002; Green 2018, 2011). A recent innovative study of ceramic artifacts found on sandbars in the Congaree River documented materials at a number of locations, with a particularly dense concentration of Middle Woodland through Mississippian period materials from a sandbar located just upriver from the mouth of Congaree Creek (Dodge 2018:56–59). These may be artifacts washed out from the well documented Mississippian sites located just upstream (e.g., 38LX30, 38LX68, 38LX320), from the Fort Congaree area itself (38LX319), or from previously undocumented Mississippian sites in the area between the river and Congaree Creek south of Fort Congaree, which is densely overgrown and, save for Michie's (1989:30–41) extensive deep testing primarily along the creek margin itself, has seem little prior archaeological investigation. Research and scholarship into the archaeology and history of the Congaree Creek locality is thus as strong in recent decades as it was half a century ago, and shows every likelihood of continuing long into the future, given the importance of what has been learned to date.

The Archaeological Record from the Study Area: Its Extent and Limitations

The investigations conducted in the Congaree Creek locality over the last half century have generated locational and artifactual data from over 50 Native American and historic sites, including intensive survey/excavation assemblages from twelve sites: Taylor, Thom's Creek, Manning, Edenwood, Godley, 38LX5, 38LX30, 38LX83 (the Civil War Battlefield site), 38LX64, 38LX82, 38LX106, and 38LX320 (the area of the township of Saxe-Gotha), and temporally diagnostic artifacts from another 31 sites (Table 1; Figure 1). The field records and artifact assemblages from these sites, including materials from several major private collections, formed the basis for the present study. A period-by-period summary of this information, with references to supporting published documentation, is provided in Table 1 for the 43 sites yielding temporal diagnostics; another dozen or so locations where no period specific Native American temporal diagnostics were found, typically small or disturbed sites, were excluded from this study, as were riverine sandbars, where the terrestrial sources of the materials found on them was somewhat uncertain.

Period terminology and dating closely follows that in regional summaries (Griffin 1967; Anderson and Sassaman 2012). Major periods employed, and associated absolute dates, include the Paleoindian (>11,700 cal yr B.P., identified by the presence of fluted or nonfluted Clovis, Suwanee, Dalton, or Simpson points); the Early Archaic (ca. 11,700 – 8900 cal yr B.P., identified by the presence of side- or corner-notched Taylor, Palmer, and Kirk points); the Middle Archaic (ca. 8,900 – 5,800 cal yr B.P, identified by the presence of Stanley and Morrow Mountain points); the Late Archaic (ca. 5,800 – 3,200 cal yr B.P., identified by the presence of Savannah River Stemmed or Small Savannah River points, or Thom's Creek or Stallings pottery); the Woodland (ca. 3,200 – 1,000 cal yr B.P., identified by the presence of cordmarked, fabric impressed, or linear check stamped pottery, or Swannanoa, Gypsy, Thelma, or other small stemmed points, or Yadkin large triangular points); and the Mississippian/Protohistoric (ca. 1,000 – 300 cal yr B.P., identified by the presence of complicated stamped or burnished plain pottery, and small triangular projectile points). Detailed information on the cultural sequence in and near the Congaree Creek locality, providing justification for the use of the diagnostics employed in the present study, has been reported at length elsewhere (Anderson 1979; Michie 1979; Wogaman et al. 1976; Southerlin et al. 2000:24–28; Steen and Taylor 2002:9–18; Steen 2018:10, 12–23; Steen et al. 1995). For those interested in more illustrations and descriptions of South Carolina’s Native American ceramics, a superb website giving extensive information is available at http://www.scpottery.com/ compiled and based on work by Carl Steen, Karen Smith, myself, and many others.

A total of 104 Native American components were identified on the 43 sites yielding diagnostics examined in the study area. The large number of components found likely reflects, in part, the highly diverse Fall Line environmental setting, and the proximity of a major drainage, as well as the fact that some sites were revisited over a number of years. By period, the number of components (i.e., sites producing diagnostic artifacts from that period) recognized were: Paleoindian (N=3), Early Archaic (N=13), Middle Archaic (N=21); Late Archaic (N=24), Woodland (N=28), and Mississippian (N=15). Components were identified by the presence of diagnostic projectile points or pottery; where both were present on a site, only one component from that period was assigned. Thus, while 137 locations could be assigned to a period based on one form of diagnostic or the other (Table 1), only a maximum of 104 locations, or components, are examined in the distributional analyses over the locality that follow, by landform, proximity to water sources, and reconstructed microenvironmental zone, because a number of sites had both pottery and points present from a given period.

Before proceeding with those investigations, however, the utility of the data set for comparative and spatial analyses warrants careful examination. Given the varying environmental and depositional conditions within the locality, and the differing methods and levels of intensity used to collect data from each site, strict comparability of the site assemblage samples cannot be assumed. Surface survey coverage encompassed all non-wetland terrain within the locality, with only permanently inundated stream channel or swampy areas avoided. Much of the study locality was under cultivation when major investigations occurred in the early to mid-1970, at least those areas away from wooded river or creek channels, low swampy areas, or steep hillsides, and those types of terrain are clearly under-examined. Disproportionate attention (i.e., repeated survey and collection), furthermore, was directed to the northern portion of the locality, north of Dry Creek, in the area of the proposed highway corridor. Additionally, coverage was also most intensive along the unforested margins of watercourses or swamps, where artifact concentrations were most common. Wooded terrain along field margins was also examined, although systematic subsurface testing was rare, and only occurred in later CRM projects, in the late 1970s and after.

Most of the sites in the locality examined here, therefore, were found in open areas, such as in plowed fields, roads, or cleared powerline corridors. Overgrown or poorly drained areas, particularly swampy areas and stream/channel bottoms, were only minimally examined, although most accessible stream channels were traversed by canoe or boat to find eroding sites and artifacts. Given this emphasis, it is probable that some sites or portions of known sites extending into wooded areas were missed, as well as some small surface scatters, particularly in the southern portion of the study area, or in the flats away from watercourses. Given the excellent surface visibility and repeated collection at many of the sites, however, the usefulness of the surface assemblages for comparative analyses is probably not seriously in question. Minor components leaving few recognizable diagnostics were undoubtedly missed, but it is probable that most of the major surface assemblages occurring in the locality were found and documented.

More serious, however, is the question of whether buried components were missed, either on known sites or in areas receiving minimal subsurface examination, particularly in the alluvial floodplain and in low-lying swampy areas. Previous investigators have commented on the apparent absence of early sites near the Congaree River (Ackerly 1976:26; Anderson 1979:235–241; Goodyear 1976:8). Subsurface investigations to date near the Congaree, at 38LX30/319, 38LX104, and 38LX112, indicate that extensive overbank deposition has occurred, including almost a meter during the historic period alone (Ackerly 1976; Goodyear and Colquhoun 1980:499–501; Michie 1989:34). These same studies indicate that Late Archaic, Woodland, and Mississippian deposits near the river may be buried at depths of over two meters; whether earlier deposits occurred at even greater depths is unknown. Comparable results are evident from a analysis of ceramic artifacts recovered from sandbars in the Congaree River channel, where Late Archaic through Mississippian sherds were found, presumably eroded from nearby sites in the bank (Dodge 2018).

On known sites away from the floodplain recognition of deeper assemblages is less of a problem, since most of these sites have seen at least some level of subsurface testing, typically carried until no further artifacts were indicated, and at some of these locations very extensive excavations have occurred. However, since little archeological work of any kind has taken place in low-lying seasonally to permanently saturated swampy areas along Congaree Creek and indeed in much of the region, it is clear much remains to be learned, even in an area that has seen a comparatively vast amount of work already. These wetland areas had important resources that were intensively used by Native populations, something well documented in historic contact era accounts (Judge 2020; Larson 1980; Lawson 1709[1972]). In the earlier part of the Holocene or the Late Pleistocene, of course, these areas, and possibly much of the locality, likely did not have similar characteristics or biota, given changes in stream gradients and climate, meaning these locations may have seen greater use or even been settlement and habitation areas (Schuldenrein 1996; Williams et al. 2004). Therefore, the selection for microenvironmental zones documented in what follows must be considered more accurate the closer to the present, and to more modern conditions, the area was occupied.

The results of the analyses that follow should thus be considered tentative and instructive, rather than definitive. But what has been learned tells us a lot, and can guide future investigations. Away from the immediate vicinity of the Congaree River, for example, the work to date indicates that archaeological deposits tend to be much shallower, rarely extending more than a meter in depth. Through examination of surface collections and stratigraphic column samples from across the study area, coupled with an inspection of aerial photographs and contour maps of former meander/channel scars, and modern soil survey maps, it is possible to approximately delimit the portion of the study locality where deeply buried sites are expected to occur (Figure 3). This area, near the river, probably reflects the maximum extent of channel migration during the Holocene. Given the extent of recent alluvial deposition, only the very latest Native American components (probably postdating the Woodland period in age) might be considered fairly accurately represented within this zone. Recognition of these factors is critical in subsequent interpretations. That is, while the analyses that follow have yielded intriguing results, the limitations of the sample means they can be greatly improved upon as investigations in the locality continue.

Exploring Microenvironmental Variability in a Fall Line Setting

Statement of the Research Approach

A number of investigators working in the Congaree Creek locality have commented on the apparent variability in the location of components of differing periods. Goodyear (1975:11, 25), for example, noted that Mississippian components in the area tended to be located in close proximity to the Congaree Creek and Congaree River terraces, while Archaic and Woodland sites were more widely distributed, occurring along swamp margins throughout the area. In a subsequent paper, Goodyear (1976:6,11–12) further observed that Early/Middle Woodland Deptford sites tended to occur both on terraces in the floodplain, and near springs in the adjacent upland Sandhills. Comparable observations were reported by other investigators (e.g., Ackerly 1976:26; Wogaman et al. 1976:33–39), although in no case were these observations systematically or quantitatively evaluated using a large sample. In the most extensive effort along these lines prior to the present study, Anderson (1979:221–241) compared and contrasted excavated assemblages from four sites in the locality, two from the floodplain (38LX64, 38LX82) and two from the upland Sandhills (38LX5, 38LX106). The data from the four sites, coupled with the observations noted by earlier investigators, was used to generate a series of inferences about Native American land use in the upper Congaree River valley:

> Early Archaic settlement appears to have focused on the floodplain and specifically along stream margins. No evidence for Early Archaic use of the uplands was noted. The Middle Archaic, in contrast, saw extensive use of the upland ridge crests for animal resource extraction, together with intensive habitation of the floodplain tributary margins. During the Late Archaic use of the uplands continued with both the ridge crest and ridge slope/ecotonal areas [i.e., area between the floodplain and uplands] utilized for animal extraction tasks. Late Archaic use of the uplands, however, appears to have been relatively minor when compared with the use of this zone during the preceding and succeeding periods. Late Archaic settlement instead appears to have focused instead on the floodplain, with intensive habitation sites occurring both along tributary margins and out within the flat alluvial plain. Woodland period use of the Fall Line area appears to reverse the patterning noted during earlier eras, with short-term extraction loci in the floodplain and probable intensive habitation sites on upland ridge crests. During the Mississippian period, upland ridge crests saw occasional use as extraction loci· settlement during this period appears to have avoided floodplain tributary margin or the flat, low-lying interior areas (Anderson 1979:238).

As with the previous studies, however, these observations about native land use—beyond those drawn directly from the four excavation assemblages—were not quantitatively documented with larger site and assemblage samples. Other than the current study, in fact, only Southerlin et al. (2000:15-24) has documented the wild plant and animal resources around archaeological sites in the locality, using 2km catchments around the Manning and Godley sites and the microenvironmental zones defined below, adopted from the unpublished version of this paper prepared in the early 1990s (Anderson 1991). Thus, while the existing record of archaeological research in the Congaree Creek locality indicates considerable variation in land use over the course of the Native American era, to date the nature of this variation, and the reasons for it, have remained largely unexplored. In an attempt to remedy this situation, locational and environmental characteristics of all of the sites in the locality with temporally identifiable Native American components were examined.

