

TABLE 16

ETHNOBOTANICAL SAMPLES: WOOD CHARCOAL IDENTIFICATION
BY PERCENT: SITE 38LX5

Provenience	Sample No.	Cultural Affiliation	N	Pine	Conifer	Oak	Hickory	Ring Porous
Feature 2	4	Possible Archaic/Early Woodland	7	100%				
Feature 2	5	Possible Archaic/Early Woodland	20	25	45	5	25	
Feature 2	6	Possible Archaic/Early Woodland	20	55	40	5		
Feature 2	7	Possible Archaic/Early Woodland	8	100				
Feature 2	28	Possible Archaic/Early Woodland	10	100				
Feature 2	29	Possible Archaic/Early Woodland	19	95	5			
Feature 2	30	Possible Archaic/Early Woodland	20	95	5			
Feature 4	8	Possible Middle Archaic	20	55	20	20	5	
Feature 5	9	Possible Middle Archaic	20	95	5			
Feature 5	10	Possible Middle Archaic	16	37	37	13		13
Feature 5	11	Possible Middle Archaic	11	73	27			
Feature 6	31	Possible Middle Archaic	17	88	12			
Feature 6	32	Possible Middle Archaic	20	60	40			
Feature 1	1	Early Woodland	10		100			
Feature 1	2	Early Woodland	20	75	25			
Near Feat. 1	3	Possible Root/Hearth	500+	100				
Feature 9	12	Possible Early Woodland	20	85	15			
Feature 9	13	Possible Early Woodland	20	100				
Feature 9	14	Possible Early Woodland	20	100				
Feature 9	15	Possible Early Woodland	20	100				
Feature 9	16	Possible Early Woodland	11	82	18			
EU35	17	Tree Root	20	95	5			

TABLE 17

ETHNOBOTANICAL SAMPLES: WOOD CHARCOAL IDENTIFICATION
BY PERCENT: SITE 38LX64

<u>Provenience</u>	<u>Sample No.</u>	<u>Cultural Affiliation</u>	<u>N</u>	<u>Pine</u>	<u>Conifer</u>	<u>Oak</u>	<u>Red Oak</u>	<u>Hickory</u>	<u>Ring Porous</u>
Feature 4	23	Possible Early/Middle Archaic	10	60%	40				
Feature 6	26	Possible Root/Archaic	20	100					
Feature 1	18	Middle Archaic	20		100				
Feature 3	19	Possible Late Archaic	20	20	5		75		5
Feature 3	20	Possible Late Archaic	20	95			5		
Feature 3	21	Possible Late Archaic	20	95			30	10	
Feature 3	22	Possible Late Archaic	20	45	15				25
Feature 5	24	Possible Late Archaic	20		40	10			
Feature 5	25	Possible Late Archaic	20	95			5		
Feature 7	27	Possible Middle Archaic						100	

identified to genus (Asch, Ford and Asch 1972:3) when the sample was large enough. With small samples, the total number of identifiable pieces in the sample (less than 20 pieces) were listed. Identifications were made using a binocular microscope with 7-30x range.

INTERPRETATIONS

Possible subsistence items were scarce at 38LX5 and were not recovered at all from 38LX64. This is somewhat surprising since a number of flotation samples with moderate quantities of charcoal present were recovered from both sites (Table 14). Small quantities of acorn and hickory nut shell were recovered from two possible Archaic features at 38LX5, one probably Middle Archaic in age and the other either Archaic or Early Woodland in age (Features 2 and 4, Table 15). One hickory nut shell was also recovered from an Early Woodland hearth at 38LX5, Feature 9 (Table 15). The low incidence of nut remains suggests that these foods may not have been important subsistence items at the two sites. Given the small number of samples and comparatively poor preservation, however, such an inference is highly speculative. The evidence from the analysis, therefore, supports Archaic and Early Woodland period use of acorn and hickory nuts at 38LX5, although the actual importance of these resources remains unknown.

At the present, pine and "scrubby" oaks (Turkey oak, Quercus lacvis; Bluejack oak, Quercus cinerea; and Blackjack oak, Quercus marilandica) are the dominant vegetation of the sandhills (Braun 1950:283); their acorns may have been exploited prehistorically. Curiously, Site 38LX64, which is located on an alluvial floodplain near a swamp, produced no nut remains. This site is situated within a hardwood community which potentially should have been able to provide abundant nut resources.

Additional data were derived from the wood charcoal analysis (Tables 16 and 17). Pine and coniferous wood charcoal were the predominant items in all of the samples from 38LX5 and in seven of the ten samples from 38LX64. The coniferous charcoal observed at both sites, it should be noted, is probably pine, but this conclusion could not be definitely verified. Due to the small size of the charcoal fragments, it was not possible to observe the diagnostic resin canals which distinguish pine from cypress, the alternative conifer most likely to be present. Other microscopic characteristics used to distinguish these two genera, it should be noted, require a much higher magnification. Long leaf pine (Pinus palustris) was the most common pine in the sandhills uplands

(Braun 1950:283) and is the probable species represented in the samples from 38LX5. It cannot, however, be distinguished microscopically from other pine species which could grow on the sandhills or in adjacent lower areas, such as loblolly pine (P. taeda), pitch pine (P. rigida), and pond pine (P. serotina) (Panshin and deZeeuw 1970:458).

Oak, hickory and/or unidentifiable ring porous wood charcoal occurred in three features (four samples) from 38LX5 and three features (seven samples) from 38LX64. All but one of these features probably dates to either the Middle or Late Archaic; the exception, Feature 2 at 38LX5 dates to either the Archaic or Early Woodland. The relatively greater abundance of oak and hickory charcoal at 38LX64 (where they were present in six of ten samples and three of six proveniences) may reflect the site's location, which at least during the present is adjacent to a low swampy area grown up in hardwoods.

During the period 8000 BC to 3000 BC oak-hickory forests reached a maximum in the southeast; around 3000 BC these forests on the Coastal Plain and Piedmont were replaced largely by pine (Watts 1971; 1979). Oak and hickory wood charcoal are present in two possible Middle Archaic features at 38LX5, and in one possible Early Woodland feature. The "Early Woodland" feature at 38LX5 that provided oak and hickory wood charcoal may, in fact, date to the Archaic period. Two of the three features from which nutshell was recovered at 38LX5 may also date to the Archaic, although the third was clearly Early Woodland in age. A lower frequency of oak and hickory nutshell and wood charcoal in the Early Woodland deposits is suggested by the dates, and may reflect a reduced abundance of these genera in the area of this time. The ethnobotanical data, therefore, tends to reinforce palynological evidence for a post-Archaic decline in hardwoods in the region, although it should be cautioned that the samples here are extremely small. Cultural factors behind the occurrence of certain plant species in feature fill, such as selection for specific fuel characteristics, must also be considered.

Pine, for example, burns more readily and with a hotter fire than many other woods, while oak burns more slowly than pine, yet produces a more steady heat (Graves 1919:31). It is suggested that a profitable subject for research at Archaic and Woodland period sites in the region would be documenting changes in wood utilization over time, and attempting to correlate observed changes with changing forest composition.