Definition of Microenvironmental Zones

A series of six microenvironmental zones were defined within the study locality, using U.S. Department of Agriculture Soil Conservation Service soil suitability, productivity, land use, and drainage data (Anderson 1991; see Table 2). These zones, established on the basis of the similar ranking of their productivity, and underlying landform and soil structure attributes, encompass

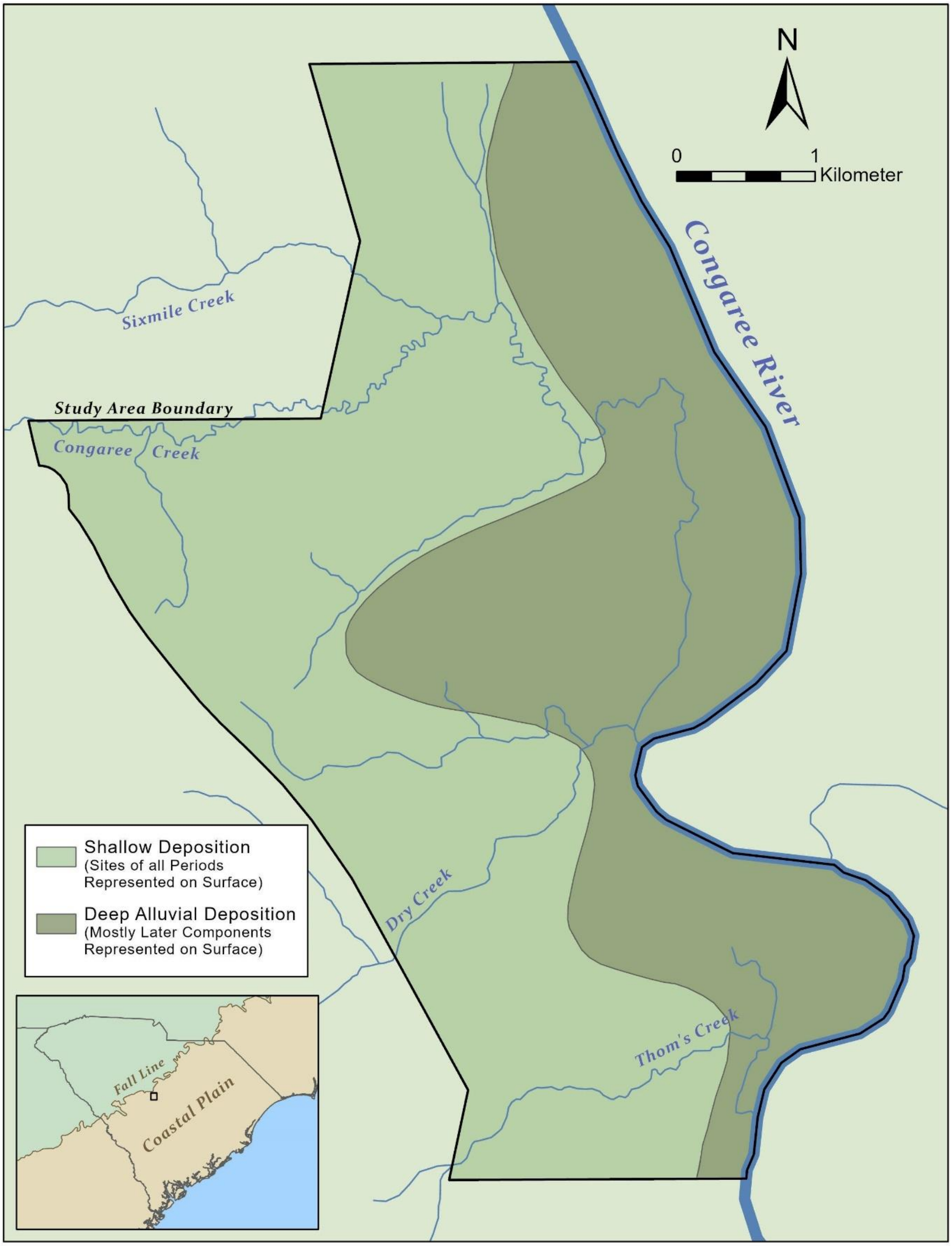

Figure 3: Depositional Conditions, Inferred Channel Migration, and Archaeological Site Visibility in the Congaree Creek Locality (after Lawrence 1976, Maps 27, 34).

Swamp/Wetland, Prime Floodplain, Prime Terrace, Marginal Floodplain/Terrace, Floodplain/Sandhills Margin, and Upland Sandhills associations. The occurrence of these microenvironmental zones within the locality is illustrated in Figure 4. Given the extensive climatic changes that have occurred over the region since the Late Pleistocene, it must be cautioned that these settings were not characterized by comparable biota and drainage conditions throughout the period of human occupation, particularly prior to the terminal Pleistocene, when many large animal species went extinct, or the mid-Holocene, when essentially modern vegetational communities began to emerge. Interpreting and comparing environmental associations between the earlier and later occupations should thus be approached with appropriate caution. A brief description of each of the zones follows; more extensive descriptions of the general Sandhills setting, some incorporating extended discussions of how different areas may have been used by Native populations, have appeared elsewhere (Adams and Cable 1997; Anderson 1979; Anderson et al. 1979; Brooks et al. 1990, 1996, 2010; Drucker and Anthony 1977; Harmon 1980; Hanson et al. 1981; Michie 1977, 1980; Cabek et al. 1998; Sassaman 1990; Sassaman et al. 1990; Southerlin et al. 2000; Steen 2018:7–11; Steen and Taylor 2002:2–8; Swezey 2020; Swezey et al. 2016).

Swamp/Wetland Zone. The Swamp/Wetland zone encompasses level to gently sloping, poorly drained terrain found in wet, low-lying areas subject to frequent, seasonal to year round flooding. Hydric vegetational communities are found in these areas—hardwood bottomland swamp communities with bald cypress (*Taxodium distichum*), tupelo (*Nyssa aquatica*), and sweetgum (*Liquidamber styraciflua*) the principal dominants (Barry 1980:147–158; Braun 1950; Dennis 1967; Waggoner 1975). Included in this zone are tributary and swamp bottoms associated with lesser stream channels, where associated dominants may include green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), water oak (*Quercus nigra*), sycamore (*Platanus occidentalis*), river birch (*Betula nigra*), and cottonwood (*Populus heterophylla*), and a range of other, water-tolerant species (Barry 1980; Dennis 1967). Understory communities are dominated by hackberry (*Celtis laevigata*), hawthorne (*Crataegus* sp.), and a range of grasses, sedges, ferns, and in less frequently flooded areas, extensive stands of cane (*Arundinaria gigantea*). This zone accounted for approximately 27.5 percent of the study area (1560 acres, 632 ha), occurring in areas drained by the main channels and tributaries of Congaree, Dry, and Thom's Creek.

Prime Floodplain Zone. The Prime Floodplain zone encompasses the level to nearly level, deep, well-drained levee and terrace areas along major river drainages. Subject to seasonal flooding, considerable variability in moisture content characterizes this zone, although through much of the year it is dry. Principal dominants include sycamore (*Platanus occidentalis*), cottonwood (*Populus heterphylla*), beech (*Fagus grandiflora*), shagbark hickory (*Carya ovata*), overcup oak (*Quercus lyrata*), elm (*Ulmus americana*), longleaf pine (*Pinus palustris*), and loblolly pine (*Pinus taeda*) (Barry 1980:154–158; Braun 1950; Dennis 1967). Understory dominants include hackberry (*Celtis laevigata*), holly (*Ilex opaca*, *Ilex decidua*), and hawthorne (*Crataegus* sp.); in open or disturbed areas dense stands of cane (*Arundinaria gigantea*) may develop (Barry 1980). This zone was the most extensive in the locality, occupying 31.6 percent of the area (1792 acres, 725 ha), and located on terrain immediately adjacent and up to a mile away from the Congaree River.

Prime Terrace Zone. The Prime Terrace zone encompasses nearly level to gently sloping, deep, moderate to well drained soils and terrain along stream terraces. The underlying soils are highly productive sandy loams well suited to a wide range of plant and animal species. Elevated above the adjacent stream/swamp bottoms, this zone is only infrequently subject to flooding. A mesic mixed hardwood-pine forest characterizes this zone, with dominants including white oak (*Quercus alba*), black oak (*Quercus velutina*), swamp chestnut oak (*Quercus michauxii*), willow oak (*Quercus phellos*), water oak (*Quercus nigra*), mockernut hickory (*Carya tomentosa*), pignut hickory (*Carya glabra*), sweetgum (*Liquidamber stryaciflua*), yellow poplar (*Lirlodendron tulipifera*), persimmon (*Diospyros virginiana*), ash (*Fraxinus* spp.), loblolly pine (*Pinus taeda*), and longleaf pine (*Pinus palustris*). The understory is dominated by flowering dogwood (*Cornus florida),* sourgum

Table 2: Microenvironmental Zones in the Congaree Creek Locality: Soil Suitability/Productivity Characteristics (Data from Lawrence 1976:6).

		Habitat							Wildlife			Land Use				
Microenvironment Soil Type	Woodland Productivity	Seed Crops	Herbaceous Grasses/ Legumes	Upland Plants	Hard woods	Conifers	Wetland Cover	Shallow Water Cover	Open Land Species	Woodland Species	Wetland/ Swamp Species	Use for Camping	Use for Trails	Habitat Use Average	Wildelife Use Average	Land Use Average
Prime Floodplain																
Congaree	1	1	1	1	1	2	2	2	1	1	2	3	2	1.43	1.33	2.5
Toccoa	1	1	1	1	1	1	3	1	1	1	3	3	2	1.29	1.67	2.5
Prime Terrace																
Goldsboro	2	1	1	1	1	1	3	3	1	1	3	1	1	1.57	1.67	1
Orangeburg	2	1	1	1	1	1	4	4	1	1	4	1	1	1.86	2.00	1
Swamp/Wetland																
Wahee	2	3	3	3	1	1	3	2	3	1	3	3	3	2.29	2.33	3
Rains	2	4	3	2	2	2	2	1	3	2	2	3	3	2.29	2.33	3
Chenneby	1	3	3	3	2	2	2	2	3	2	2	3	2	2.43	2.33	2.5
Lumbee	2	3	3	3	2	2	2	2	3	2	2	3	2	2.43	2.33	2.5
Johnston	1	4	4	4	2	3	2	1	4	3	3	3	3	2.86	3.33	3
Margin Floodplain/Terrace																
Craven	3	2	2	2	1	2	3	2	2	1	2	2	1	2.00	1.67	1.5
Brogdon	2	3	3	3	3	3	4	4	2	2	4	2	2	3.29	2.67	2
Floodplain/Sandhills Margin																
Pelion	3	2	2	2	2	2	4	4	2	2	4	2	1	2.57	2.67	1.5
Fuquay	3	2	2	2	2	2	4	4	2	2	4	2	3	2.57	2.67	2.5
Blaney	4	2	2	2	2	2	4	4	2	2	4	2	3	2.57	2.67	2.5
Upland Sandhills																
Vauclause	3	4	4	3	3	3	4	4	4	3	4	2	2	3.57	3.67	2
Lakeland	4	4	4	3	3	3	4	4	4	3	4	3	3	3.57	3.67	3

KEY

Woodland Productivity
1= very high
2= high
3= moderately high
4= moderate
5= low

Habitat, Wildlife, and Land Use Suitability Data
1= good
2= fair
3= poor
4= very poor

Table 3: Native American Components by Microenvironmental Zone in the Congaree Creek Locality. The regional sample encompasses Lexington County, South Carolina.

	Period									Extent of Each Microenvironment	
Microenvironment	Paleo-Indian	Early Archaic	Middle Archaic	Late Archaic	Woodland	Mississippian	**Total Components**	**Total Sites**	**Components Per Site**	Locality	Region
Prime Floodplain	0	1	2	2	2	6	13	10	1.3	1792	4075
	0.00%	7.69%	9.52%	8.33%	7.14%	40.00%	12.50%			31.56%	1.41%
Prime Terrace	2	7	6	9	8	3	35	10	3.5	536	5874
	66.67%	53.85%	28.57%	37.50%	28.57%	20.00%	33.65%			9.44%	2.03%
Swamp/Wetland	0	0	0	0	0	0	0	0	0	1560	27,043
	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%			27.47%	9.33%
Margin Floodplain/Terrace	1	3	9	7	10	2	32	13	2.46	1106	3002
	33.33%	23.08%	42.86%	29.17%	35.71%	13.33%	30.77%			19.48%	1.04%
Floodplain/Sandhills Margin	0	2	3	4	4	1	14	4	3.5	230	89,536
	0.00%	15.38%	14.29%	16.67%	14.29%	6.67%	13.46%			4.05%	30.90%
Upland Sandhills	0	0	1	2	4	1	8	6	1.33	454	160,184
	0.00%	0.00%	4.76%	8.33%	14.29%	6.67%	7.69%			8.00%	55.29%
Total Components	3	13	21	24	28	15	104	43	2.42	5678	289,714
	2.88%	12.50%	20.19%	23.08%	26.92%	14.42%	100.00%			100.00%	100.00%

(*Oxydendrum arboreum*), redbud (*Cercis canadensis*), and a number of smaller species (Barry 1980:138–140; Beavers et al. 1973:34–35; Langley and Marter 1973). Given its ecological diversity and productivity, Hanson et al. (1981:35) argued that this zone was an optimal location for Native American settlement and exploitation. This zone accounted for approximately 9.4 percent of the study area (536 acres, 217 ha), occurring in discrete patches along major creek/tributary margins.

Marginal Floodplain/Terrace Zone. The Marginal Floodplain/Terrace zone encompasses nearly level, deep, moderately well drained soils and terrain along stream terraces and in low interfluvial flats. The underlying soils are fair to moderately productive loamy sands with a poor to fair suitability rating for most plant and animal species. Only infrequently subject to flooding, this zone supports a mesic mixed hardwood-pine forest. Principal dominants include white oak (*Quercus alba*) and loblolly pine (*Pinus taeda*), with an overall community composition similar, if somewhat less varied, to that found in the prime terrace zone. This zone accounted for approximately 19.5 percent of the study area (1106 acres, 448 ha), occurring along and away from creek/tributary margins.

Floodplain/Sandhills Margin Zone. The Floodplain/Sandhills Margin zone encompasses the nearly level to steeply sloping, moderate to well drained terrain at the interface between the Congaree River floodplain and the Upland Sandhills; importantly, the zone also includes terrain along the lower reaches of the Sandhills uplands themselves, typically between stream floodplains and upland ridge crests. Rarely flooded, this zone supports a xeric mixed hardwoods-pine vegetational community, with principal dominants including loblolly pine (*Pinus taeda*), post oak (*Quercus stellata*), southern red oak (*Quercus falcata*), scrubby post oak (*Quercus margaretta*), mockernut hickory (*Carya tomentosa*), and pignut hickory (*Carya glabra*) (Barry 1980:137–138). Vegetation grades between the xeric Turkey Oak-Scrub Oak Barrens communities of the Upland Sandhills and the mesic mixed hardwood and pine forests of the Prime- and Marginal Floodplain/Terrace zones; more mesic stands occur in lower, moister areas (Barry 1980: 137–138). The underlying soils are loamy sands with a fair suitability rating for open and woodland species of plants and animals. Within the general Sandhills region, this zone is one of the most optimal for Native American settlement, occurring in an ecotonal position between the uplands and swamps/drainage channels. This zone accounted for approximately 4.0 percent of the locality area (230 acres, 93 ha), occurring where the Congaree and Dry Creek drainages enter the Upland Sandhills.

Upland Sandhills Zone. The Upland Sandhills zone encompasses the nearly level to steeply sloping, well to excessively drained uplands to the west of and overlooking the Congaree River floodplain. Surface soils are sands to loamy sands that are ranked as poorly to very poorly suited for many plant and animal species (Table 2), which is why the general region, dominated by this zone in terms of area, has been assumed by some investigators to be unfavorable for Native settlement (e.g., Larson 1980; see summary in Moore and Irwin 2013:169-170). The porous, unconsolidated structure of the Upland Sandhills represents the most xeric soil conditions in the Coastal Plain (Braun 1950; Sweezey 2020:27–30; Sweezy et al. 2016:273). Three vegetational communities occur in this zone: Turkey Oak Barrens, Scrub Oak Barrens, and xeric mixed pine-hardwoods, reflecting progressively moister soil/drainage conditions, respectively (Barry 1980: 103–116). Dominant species in the more xeric uplands include longleaf pine (*Pinus palustris*), turkey oak (*Quercus laevis*), scrubby post oak (*Quercus margaretta*), bluejack oaks (*Quercus incana*), blackgums (*Nyssa sylvatica*), and persimmon (*Diospyros virginiana*). Understory development is minor, and expanses of bare sand are common. Scrub Oak Barrens occur in slightly moister areas, with principal dominants including longleaf and slash pine (*Pinus elliottii*); bluejack, scrubby post, and blackjack oak (*Quercus marilandica*); and a range of shrubby understory species, including holly (*lllex opaca*), wax myrtle (*Myrica cerifera*), and huckleberry (*Gaylussacia frondosa*, G. dumosa). In some, more mesic areas, pine-mixed hardwood species similar to those found in the Floodplain/Sandhills Margin zone occur; in these areas loblolly (*Pinus taeda*) typically replaces longleaf pine as the dominant gymnosperm (Barry 1980:114–115). The Upland

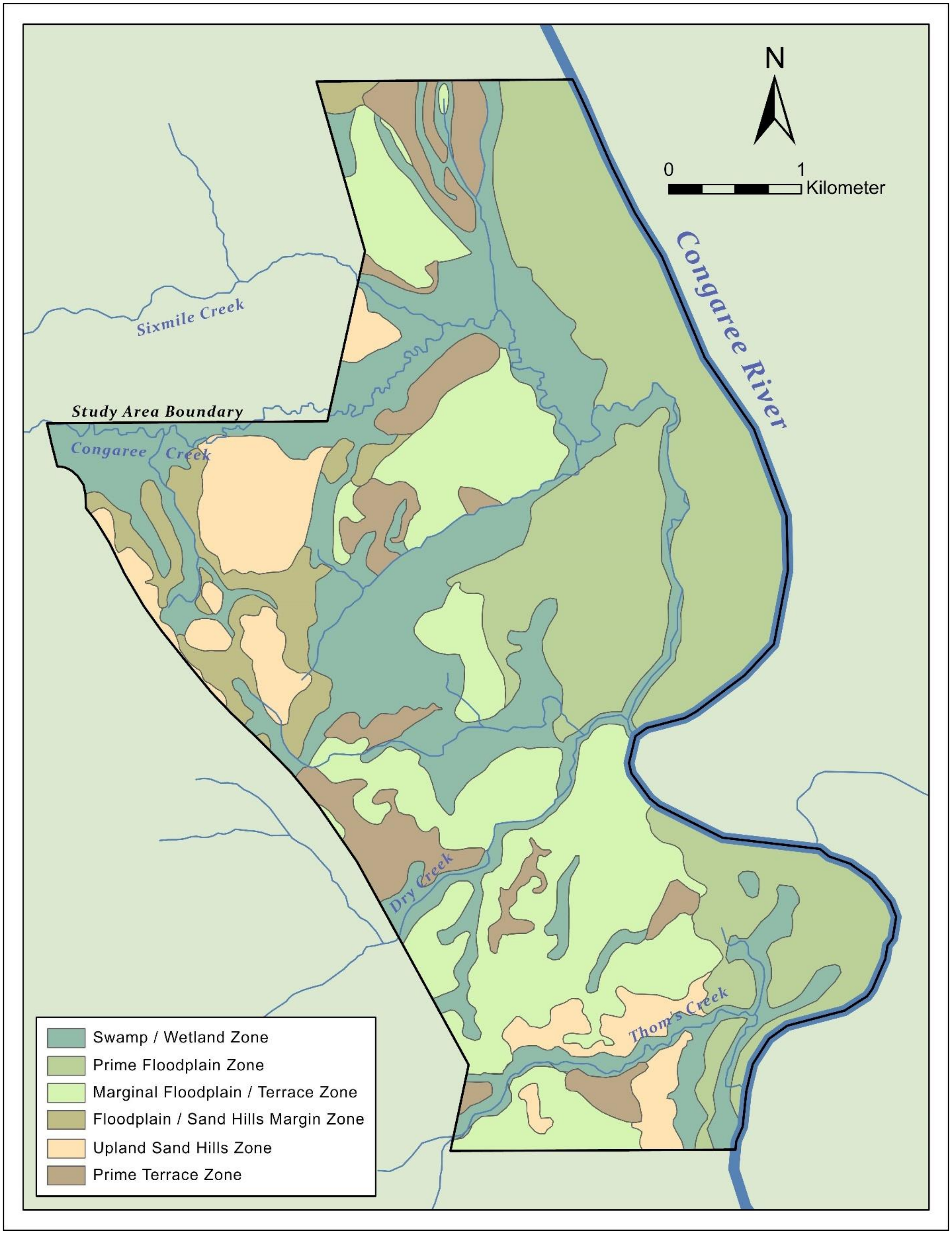

Figure 4: Microenvironmental Zones in the Congaree Creek Study Locality (Source: Lawrence 1976, Maps 27, 34).

Sandhills zone accounted for 8.0 percent of the area within the locality (454 acres, 184 ha), occurring in patches to the west of the river floodplain, overlooking the channels of the Congaree, Sixmile, and Thom's Creeks.

Analysis I: Microenvironmental Variability in Immediate Site Settings

Method of Analysis

The extent of the six defined microenvironmental zones in the Congaree Creek locality and over the surrounding region is given in Table 3, together with summary information on the number of Native American sites and components found within each zone, by period. Microenvironmental assignments were made using USDA Soil Conservation Service 1"=20,000 aerial maps sheets for control (in Lawrence 1976:6, Maps 27, 34). The dominant soil series underlying each archaeological site within the study locality was recorded, and these data, following criteria outlined above (e.g., see Table 2), were used to delimit the microenvironmental zone on which each site was located. In addition, the Strahler (1964) rank of the nearest water source to each site was also determined, using stream channel data recorded on the 1972 U.S.G.S. Southwest Columbia 15' Quadrangle sheet, which encompassed the locality. These determinations, for each site, are presented in Table 1.

The data on the occurrence of each microenvironmental zone over the larger region given in Table 3 was measured using summary soils data for Lexington County, where the study locality was situated (data in Lawrence 1976:6). Lexington County lies predominantly within the Inner Coastal Plain, and extends between two major drainages, the North Edisto and the Congaree Rivers. The area of each microenvironment within the county thus reflects its extent within a roughly 30 mile (ca. 48 km) stretch of the Inner Coastal Plain, in the vicinity of and immediately below the Fall Line. This regional sample, encompassing approximately 450 square miles (ca. 1165 square kilometers), provides a rough measure from which to evaluate the relative uniqueness of the archaeological and microenvironmental data from the spatially more restricted study locality.

Comparison of locality and regional acreage figures over each microenvironmental zone indicates that the Congaree Creek study area, situated predominantly in and near a major riverine floodplain, is highly atypical in respect to the surrounding regional setting, which is dominated by the Sandhills and Floodplain/Sandhills Margin zones (Table 3). Thus, while almost one-third of the locality is in the Prime Floodplain zone (N=1792 acres, 31.6%), this microenvironment comprises only a small fraction of the regional sample (N=4075 acres, 1.4 %). Almost half of the Prime Floodplain zone between the Edisto and Congaree Rivers in the Inner Coastal Plain, in the Lexington County regional sample, in fact, occurs in the Congaree Creek study locality. The Upland Sandhills zone, in contrast, is severely underrepresented, comprising only eight percent of the study locality, but over 50% of the regional environmental sample; when the Floodplain/Sandhills Margin zone is added in, some 85% of the regional sample is in these two zones. Awareness of such differences is essential when drawing comparisons from local to regional settings.

Native American Selection for Specific Microenvironmental Characteristics: Evidence from Site Locational Data

Comparison of site and component distributional data from the study locality indicate the extent to which Native American populations in the Inner Coastal Plain/Fall Line area were focusing on specific microenvironmental zones (Table 3). The 43 archaeological sites found in the area and examined here, for example, were unevenly distributed, with the greatest number (N=13, 31.6%) occurring in the Marginal Floodplain/Terrace zone, and lesser numbers in the Prime Terrace (N=10), Prime Floodplain (N=10), Upland Sandhills (N=6), and Floodplain/Sandhills Margin (N=4). Comparing these figures with the actual extent of each zone in the locality, however, the Prime Terrace appears to have been the most intensively utilized: 23.3 percent of the sites (N=10) occur on this zone, which comprises less than ten percent (536 acres, 9.4%) of the total study area. The Prime Terrace zone also appears to have been the most intensively reoccupied, with 35 (33.65%) of the 104 Native American components found in the locality occurred on sites in this zone, with every period from Paleoindian through Mississippian represented (Table 3). Taking the average number of components per site as a measure of occupational intensity or reuse, the highest incidence of land use occurred in the Prime Terrace zone ($\bar{x}$=3.5 components/site), and the Floodplain/Sandhills Margin ($\bar{x}$=3.5 components/site), with lesser use of the Marginal Floodplain/Terrace ($\bar{x}$=2.46 components/site), Prime Floodplain ($\bar{x}$=1.3 components/site), and Upland Sandhills ($\bar{x}$=1.33 components/site) microenvironments (Table 3).

The Sandhills region has been viewed by some investigators as a poor setting for human occupation and use by First Peoples, as noted previously. Moore and Irwin (2013:170, taking after Nye 1930:36), in a study from the Fort Bragg area of North Carolina, a similar setting, humorously noted that the Sandhills were so resource-poor that "even a possum would have to pack rations to cross" it. Their study, in fact, like this one, showed, that appreciable use by First peoples actually did occur, if not in the traditional form of large, dense feature or monument-laden archaeological sites. Another North Carolinian called the Sandhills physiographic region the "Sahara of North Carolina" (Turner 1949). The low utilization of the Upland Sandhills zone by Native Americans in the current study locality does appear to be the case if the number of components per site is considered (Table 3). In the Congaree Creek study locality, the Prime Terrace microenvironment appears to have been a focus for Native American settlement, together with the Floodplain/Sandhills Margin. Given the vastly greater extent of the Upland Sandhills and Floodplain/Sandhills Margin zones in the larger region, however, the actual number of components in these zones is likely far higher than the numbers in favored but far more spatially restricted settings.

The marked incidence of sites and components on the Prime Terrace zone is not altogether surprising, given the ecological diversity this zone supports, reflected in the high productivity ratings for a wide range of plant and wildlife populations (Table 2), and earlier evaluations of this setting as close to optimal for Native American settlement (Hanson et al. 1981:35). Comprising only 2.03% of the regional sample, this zone nevertheless appears to have been a major focus for Native American activity. In support of this, some of the largest archaeological sites in the locality, Thom's Creek, Taylor, Manning, and Edenwood occur in this zone, yielding assemblages that are among the densest known from South Carolina in terms of numbers of diagnostic points and ceramics (Anderson 1979; Goodyear 1976; Griffin 1945; Michie 1969, 1971, 1996; Adams and Cable 1997; O'Steen 2003). Occupied repeatedly and intensively throughout the period of Native American settlement, the importance of their setting, in the Prime Terrace microenvironment, may have been accentuated by the proximity of the Fall Line. That is, it is not surprising that favored areas near a major, highly prominent regional macroecotone demarcated by shoals and falls in the river would have seen intensive use. These settings may have additionally served as rendezvous or aggregation loci for groups from across the region. Such an inference is supported by the wide range of artifacts and raw materials found in collections from these sites, in particular at Manning and Taylor, which had long been cultivated and collected (Anderson 1979:23–247; Anderson and Hanson 1988; Wetmore 1986; Daniel 2000).