INTERSITE COMPARISONS

No previous ethnobotanical analyses have been conducted at Fall Line sites in South Carolina, and only a few detailed ethnobotanical reports are available from elsewhere in the state, all from sites within the coastal plain. Much of the local ethnobotanical analysis has focused on shell midden sites, where favorable preservation conditions has been reported. Trinkley (1976b) has provided a detailed analysis of paleoethnobotanical remains from three Late Archaic-Woodland transitional shell middens in the Sea Island area. The three sites include Davi's Island (38BU9; Michie 1973), Spanish Mount (38CH62; Sutherland 1973), and the Sewee shell ring 38CH45; Edwards 1965). In general, the material from these sites reflected both the favorable preservation of charcoal in the alkaline midden deposits, and the highly varied environmental setting characterizing the marshland border. A high incidence of hickory and acorn nut shell in the middens was indicated, with on or both of these genera reported from almost every sample. Pine, hickory, and oak were the most common genera represented by the charcoal, at the three shell midden sites, a finding similar to that noted on the two Beltway project sites, which may reflect similar firewood selection preferences. Several other wood species were recognized from the three coastal sites, however, possibly reflecting the apparently better preservational environment and/or a greater diversity in aboriginal selection practices. Wood species recognized at the three coastal shell midden sites, and not clearly identified in the Beltway project samples, included; maple (Acer sp.), dogwood (Cornus florida), water locust (Gleditsia aquatica), sweetgum (Liquid amber styraciflua), willow (Salix sp.), cypress (Taxodium sp.) and an unidentified diffuse porous wood.

Preliminary ethnobotanical identifications have also been reported from other coastal shell midden sites. Trinkley (1975:31) reports the presence of carbonized hickory nutshell from deposits at the Late Archaic/Early Woodland Lighthouse Point shell ring (38CH12), a finding in expectation with his comparative analysis of sites to this period (Trinkley 1976b). Two other coastal shell midden sites, both dating to the Woodland period, have also had preliminary ethnobotanical identification, at Jenkin's Island (38BU9); Trinkley 1976c), and at Fort Johnson (38CH275; South and Widmer 1976). At Jenkin's Island, Trinkley (1976c:16) reported the presence of carbonized hickory nut shell fragments, while at 38CH275 South and Widmer (1976:56-57) report the tentative identification of acorn and hickory nut shell fragments, together with bedstraw (Galium sp.), chinkapin (Castanea sp.) plum or

cherry seeds (Prunus sp.), bayberry (Myrica sp.), and arrow-arum (Peltandra virginicum). South and Widmer (1976:57) suggest that the presence of arrow-arum, a coastal marsh grass requiring extensive preparation to make edible, indicates the early occurrence of a highly specialized subsistence adaptational strategy known to have been common among protohistoric Indians in the region (Swanton 1946:272, 276).

Ethnobotanical analysis of remains from nonshell midden sites has also been conducted in recent years, notably at the Albert Love Site (38AL10; Trinkley 1974c), at the Palm Tree Site (38BK147; Widmer 1976), and at the Cal Smoak Site (38BM4; Trinkley 1979). Albert Love is a Late Archaic/Early Woodland site located near a Carolina Bay some 15 miles east of the Savannah River in Allendale County, South Cardine. The site deposits are located in moderately acidic sandy loams, generally similar to conditions at 38LX5. A flotation sample from the midden yielded pine (Pines spp.) and oak (Quercus spp.) wood charcoal, on unidentifiable non-porous wood charcoal, together with hickory nuts (Carya spp.). Carbonized plant remains from the site have been described by Trinkley (1979: personal communication) as "abundant, with good preservation"; the reported flotation sample size, 3.58 grams, is comparable to the samples recovered from the two Beltway project sites (Table 14).

In a second report on an inland, upland site, Trinkley (1979) presents the results of an analysis of charcoal samples from the Cal Smoak Site, (38BM4; Anderson, Lee and Parker 1979) located along the Edisto River in the central coastal plain of South Carolina. The Cal Smoak Site is located on a sandy ridge overlooking the Edisto River floodplain, and soil conditions there are very similar to those at 38LX5. At Cal Smoak, small charcoal samples (under 5.0 grams each) from two Late Archaic/Early Woodland age features were examined, and were found to contain fragments of hickory nuts (Carya sp.), and pine (Pinus sp.) and oak (Quercus sp.) wood charcoal.