The evidence from the locality data set thus indicates that a small range of microenvironments may have been particularly important during Native American settlement and use of the Inner Coastal Plain/Fall Line/Sandhills area. Over three-quarters of the Native American sites (N=33, 76.7%) and components (N=80, 76.9%) found in the Congaree Creek locality, for example, occurred in three microenvironmental settings: the Prime Terrace, Prime Floodplain, and Marginal Floodplain/Terrace zones. Although these zones were common in the study locality, comprising about 60 percent of its area, they made up less than 5 percent of the regional sample (Table 3). Over most periods, these zones saw major occupation and use. During the Mississippian, for example, eleven sites were found in these zones, including six within the Prime Floodplain (the greatest use of this zone in any period). Two of these floodplain locations, 38LX68 and 38LX320, are the largest Mississippian sites known from the upper Congaree valley (Goodyear 1978; Adams and Cable 1997; Adams et al. 2000; Adams 2003, 2004). The occurrence of such sites reinforces long held observations that Mississippian settlement in the region focused on floodplains, probably to take advantage of the fertile, easily tilled soils, and

Table 4: Native American Assemblages by Microenvironmental Zone in the Congaree Creek Locality: Comparison of Biface and Ceramic Occurrences. The regional sample encompasses Lexington County, South Carolina.

Microenvironment	Late Archaic Bifaces	Late Archaic Pottery	Woodland Bifaces	Woodland Pottery	Mississippian Bifaces	Mississippian Pottery	Total Occurrences	Total Sites	Extent of Each Microenvironment: Locality	Extent of Each Microenvironment: Region
Prime Floodplain	2 9.09%	2 14.29%	1 5.56%	1 4.17%	4 33.33%	6 60.00%	16 16.00%	10	1792 31.56%	4075 1.41%
Prime Terrace	9 40.91%	2 14.29%	6 33.33%	8 33.33%	3 25.00%	2 20.00%	30 30.00%	10	536 9.44%	5874 2.03%
Swamp/Wetland	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0	1560 27.47%	27,043 9.33%
Margin Floodplain/Terrace	7 31.82%	6 42.86%	5 27.78%	9 37.50%	2 16.67%	0 0.00%	29 29.00%	13	1106 19.48%	3002 1.04%
Floodplain/Sandhills Margin	3 13.64%	3 21.43%	3 16.67%	4 16.67%	2 16.67%	2 20.00%	17 17.00%	4	230 4.05%	89,536 30.90%
Upland Sandhills	1 4.55%	1 7.14%	3 16.67%	2 8.33%	1 8.33%	0 0.00%	8 8.00%	6	454 8.00%	160,184 55.29%
Total Occurrences	22 22.00%	14 14.00%	18 18.00%	24 24.00%	12 12.00%	10 10.00%	100 100.00%		5678 100.00%	289,714 100.00%

Table 5: Native American Components in Relation to Nearest Water Source Characteristics in the Congaree Creek Locality. Source: USGS 7.5' Southwest Columbia USGS Quadrangle, 1972 edition.

Nearest Water Source (Strahler Rank)	Paleo-Indian	Early Archaic	Middle Archaic	Late Archaic	Woodland	Mississippian	Total Components	Total Sites
Main River Channel (Rank 1)	0 0.00%	0 0.00%	0 0.00%	1 4.17%	0 0.00%	3 20.00%	4 3.85%	4 9.30%
Main Stream Channel (Rank 2)	2 66.67%	4 30.77%	5 23.81%	9 37.50%	11 39.29%	6 40.00%	37 35.58%	14 32.56%
Minor Stream Channel (Rank 3)	1 33.33%	9 69.23%	15 71.43%	11 45.83%	14 50.00%	6 40.00%	56 53.85%	20 46.51%
Intermittent Tributary (Rank 4)	0 0.00%	0 0.00%	1 4.76%	3 12.50%	1 3.57%	0 0.00%	5 4.81%	3 6.98%
No Water Source in 200m (Rank 5)	0 0.00%	0 0.00%	0 0.00%	0 0.00%	2 7.14%	0 0.00%	2 1.92%	2 4.65%
Total Components	3 2.88%	13 12.50%	21 20.19%	24 23.08%	28 26.92%	15 14.42%	104 100.00%	43 100.00%

the proximity to rich game resources (Ferguson 1971; Ferguson and Green 1984; Smith 1978; Ward 1965).

While the locality data indicate that multicomponent (i.e., large and presumably intensively occupied) sites occurred in the Prime Floodplain and Prime Terrace zones, they also indicate that appreciable numbers of smaller and presumably less intensively occupied single component sites were present in the Upland Sandhills and Floodplain/Sandhills Margin zones. Given the density of sites per zone in the study area, and extrapolating from the locality to the regional sample—the area of the Inner Coastal Plain between the Edisto and the Congaree in Lexington County—more than 2100 sites could be expected in the Upland Sandhills zone, and more than 1500 in the Floodplain/Sandhills Margin zone. Using the same method of extrapolation, far fewer numbers would occur in the Prime Terrace (ca. 110 sites), Prime Floodplain (ca. 23 sites), and Marginal Floodplain/Terrace zones (ca. 35 sites) in the regional sample. In the absence of a statistically representative population, of course, these figures can be viewed as only rough approximations at best, but they clearly indicate substantial use of the interriverine uplands, possibly by task groups from settlements closer to major drainages.

Sites in the Upland Sandhills zone in the general region, over most periods, in fact, for the most part appear to be small, low density scatters, or palimpsests of such scatters, suggesting fairly short-term, focused or task-specific use (Anderson 1979:227; Braley 1991; Gresham et al. 1985; Hanson et al. 1978:117–128; Moore and Irwin 2013:185; Roberts et al. 1991; Sassaman et al. 1990; Cabek et al. 1998). During the Woodland period, however, a somewhat more intensive use of both the Upland Sandhills and Floodplain/Sandhills Margin is suggested. At one Floodplain/Sandhills Margin site that saw intensive excavation in the Congaree Creek locality, 38LX5, for example, evidence for intensive site use and possibly habitation was found, and dense Woodland components were also noted at 38LX62, examined during survey activity (Anderson et al. 1974a; Anderson 1979). Similar distributions have been reported from elsewhere in the Inner Coastal Plain of South Carolina and Georgia (Campbell et al. 1981; Drucker and Anthony 1977; Ferguson and Widmer 1976; Gresham et al. 1985; Hanson et al. 1978, 1981; Sassaman et al. 1990). Thus, while specific locations within the Upland Sandhills and Floodplain/Sandhills Margin may have been less intensively occupied or revisited than areas within the floodplain, these zones may have witnessed the greatest number of discrete behavioral/ occupational episodes over time.

These findings seriously call into question earlier arguments that the interriverine zone in the southeastern Atlantic Coastal Plain may have been deserted throughout much of the period of Native American settlement (e.g., Caldwell 1958:11; Larson 1980:64–65), an inference that has, in fact, been severely challenged in recent decades, particularly within the Sandhills (Anderson et al. 1979:22–24; Brooks and Canouts 1984; Brooks and Scurry 1978; Brooks et al. 1996, 2010; Campbell et al. 1981; Fish 1976; Sassaman et al. 1990; Moore and Irwin 2013; Steen 2018). Part of the reason for this extensive use by First Peoples is that even if these upland areas are remote from major river valleys, they are not from smaller drainages or from Carolina Bays, offering freshwater resources in the otherwise xeric terrain (Brooks et al. 1990,1996, 2010; Eberhard et al. 2004; Moore et al. 2012; Moore and Irwin 2013). These findings also demonstrate that upland areas in the Sandhills saw extensive use, if perhaps not as often or for as extended periods as terrain closer to major drainages.

Changes in Land Use Over Time:
Evidence from Site Locational Data

Examining component distributions period by period, evidence for changing patterns of Native American land use may also be seen in the Congaree Creek locality data set (Table 3). The earliest components, dating to the Paleoindian and Early Archaic periods, for example, occur predominantly in the Prime Terrace zone. Sites are only rarely found in other microenvironmental zones during these periods, suggesting fairly focused or restricted land use (assuming erosion and alluvial/colluvial depositional processes are thoroughly controlled for, a debatable assumption as we have already seen). Human occupation on the South Atlantic Slope during these early periods is thought to have been characterized by small, highly mobile, more-or-less egalitarian groups ranging over appreciable areas (Anderson and Schuldenrein 1983:199–205; Anderson and Hanson 1988; Goodyear et al. 1979:90–106, 1989; Daniel 2000), and land use may have focused on only the most favorable microenvironmental zones. Use of marginal areas may have been obviated by low regional population densities (Ford 1974; Miller 2018, Miller and Carmody 2018, 2020; Hale and Sanger 2020). This pattern changes by the Middle Archaic, however, when use of most available microenvironmental zones is indicated. Middle Archaic adaptations are thought to have been characterized by somewhat higher regional population densities, coupled with a fair degree of residential mobility within spatially circumscribed areas in the South Carolina area (Blanton 1983; Brown and Vierra 1982; Goodyear et al. 1979:106–111; Sassaman 1983, 1991). This Middle Archaic pattern, the intensive use of a range of microenvironments, continues through the Mississippian in the study area (Table 3). The occurrence of sites in a wide range of microenvironments over this interval suggests adaptation to an increasingly broader range of resources, something that may have been necessitated by rising regional population densities; as populations grew expansion into a wider range of settings and more marginal areas appears to have occurred throughout the region (Ford 1974; Cleland 1976; Brose 1979; Sassaman 1990; Stoltman and Baerreis 1983; Miller 2018, Miller and Carmody 2018, 2020; Hale and Sanger 2020). Given the major shifts in social organization and technology, including the adoption of agriculture, that occurred from the Middle Archaic through the Mississippian in the region, the character of exploitation in particular settings likely changed appreciably over time.

In consideration of this possibility, the occurrence of temporally diagnostic ceramics and hafted bifaces were examined separately over the Late Archaic, Woodland, and Mississippian occupations within the study locality (Table 4).[2] These distributions highlight what appear to be major differences and changes in land use. Hafted bifaces, for example, tend to occur in a wide range of microenvironmental zones during each period, suggesting that the use of these implements, perhaps in hunting/butchering tasks, in a wide range of settings. Pottery, in contrast, tends to occur predominantly in the Marginal Floodplain/Terrace zone during the Late Archaic, widely during the Woodland although with an emphasis on the Marginal Floodplain/Terrace and Prime Terrace zones, and predominantly in the Prime Floodplain zone during the Mississippian with little or no occurrence in other zones. These patterns suggest that habitation loci, or minimally areas of extended use, may have occurred in fairly restricted settings during each period, if the presence of ceramics can be considered an accurate indicator of relatively sedentary behavior (David 1972; DeBoer 1974; Braun 1983; Sassaman 1993).

These distributions are supported, in part, by observations from throughout the lower South Atlantic Slope. Mississippian habitation sites, for example—hamlets, villages, and ceremonial centers characterized by extensive scatters of ceramic and other debris—are commonly reported on the floodplains and lower terraces of major drainages, although smaller settlements are sometimes found in more interior areas in some locations (Anderson 1975, 1994; Ferguson 1971; Larson 1972; Ferguson and Green 1984; Sassaman 1990). Typically, however, only comparatively minor components—small flakes scatters with associated triangular bifaces from possible hunting stations, or other special purpose site types—characterize Mississippian period use of the interriverine area, save in areas where hamlets are widespread (Shapiro 1983; Anderson 1985, 1994:271–274). A somewhat more dispersed occurrence of ceramic bearing sites is evident during the Woodland, a patterning thought to reflect the generalized, intensive exploitation of a wide range of microenvironmental zones (Brooks and Scurry 1978; Brooks et al. 1990; Hanson et al. 1978, 1981; Anderson et al. 1982; Sassaman

[2] The total number of *occurrences* in Table 4 (n=100), refers to the sites with hafted bifaces and/or pottery from the Late Archaic through Mississippian periods. This differs from the number of *components* (n=104) over all time periods given in Tables 3 and 5. As documented in Table 1, where the data used to generate Tables 3 and 4 comes from, there were a grand total of 137 occurrences where hafted bifaces and/or ceramics were found in the study locality over all periods.

1990:275–300). Large Late Archaic sites characterized by shell or nonshell midden accumulations and dense artifactual concentrations are also commonly found in close proximity to major drainages in the region (Stoltman 1972; Goodyear et al. 1979: 111–115; White 1983; Wood et al. 1986; Sassaman 2002, 2010); these sites are typically interpreted as base camps or extended habitation loci, but no evidence for such site types, especially shell midden deposits, has been found to date in the Congaree Creek locality from any period. Late Archaic assemblages may lie deeply buried along the main channel of the Congaree River, but at present the available evidence suggests terrace locations away from the river were favored for use of both ceramics and bifaces.

Native American Selection for Specific Microenvironmental Characteristics: Evidence Based on Stream Rank Data

Stream rank data tabulated for sites in the Congaree Creek locality from the 7.5' Southwest Columbia USGS Quadrangle 1972 edition, also document changes in Native American land use (Table 5). Throughout the record of human occupation sites tend to be found along both major and minor stream courses; only during the Mississippian, however, are sites found in close proximity to the main river channel, probably reflecting agricultural requirements, such as regularly flooded and renewed, easily tillable soils (Murphy and Hudson 1968; Ward 1965). Part of this patterning, of course, is undoubtedly due to depositional conditions. Earlier sites in the riverine floodplain, as noted previously, are likely to be deeply buried, and hence largely undetectable. Increased use of smaller, intermittent tributaries in later periods is indicated, however, reinforcing observations that a wider range of microenvironments were apparently utilized in later, as opposed to during earlier periods.

Perhaps the most striking pattern evident in the data is the close proximity of most of the locality sites to water.[3] Only two sites, both small, low density Woodland scatters found in the Upland Sandhills zone, 38LX107 and 38LX109, were located slightly more than 200m from permanent or even intermittent/seasonal water sources. Native American use of the Inner Coastal Plain thus appears to have been profoundly influenced by drainage characteristics. The fact that two Upland Sandhills sites were not directly adjacent to reliable water sources, however, indicates that drainage information, by itself, is not sufficient to predict site occurrence. The analyses here also indicate that the greatest numbers of sites in the Inner Coastal Plain regional sample occur in the Upland Sandhills microenvironmental zone, and some researchers have further observed that such upland sites are common along ridge/stream margins (see also Moore and Irwin 2013; Sassaman 1990). The present analysis supports this, by suggesting that small sites in the upland areas may occur well away from watercourses.

Analysis II: Microenvironmental Variability in Site Catchments

Method of Analysis

The analyses to this point have focused on immediate site settings: the microenvironmental zone each site was located on, and characteristics of the nearest water source. In the present section, the area around each site is examined, in an attempt to see what specific microenvironmental zones, or combinations of zones, may have been important in structuring local Native American settlement. The method employed, site catchment analysis, entails the assessment of natural resources in fixed areas around individual archaeological sites (Vita-Finzi and Higgs 1970). Primary assumptions in site catchment analyses are that:

> Considerations such as the availability, abundance, spacing, and seasonality of plant, animal, and mineral resources [were] important in determining site location… prehistoric peoples... located sites, moved their locations, and generally played out a settlement strategy that minimized the ratio of energy expended to energy procured... it is therefore a basic premise of site catchment analysis that site function and site location are correlated, and that inferences can be made about

[3] Greater specific detail on distance to water in the locality is provided in the analyses that follow, including in Figure 8.

function from knowledge of location (Roper 1979:120–121).

In the present study, 200 and 500 meter radii circular areas· centered on each site were employed. Using a planimeter and data from soils maps (Lawrence 1976), the extent of each microenvironmental zone within 200 and 500 meters of the center of 41 locality sites was determined (Figure 5). The 41 site sample consisted of all of the major sites yielding Native American period-specific diagnostics that had been recorded through the mid-1980s from the locality.[4]

Choice of 200 and 500 meter catchment radii reflected an interest in the influence of immediate and proximate microenvironments on the occurrence of archaeological sites and components of differing periods. That is, conditions and exploitable resources in close proximity to these sites were thought important factors shaping the choice of human settlement, and hence archaeological sites. The 200 m radius catchment was thus chosen to monitor conditions in the immediate vicinity of each site, while the 500 m radius catchment was intended to monitor conditions at a greater distance, but still encompassing proximate, near site microenvironments. This perspective—the use of comparatively small catchment circles—it should be emphasized, was not arbitrarily adopted, but was dictated by the structure of the regional environment. Justification of catchment parameters, which follows, is a critical and often overlooked aspect of this kind of analysis (Roper 1979:124, see also Binford 1982:6–8).

In the present study, evaluation of the catchment radii chosen was done using data from the 41 site, and from 100 randomly selected sample points from across the Congaree Creek study locality. These documented a close spacing and considerable redundancy in the occurrence of microenvironmental zones in the locality. That is, most microenvironmental zones occurred in close proximity to each other, with few points more than 2500 m from all six zones; in most places this distance was appreciably less (Figure 6). An average of just under five microenvironmental zones, in fact, occurred within 1000 m of any given site or random sample point in the locality, using progressive 100 m increment increases in catchment size (Figure 7). Water was also readily accessible; no site in the locality was more than 225m and no sample point more than 300 m from a predictable water source, with a second predictable source rarely more than 1000 m away (Figure 8). Indeed, the only sites in the locality more than ca. 200m from a water source were two in the Sandhills Uplands Zone noted previously. These analyses also show convincingly that site locations had a more skewed distribution, indicating they were not selected at random by past inhabitants (Figures 6–8). Comparing the extent of each microenvironment in the known site catchments, data provided in the Supplementary Materials, as opposed to catchments around randomly selected points in the locality, would be another way of highlighting differences between site locations and the underlying general environmental conditions.

Given these environmental conditions, the use of catchments much larger than approximately 500 m in radius would have incorporated essentially redundant environmental data. Given the closely spaced, patchy distribution of microenvironmental zones in the locality, furthermore, use of appreciably larger catchments would have effectively masked the small scale environmental variability that was present around each site. That is, given much larger catchment radii, locality rather than site specific microenvironmental variability would have been documented. Such data would have shown the variety of different microenvironments in the general site area, as a 2 km analysis of the Manning and Godley sites documented (Sutherlin et al. 2000:18-23); the present study attempted to resolve reasons why specific sites were occupied based on their immediate and proximate settings. As a final observation, circles were drawn using distances of 200 and 500 rather than attempting least cost or trend surface analyses of catchment, that is, controlling for factors such as slope, drainage, or other factors influencing movement (Anderson 2012:241, 248; Surface-Evans 2009; Gillam 2016). The present analysis was directed to what microenvironments might be present around each

[4] Two sites yielding Native American diagnostics, 38LX320 and 38LX431, are not included in the catchment-based analyses that follow, which were conducted before they were discovered.

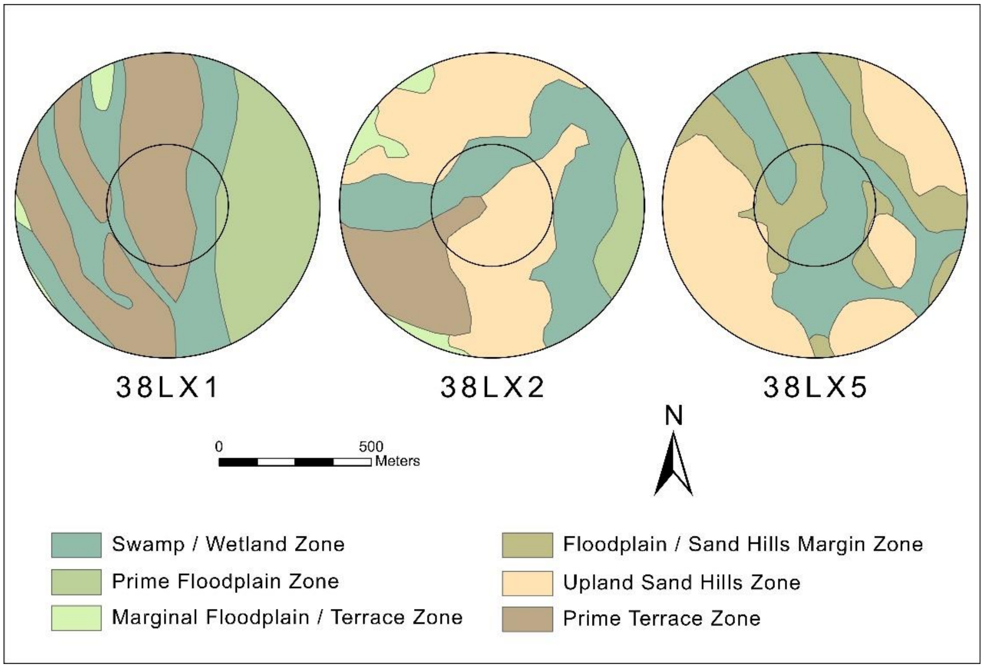

Figure 5: Site Catchment Areas from the Congaree Creek Study Locality, South Carolina illustrated using data from 38LX1 (Taylor), 38LX2 (Thom's Creek), and 38LX5. The areal extent of each microenvironmental zone within 200 and 500 meter radii of each site was recorded over the 41 site sample.

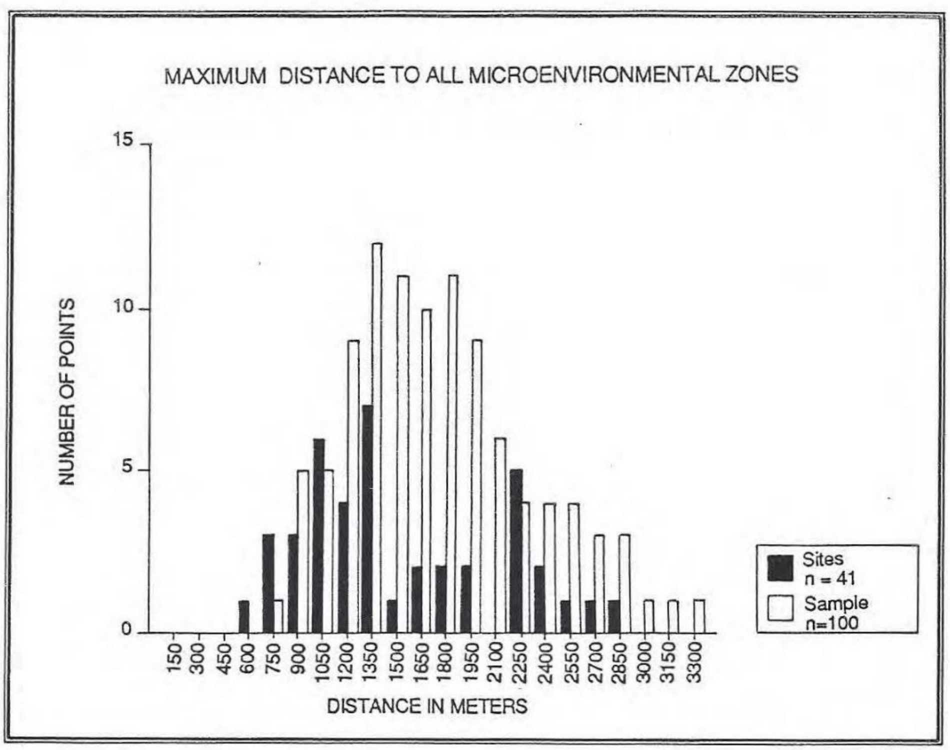

Figure 6: Maximum Distance to all Microenvironmental Zones in the Congaree Creek Locality, Recorded Using the 41 Site Sample, and from 100 Locations Randomly Selected within the Locality.

site, not examining how people may have moved among and between them.

Multivariate Analyses of the Catchment Data

Using the six microenvironmental zones as variables, principal components/factor analyses were performed using data from the catchment zones about the 41 sites in the sample. Separate analyses were conducted using the 200 and 500 m catchment radii; the number of acres of each microenvironmental zone within the catchment of each site constituted the raw data for these analyses. The goal was to reduce the catchment data to a smaller number of variables that could be examined to resolve possible underlying patterning. Such patterning was suspected—the intentional selection for particular combinations of microenvironments by the Native American inhabitants of the locality—but was difficult to resolve given the variability in the settings of the individual sites. The analyses were designed to transform a given set of variables (the extent of microenvironmental zones represented in each catchment) into a newer, smaller set of composite variables, called components or factors, that are orthogonal, or uncorrelated with each other. These components are unique linear transformations of the original variables, calculated from a matrix of Pearson's correlation coefficients. Principal components analysis proceeds by generating these linear combinations of variables, or components; the first component is the single best summary of variance in the original variables, the second component, orthogonal to the first, is the best summary of the remaining variance (after the effect of the first component is removed), and so on (Kim 1975:469–471). The purpose of the present analysis was to see whether or not a small number of components or factors could account for much of the variance in the original catchment data. If this proved the case, these components would, in all probability, reflect specific combinations of environmental parameters influencing Native American land use in the study area.

A caveat is essential. The microenvironmental zones, although comprised of distinct underlying soil types, are to some extent autocorrelated; some soil types are similar to or occur in proximity to others. Floodplain/Upland Sandhills Margin settings, for example, are by definition near Upland Sandhills, while Floodplain Margin settings are near Prime Floodplains, and Swamp/Wetland settings, sometimes near one or both. Accordingly, the analytical results that follow should be viewed with caution. In spite of this, and as discussed below, *fairly tight to more dispersed or elongated clusters of sites were resolved using both the 200 and 500m catchment data, indicating certain constellations of microenvironments were being consistently selected for in the locality*.

200 Meter Catchment Analysis Results

Microenvironmental data from the 200 m catchments in the Congaree Creek locality 41 site sample were used to generate a correlation matrix, standardized factor matrix and associated communalities and eigenvalues, and the standardized factor-score coefficient matrix (Table 6).[5] Inspecting the factor matrix and associated eigenvalues, it is apparent that the first two components account for just under half the total sample variance (49.0%). Although the amount of variance explained by the succeeding components declined slowly, the present analysis focused on these first two factors.

Interpreting these factors in terms of the original variables, the first component appears to be a general one, with positive loadings for both the Prime Floodplain, Upland Sandhills, and Floodplain/Sandhills Margins zones, and negative loadings over the Prime Terrace, Swamp/Wetland, and Marginal Floodplain/Terrace zones (Table 6). The second component, in contrast, reflects the basic floodplain/uplands dichotomy in the locality, with moderate positive loadings on the Upland Sandhills and Floodplain/Sandhills Margin zones, and negative or weakly positive loadings on the remaining microenvironments. To explore the implications of these results, factor scores for the original cases (i.e., sites) were calculated from the factor-score coefficient matrix. These scores were then used to generate a scatter plot of the relative

[5] The primary data used in the analyses, specifically the extent of each microenvironmental zone in the 200 and 500 catchments around each site, and the resulting factor scores for each site used to generate the scatterplots, are given in the Supplementary Materials.

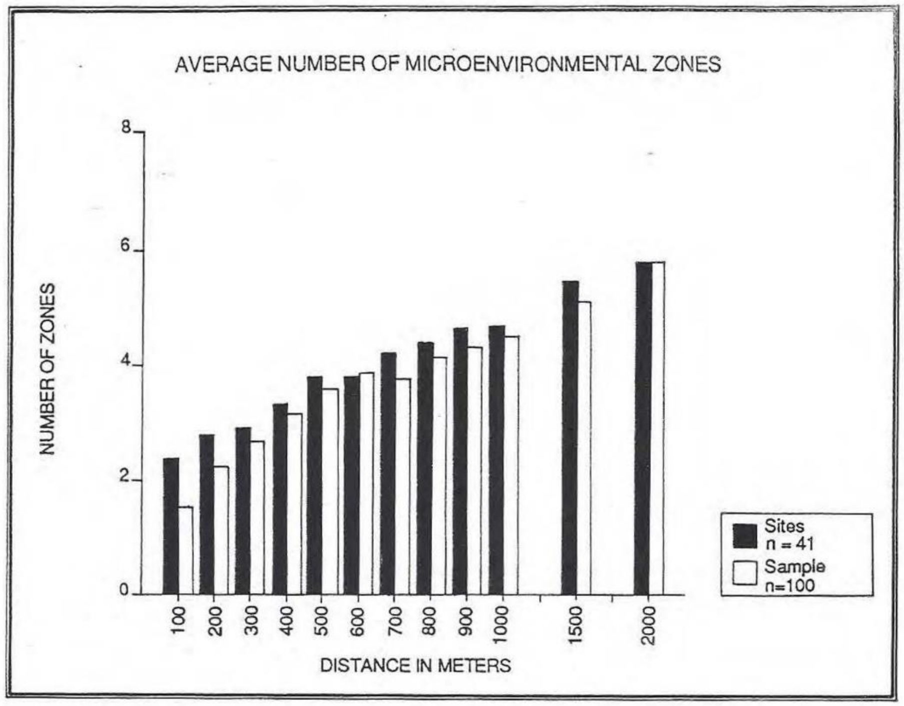

Figure 7: Average Number of Microenvironmental Zones Observed Over Increasing Catchment Radii in the Congaree Creek Locality, Recorded Using the 41 Site Sample, and from 100 Locations Randomly Selected within the Locality.

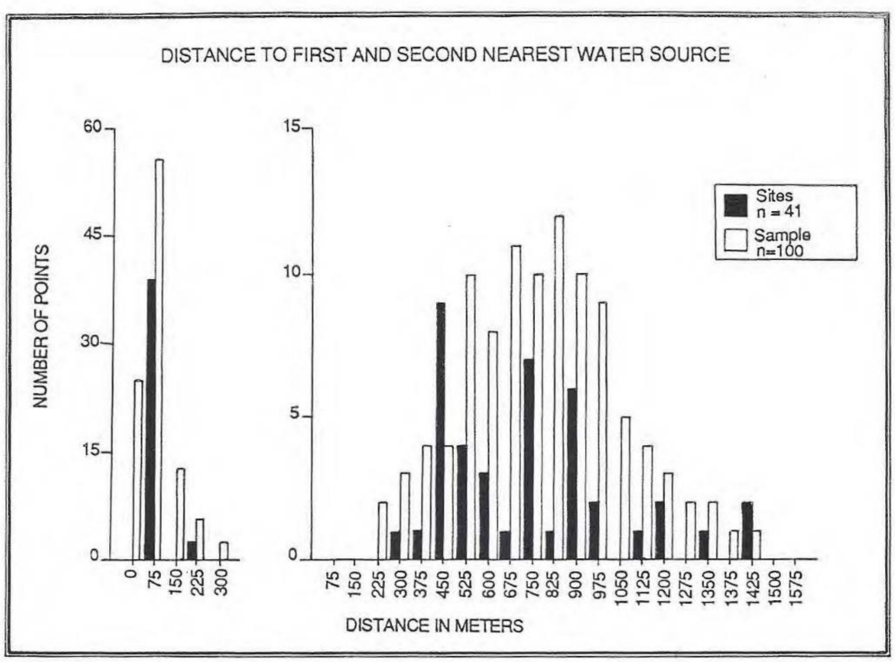

Figure 8: Maximum Distance to Nearest (left) and Second Nearest (right) Sources of Water in the Congaree Creek Study Locality, Recorded Using the 41 Site Sample, and from 100 Locations Randomly Selected within the Locality.

position of the cases, or sites, on the two factors (Figure 9). Specific site numbers are given for each case on the figure.

Three distinct clusters or groups of sites are evident in Figure 9, the scatter plot of the first two components calculated from the 200 m catchment data. These clusters, given the analytical procedures employed, represent groups of sites in similar environmental settings, or combinations of microenvironments, rather than in any particular zone (although given the different weightings, or factor loadings, the effect of some zones is greater than others in shaping particular site scores).

The three clusters, which resemble a rabbit head and ears, can be interpreted in terms of the environmental structure of the Congaree Creek locality. The small, tight terrace/swamp margins settings (blue/green) site cluster near the center of the x-axis below the origin, or the rabbit's head, is made up of a group of 21 sites located on Prime Terrace or Marginal Floodplain/Terrace soils, in close proximity to Swamp/Wetland resources. The other two clusters comprising the rabbit's ears, encompass groups of sites located in Prime Floodplain and Floodplain/Sandhills Margin or Upland Sandhills soils. These clusters are more dispersed, or elongated, indicating considerable variability exists in immediate site conditions. Within the uplands/floodplain margin (yellow) site cluster, for example, the distribution proceeds from highly xeric to more mesic conditions, while the dispersion within the floodplain/alluvial settings (light green) site cluster reflects increasing swamp/wetland conditions.

The occurrence of temporal diagnostics on sites within these groupings provides a useful perspective for interpreting changing Native American land use over time within the locality. The occurrence of Native American components, by period, over these environmental clusters is shown in Figure 10; each distribution represents the sites in Figure 9 with assemblages of the appropriate age. Clear changes in land use over time are evident in the numbers and placement of the site dots, indicating site selection was dictated at differing times, at least in part, by the presence of specific constellations of microenvironments. Terrace/swamp margin settings, for example, were used throughout the period of Native American settlement, while floodplain settings, although first visited in the Early Archaic, saw comparatively minor use until the Mississippian period (although here depositional factors may be a significant problem). Increasingly intensive use of upland areas is indicated by the Early Archaic through Woodland distributions, with an apparent decline in the use of this setting during the Mississippian.

The analysis also indicates how Native American populations made use of specific settings. Since sites in close proximity to one another occur in very similar environmental settings, similar records of Native American occupation might be expected. This inference is generally supported. Large, multicomponent sites, for example, tend to occur in the terrace/swamp margin settings cluster, while Mississippian components are found at most of the sites in the floodplain/alluvial settings cluster. Variation is evident in the distribution of sites within each cluster, however, indicating that microenvironmental conditions in immediate site areas (i.e., within ca. 200 m in this analysis) differed somewhat and likely only partially shaped Native American settlement. Observed variability in site assemblages dating to the same period may derive from differing strategies of land-use in successive visits, such as seasonally or over longer intervals of time (e.g., Binford 1980, 1982, 1983).

500 Meter Catchment Analysis Results

To explore variability in more general or proximate, as opposed to immediate site settings, the principal components analysis described above was duplicated, using the microenvironmental data from the 500 m radius catchments. Table 7 gives the resulting correlation matrix, standardized principal factor matrix and associated communalities and eigenvalues, and the standardized factor-score coefficient matrix. Two significant components were generated, accounting for almost two-thirds (64.1%) of the total sample variance. The first component, accounting for 37.7% of the total variance, is bipolar, contrasting the Prime Terrace and Marginal Floodplain/Terrace settings with the Upland Sandhills and Floodplain/Sandhills Margin microenvironments. This is indicated by moderate positive loadings for the Prime Terrace, Swamp/Wetland, and Marginal Floodplain/Terrace zones, and weak to moderate negative loadings over the Prime Floodplain, Upland Sandhills, and Floodplain/Sandhills Margin

Table 6: Congaree Creek Locality, 200 Meter Catchment Principal Components Solution: Pearson's Correlation Matrix, Standardized Principal Factor Matrix, Associated Communalities and Eigenvalues, and Standardized Factor-Score Coefficient Matrix.

Correlation Matrix

N = 41 DF = 39 R@ .05 = 0.3081 R@ .01 = .3978

	Zone 1 200m	Zone 2 200m	Zone 3 200m	Zone 4 200m	Zone 5 200m	Zone 6 200m
Zone 1 200m	1.0000					
Zone 2 200m	-0.3316	1.0000				
Zone 3 200m	-0.2952	-0.0017	1.0000			
Zone 4 200m	-0.3719	0.0244	0.0000	1.0000		
Zone 5 200m	-0.1840	-0.2288	0.0420	-0.1904	1.0000	
Zone 6 200m	-0.2326	-0.2903	-0.2645	-0.3953	-0.0183	1.0000

Zone 1 200m = Acres of Prime Floodplain within 200m
Zone 2 200m = Acres of Prime Terrace within 200m
Zone 3 200m = Acres of Swamp/Wetland within 200m
Zone 4 200m = Acres of Marginal Floodplain/Terrace within 200m
Zone 5 200m = Acres of Floodplain/Sandhills Margin within 200m
Zone 6 200m = Acres of Upland Sandhills within 200m

Factor Analysis

Principal Axis N = 41 # Factors = 5 Kaiser's Stat = .99784

	Initial	Step = 1	Rescaled Factor Loadings				
Variable	**Values**	**Communal**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Zone 1 200m	0.97252	0.98313	0.57491	-0.77145	-0.22626	0.75622 -1	- 0.23506 -1
Zone 2 200m	0.94505	0.95040	-0.57077	- 0.89480 -1	0.45031	0.57724	0.28396
Zone 3 200m	0.90596	0.90912	-0.41359	0.26609	-0.51801	0.31097	-0.54975
Zone 4 200m	0.95939	0.96648	-0.68910	-0.12184	0.36802 -1	-0.68901	0.26427 -1
Zone 5 200m	0.89782	0.90080	0.16554	0.50070	-0.55539	0.75094 -2	0.56204
Zone 6 200m	0.96714	0.97595	0.58393	0.57482	0.49647	-0.10519	-0.21682
	Eigenvalue		**1.6706**	**1.2699**	**1.0769**	**0.92148**	**0.74701**
	% Variance		**27.8**	**49.0**	**67.0**	**82.3**	**94.8**

Rescaled Factor Scores Using Regression Method

Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Constant	**-0.95919**	**2.1467**	**-2.2379**	**1.3732**	**1.6236**
Zone 1 200m	0.91191 -1	0.14776	0.73235 -1	-0.49664 -1	-0.35655 -1
Zone 2 200m	0.21737 -2	-0.87861 -1	0.14806	0.32660 -1	0.20635 -1
Zone 3 200m	0.54852 -2	-0.36593 -1	0.22285 -2	0.54169 -2	-0.14841
Zone 4 200m	0.72683 -4	-0.90221 -1	0.94487 -1	-0.14542	-0.27129 -1
Zone 5 200m	0.74966 -1	-0.38478 -1	-0.79158 -1	-0.57154 -1	0.11534
Zone 6 200m	0.88883 -1	- 0.27751 -1	0.13860	-0.66643 -1	-0.60435 -1

Table 7: Congaree Creek Locality, 500 Meter Catchment Principal Components Solution: Pearson's Correlation Matrix, Standardized Principal Factor Matrix and Associated Communalities and Eigenvalues, and Standardized Factor-Score Coefficient Matrix.

Correlation Matrix

N = 41 DF = 39 R@ .05 = 0.3081 R@ .01 = .3978

	Zone 1 500m	Zone 2 500m	Zone 3 500m	Zone 4 500m	Zone 5 500m	Zone 6 500m
Zone 1 500m	1.0000					
Zone 2 500m	-0.4918	1.0000				
Zone 3 500m	-0.4264	0.2036	1.0000			
Zone 4 500m	-0.3698	0.5115	0.1812	1.0000		
Zone 5 500m	-0.2989	-0.2563	-0.3269	-0.3834	1.0000	
Zone 6 500m	-0.3360	-0.3645	-0.1409	-0.5381	0.6293	1.0000

Zone 1 500m = Acres of Prime Floodplain within 500m
Zone 2 500m = Acres of Prime Terrace within 500m
Zone 3 500m = Acres of Swamp/Wetland within 500m
Zone 4 500m = Acres of Marginal Floodplain/Terrace within 500m
Zone 5 500m = Acres of Floodplain/Sandhills Margin within 500m
Zone 6 500m = Acres of Upland Sandhills within 500m

Factor Analysis

Principal Axis N = 41 # Factors = 4 Kaiser's Stat = .96749

	Initial	Step = 1	Rescaled Factor Loadings			
Variable	**Values**	**Communal**	**(1)**	**(2)**	**(3)**	**(4)**
Zone 1 500m	0.90841	0.96379	-0.28255	-0.93907	-0.75622 -1	-0.424561 -1
Zone 2 500m	0.72153	0.73510	0.68273	0.29972	0.24461	-0.34542
Zone 3 500m	0.68591	0.69805	0.43408	0.30080	-0.64708	0.20876 -1
Zone 4 500m	0.78724	0.80238	0.78560	0.10534	0.27371	0.31496
Zone 5 500m	0.71527	0.70631	-0.63452	0.46716	0.28937	0.41531 -1
Zone 6 500m	0.82768	0.81431	-0.71236	0.54307	-0.10883	0.88509 -1
	Eigenvalue		**2.2616**	**1.5864**	**0.64935**	**0.22255**
	% Variance		**37.7**	**64.1**	**75.0**	**78.7**

Rescaled Factor Scores Using Regression Method

Variable	**(1)**	**(2)**	**(3)**	**(4)**
Constant	**0.33579**	**2.0698**	**0.27364**	**-0.36727**
Zone 1 500m	-0.84349 -2	-0.26236 -1	0.16063 -2	-0.35304 -3
Zone 2 500m	0.44711 -2	-0.88074 -2	0.12100 -1	-0.28452 -1
Zone 3 500m	0.11175 -2	-0.71643 -2	-0.20601 -1	0.20956 -2
Zone 4 500m	0.48054 -2	-0.11051 -1	0.11394 -1	0.22611 -1
Zone 5 500m	-0.21241 -1	-0.72686 -2	0.23396 -1	0.66855 -2
Zone 6 500m	-0.13721 -1	- 0.34305 -2	-0.20489 -1	0.23433 -1

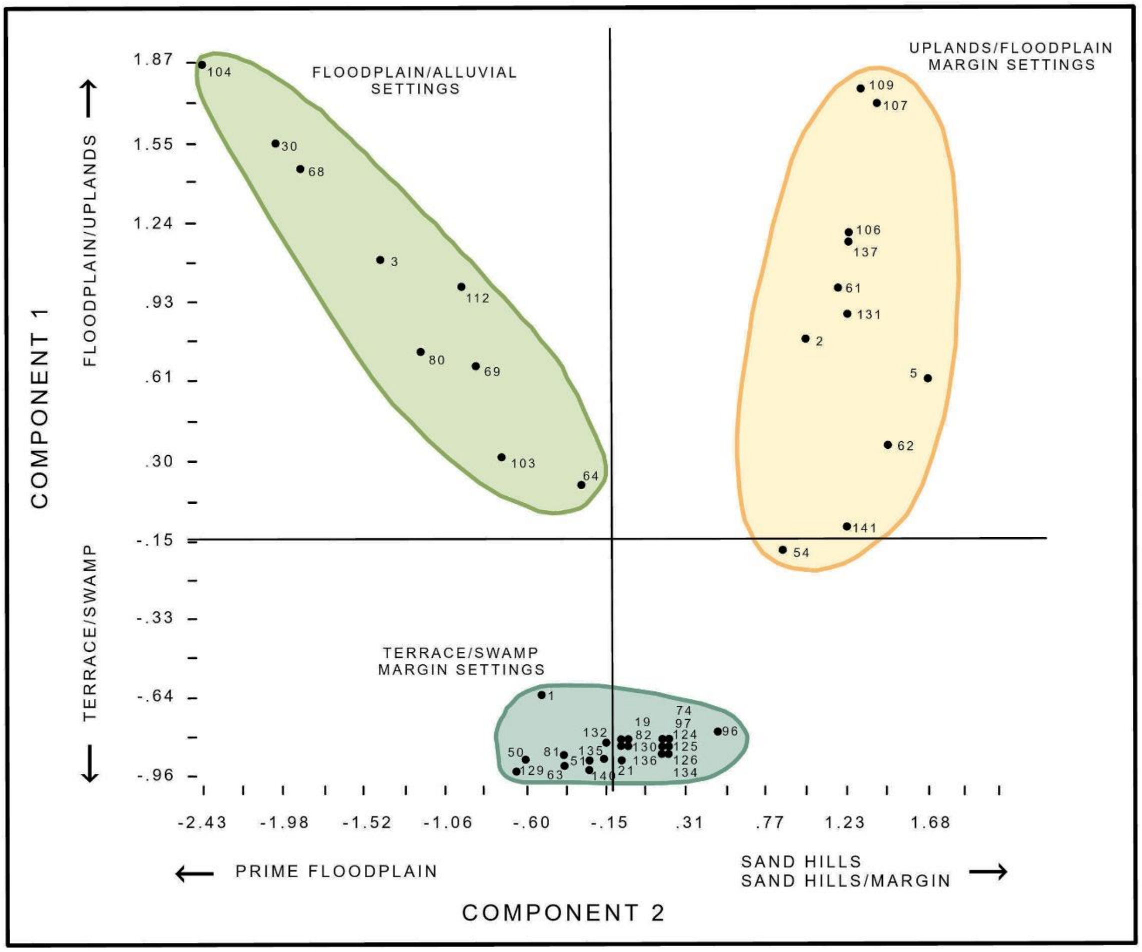

Figure 9: Bivariate Scatter Plot of Site Factor Scores on Components 1 and 2, Using the 200 Meter Catchment Principal Components Solution, Congaree Creek Locality. Three clusters of sites are evident, corresponding to discrete floodplain/alluvial, terrace/swamp margin, and upland/floodplain margin constellations of microenvironments. The appropriate Lexington County site number is given by each point.

zones. The second significant component contrasts the Prime Floodplain zone with all of the others.

Factor scores for these two components for each site were used to generate a bivariate scatterplot, with values for the first component on the vertical axis, and those for the second component on the horizontal axis (Figure 11). This time the scatter resembles an upside down rabbit head. A pronounced concentration of sites occurs in the upper center of the diagram (the rabbit's head), with two groups of sites (the rabbit's ears) trailing away from it. These three groupings are similar to those derived using the 200 m catchments, both in terms of the environmental constellations represented, and in actual site membership. The small, tightly defined cluster, the rabbit's head, or terrace/swamp margin (blue/green) site cluster, is made up of sites located on or near fairly extensive Prime Terrace or Marginal Floodplain/Terrace zones, in close proximity to Swamp/Wetland zones. In the vertical or uplands/floodplain margin (yellow) site cluster, the dispersion reflects increasingly xeric Sandhills/Floodplain Margin to Upland Sandhills conditions, coupled with decreasing Swamp/wetland conditions. The other, floodplain/alluvial settings (light green) site cluster, is characterized by an increasing dominance of the Prime Floodplain microenvironmental zone, and a decrease in Swamp/Wetland zone conditions.

The tight concentration of the terrace/swamp margin setting sites, as in the 200 m analysis, contrasts with the greatly elongated distributions

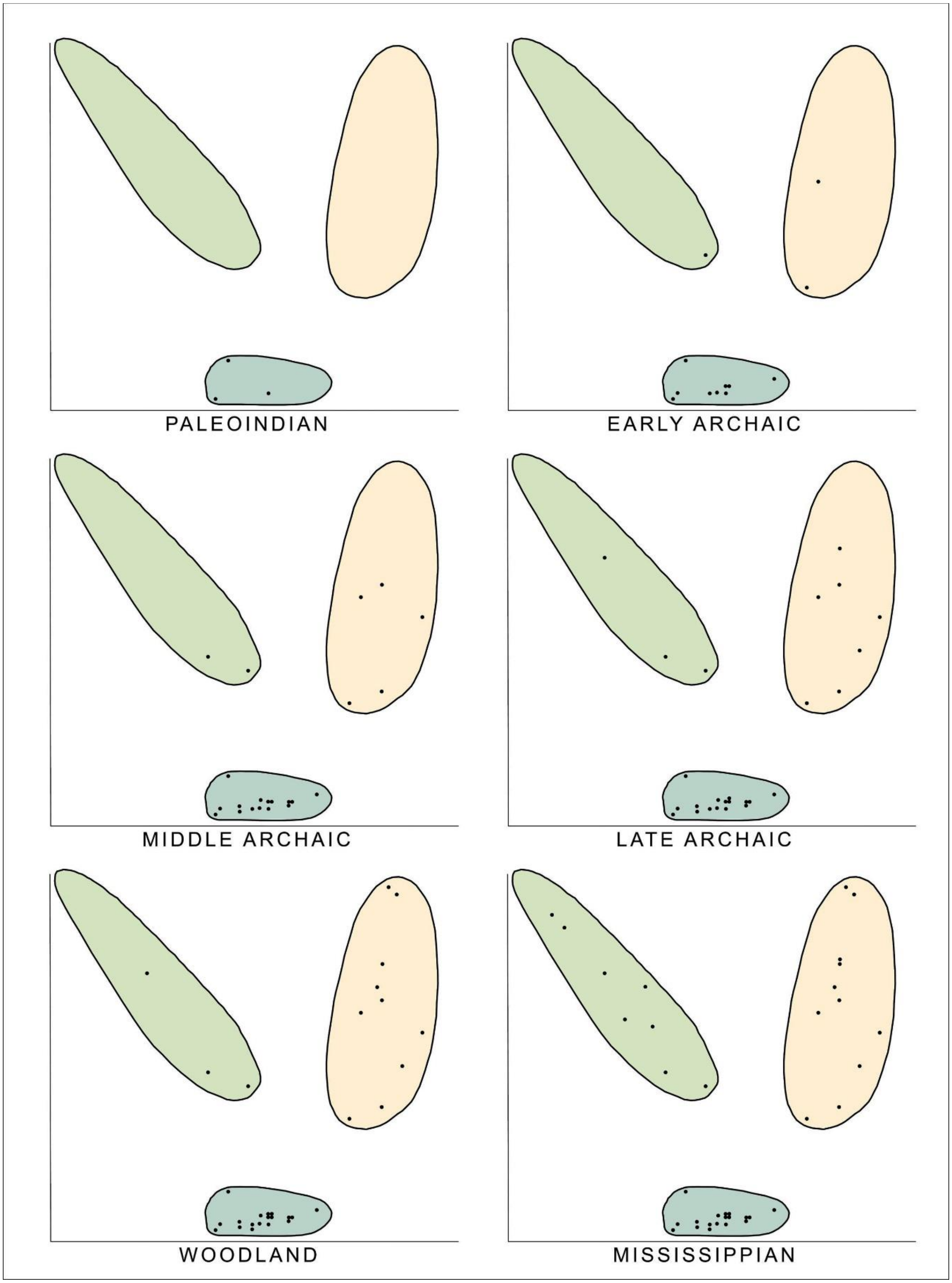

Figure 10: Congaree Creek Locality: Occurrence of Native American Sites, by Period, on the 200 Meter Catchment Analysis Bivariate Scatter Plot of Site Factor Scores on Components 1 and 2.

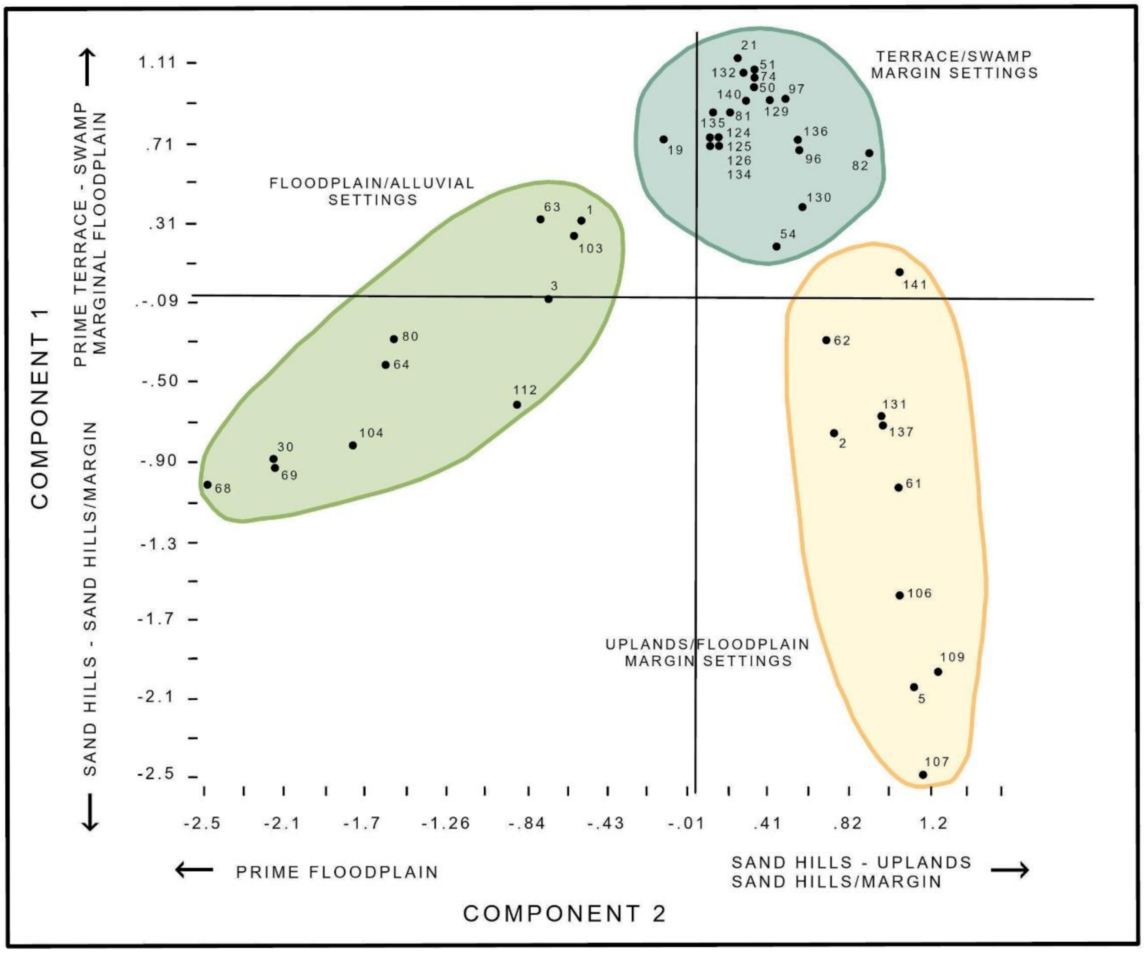

Figure 11: Bivariate Scatter Plot of Site Factor Scores on Components 1 and 2, Using the 500 Meter Catchment Principal Components Solution, Congaree Creek Locality Analysis. Three clusters of sites are evident, corresponding to fairly discrete floodplain/alluvial, terrace/swamp margin, and upland/floodplain margin constellations of microenvironments. The appropriate Lexington County site number is given by each point.

exhibited by the other two clusters. This suggests that sites located in this cluster focused on or were constrained by a fairly narrow set of microenvironmental conditions, while in both of the other clusters a broader range of surroundings were exploited. Once again, in all three clusters, sites in close proximity to each other, that is, in similar environmental settings, were characterized by generally similar archaeological records, at least in terms of the components represented on them. The history of land use over time also exhibited a patterning similar to that derived from the 200m catchment analysis (Figure 12).

The terrace/swamp margin settings saw extensive use throughout the period of Native American settlement in the 500 m analysis. The other two cluster settings, in contrast, saw only minor use in the earliest, Paleoindian and Early Archaic periods, although by the Middle Archaic both settings were being fairly extensively used. Within these latter two clusters, the floodplain/alluvial settings and the uplands/floodplain margin setting, the numbers and locations of the site dots indicate that progressively more parts of these zones were exploited over time as well, at least through the Woodland period, after which a contraction, at least in numbers, occurs during the Mississippian period. This may point to the increasingly intensive use of a greater and greater array of locations and resources within these settings. This general trend, an expansion of settlement into more and more settings, has been documented throughout the region, and may have been driven, at least in part, by population pressure (Cohen 1977; Ford 1974; Hale and Sanger 2020; Miller 2018, Miller and Carmody 2018, 2020; Sassaman 1990; Smith 1986; Stoltman and Baerreis 1983). The decrease in use of both the terrace/swamp margin and upland/floodplain margin settings during the Mississippian—indicated by the sharp drop in the number of site dots found in these zones in Figure 12—may reflect the replacement of a generalized Archaic/Woodland subsistence strategy directed to a wide range of floral and faunal resources, by one more dominated by agricultural domesticates grown in a number of floodplain/alluvial settings, given the dispersal of the dots (e.g., Brooks and Canouts 1984; Brooks et al. 1990; Cleland 1976, Ford 1974, Smith 1978, Speth and Scott 1984). All of these patterns, it must be reiterated, are shaped to an as of yet unknown extent by limitations of the archaeological record, particularly whether and the extent to which earlier assemblages exist in floodplain, swamp, and other settings that have seen only limited investigation for this potential.

Conclusions

In this paper the human occupation and use of a Fall Line/Sandhills locality on the South Atlantic Slope was examined using a series of comparatively simple analytical procedures, documenting a number of relationships between site archaeological records and their environmental settings. The insights obtained about past human land use in the study locality refine observations that had previously been only informally or intuitively posited, even though the study area has received more intensive archaeological investigation that most areas of its size in the general region. Analyses of assemblages collectively, it has been demonstrated, can yield insights unknowable looking at single or small numbers of sites.

Increasing use of a range of microenvironmental settings over time, and progressively more extreme and varied environments within these settings is also indicated by the analyses. This trend apparently peaks in the Late Archaic and Woodland periods, when the widest array of settings were in use, something that may be related to subsistence demands created by population pressure and/or an increasingly widely dispersed settlement pattern. The analyses indicate that while Native American populations were concerned with immediate site conditions, they were also keying in on constellations of microenvironments. The analyses also indicate that concepts like "marginality" when referring to specific physiographic regions like the Sandhills must be interpreted in terms of the microenvironmental variability present rather than with a broad brush. In the Congaree Creek locality, for example, most microenvironments within the Sandhills appear to have been progressively less "marginal" over time, with people occupying increasingly diverse parts of the landscape, a trend that apparently culminates in the Woodland period. Settlement during the subsequent Mississippian period, in contrast, appears to have markedly retrenched, with considerable activity within the Prime Floodplain microenvironmental zone or floodplain/alluvial settings cluster, a pattern of settlement near major drainages observed in many parts of the region at this time. When the areal extent of each microenvironment is considered, the Sandhills region as a whole, and the Upland Sandhills zone in particular, were anything but marginal areas.

Of course, until specific site assemblages can be obtained yielding floral and faunal remains and thus offering more direct evidence of subsistence and seasonality, or structural remains providing evidence about settlement size and permanence, interpreting patterns of land use in the locality will remain challenging and indeed, somewhat speculative. Greater control over environmental change over time is also needed, specifically whether it is safe to assume that each defined microenvironment was characterized by similar resources, and used the same way by the populations that occupied the area from the Late Pleistocene onward, something probably very unlikely. What this analysis does offer, however, is a method by which site locations, periods of occupation, and general assemblage contents over a large area might be reasonably predicted from relatively simple analyses of environmental

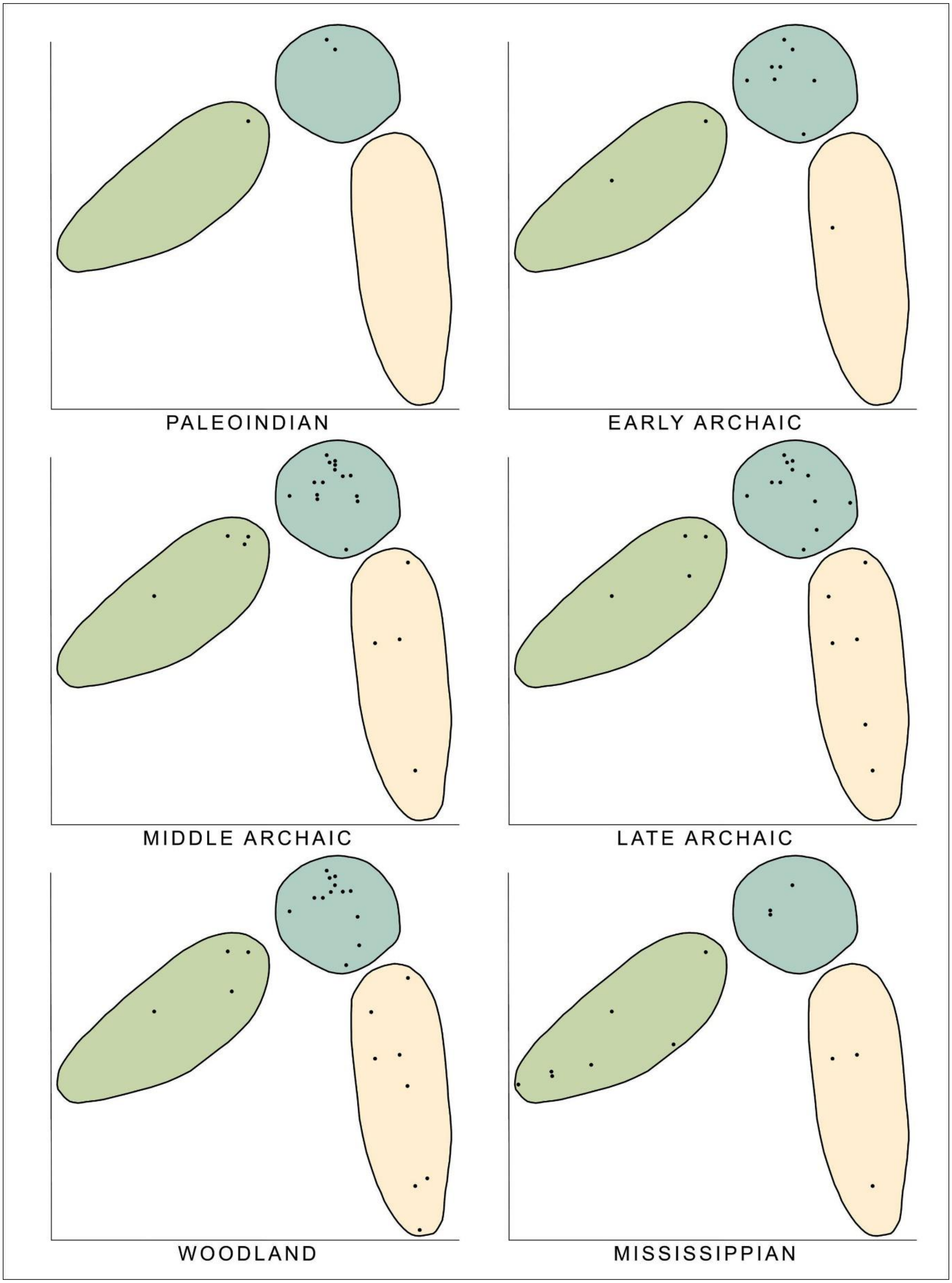

Figure 12: Congaree Creek Locality: Occurrence of Native American Sites, by Period, on the 500 Meter Catchment Analysis Bivariate Scatter Plot of Site Factor Scores on Components 1 and 2.

variables from a sample of known sites. Hopefully the Congaree Creek area will continue to see as much effort directed to archaeological research and synthesis as it has so far.

Acknowledgments

The Congaree Creek area is a special place, where many archaeologists have worked, shaping their careers, as well as the early history of the Archaeological Society of South Carolina. The area, now rapidly developing, needs our continued support, and hopefully this paper will prompt new interest in both preservation, research, and synthesis. Given this, a debt of special thanks is owed to all those who worked to create and maintain the Congaree Creek Heritage Preserve, which on a daily basis informs the public of the importance of the area, how much is there, and how much remains to be learned. That such an effort at preservation and public interpretation came about is because the professional and avocational archaeological communities in South Carolina, assisted by state and federal agencies and enlightened local citizens, have worked together so effectively for so many years.

This paper has had a long gestation, dating back nearly 40 years, to the early 1980s. Then-ASSC Editor Wayne Neighbors asked about taking my 1979 Southeastern Beltway monograph and turning it into an ASSC Occasional Paper. That never happened, although this paper was intended as a start on such an effort, an attempt to synthesize research on Native American land use in the locality. The earliest version was a term paper prepared in 1985 for a class in analytical methods in archaeology when I was a doctoral student at the University of Michigan, under the direction of John O'Shea. It was then revised and presented in the symposium "Sandhills Archaeology" organized by Chad O. Braley and Kenneth E. Sassaman, at the annual meeting of the Southeastern Archaeological Conference in Jackson, Mississippi, on November 8, 1991. The papers from that session were later compiled in digital form by Joel Gunn and Kevin Jolly in 1994, but were never formally published. I found the various versions of the paper when going through my files in 2019 and, in light of all the subsequent archaeological work and attention directed to the Congaree Creek area, and the designation of part of it as a Heritage Preserve, decided it needed to see the light of day, albeit fully aware that appreciable updating was needed.

During the preparation of this manuscript the following individuals are to be thanked for their advice and comments on earlier drafts: Mark J. Brooks, Glen T. Hanson, John O'Shea, and Kenneth E. Sassaman. In the preparation of this updated manuscript, accomplished in the winter and spring of 2019/2020, the following people graciously provided assistance in the form of advice, technical reports, or commentary: Natalie Adams Pope, John Cable, William Green, Katherine Parker, Eric C. Poplin, Jordan Schaefer, Karen E. Smith, Carl Steen, James Stewart, and Joe Wilkinson. Joe, in particular, as Editor of *South Carolina Antiquities*, supported the effort, and offered numerous suggestions that greatly improved the manuscript. Jordan Schaefer and Julie Barnes Smith prepared the artwork. The work along Congaree Creek would not have happened without the leadership of James L. Michie, and the support of Robert L. Stephenson, and people like Michael B. Trinkley, Albert C. Goodyear, and in recent years National Park Service Archaeologist John Jameson, and Brian Long of South Carolina Department of Natural Resources, both members of the 12000 Year History Park Working Group. Their efforts have helped preserve an important part of South Carolina's history.

Data used to generate the analyses are available in digital format from the author and editor upon request, including the factor matrices and scores, and the area for the microenvironmental zones in the 200 and 500 m catchment zones around each site in the sample, together with illustrations of those zones for each site. As always, the author assumes all responsibility for any errors.

Supplementary Materials

The following supplementary materials can be found on the Archaeological Society of South Carolina's website at: https://archaeologysc.org/.

Appendix 1 Factor Scores for Individual Sites

Table S1. Congaree Creek Locality, 200 Meter Catchment Factor Scores for each of the 41 Sites

Table S2. Congaree Creek Locality, 500 Meter Catchment Factor Scores for each of the 41 Sites

Appendix 2. Congaree Creek Locality: Microenvironmental Data by 200 and 500 m Catchment, and Catchment Maps, from the 41 Site Sample.

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