The only other ethnobotanical analysis reported to date from an inland site is Palm Tree (38BK147; Widmer 1976), in the lower coastal plain on a ridge crest overlooking a Cooper River swamp. Although not clearly stated, from inspection of Figure 4 and the accompanying text (Widmer 1976:11, 36), it appears that the identifiable ethnobotanical remains at the site date to be Thom's Creek Late Archaic Component Hackberry (Celtis sp.), hickory nut (Carya sp) grape (Vitis sp.) cherry or plum (Prunus sp.), and crotalaria (Crotalaria sp.) were all identified, suggesting mid-summer through fall site use.

CONCLUSIONS

The analysis of carbonized plant remains from the two project sites, 38LX5 and 38LX64, clearly indicates that ethnobotanical data relevant to subsistence analysis and paleoenvironmental reconstruction can be recovered from Fall Line sites in the general region. While preservation may not have been as favorable as that observed in other depositional environments, specifically at shell midden sites, identifiable charcoal was present. The evidence from the Beltway sites, and from Albert Love, Cal Sroak, and Palm Tree, indicates that a valuable source of data exists on upland sites in the region, information that should not be ignored nor overlooked.

Carbonized plant remains were recovered from 38LX5 and 38LX64 in sufficient quantity to permit both ethnobotanical and radiocarbon analyses. Although evidence for stone plant processing tools was recovered at 38LX64, no subsistence remains (i.e. carbonized nutshells or seeds) were discovered on this site. Acorn and hickory nuts were recovered in small quantities at 38LX5, suggesting that they played a role in aboriginal subsistence, and site-use, although to what extent remains uncertain. The overall analysis highlighted the difficulty of separating pine from cypress wood charcoal, given small, fragmentary samples. Given the abundance of both species in the local environment, and their occurrences in separate microenvironments, methods should be sought to quickly and accurately distinguish between the two genera.

The wood charcoal identifications from the Beltway project sites suggest that oak and hickory wood may have been more prevalent, or at least more commonly selected for, during the Archaic period. Future research at sites within the coastal plain should be directed toward better defining the relative importance of vegetal resources to the diet, and toward obtaining a better picture of the natural environment during the various prehistoric culture stages present in the area. The present analysis serves to document methods for the collection and use of information of this kind.

CHAPTER 9

PREHISTORIC ADAPTATION IN A FALL LINE LOCALITY: THE SOUTHEASTERN COLUMBIA BELTWAY PROJECT IN PERSPECTIVE

INTRODUCTION

The Southeastern Columbia Beltway Project provided the opportunity to examine prehistoric human adaptation to a southeastern upper coastal plain/Fall Line environment. Excavations and controlled surface collections were conducted at four sites located in and adjacent to the alluvial floodplain of the Congaree River, in central South Carolina. Project research was directed toward single, intra-site analyses, documenting the archeological record at each site, and toward broader, multisite comparative analyses, focusing on cultural-ecologically based models of human settlement and land use.

The four project sites were located in two distinct macroenvironmental zones, the upper Congaree River floodplain, and the adjacent White Sandhills. The sites consisted of one large concentration and one small scatter in each macro-zone. Each of these sites was located in distinct microenvironments within the larger zones. The project data assemblage thus offered not only the opportunity to explore synchronic and diachronic variability in human adaptation to the general southeastern Fall Line environment, but also in relation to a series of microenvironments within that larger setting.

Complementing the broad research orientation toward intra and intersite descriptive, techno-functional, and cultural ecological analyses, the Southeastern Columbia Beltway Project sought to explore a series of specific research topics formulated on the basis of previous fieldwork in the immediate locality. Specific subjects for investigation included documenting patterns of lithic resource procurement and use, over time (cf. Wogaman, House, and Goodyear 1976: 38-39, Michie 1979:50); documenting the distribution of prehistoric components in the locality, by microenvironment and over time (cf. Goodyear 1976:8-11); equating project assemblages, individually and collectively, with models of prehistoric site functional variability and settlement in the Fall Line area and for the general region (cf. Ferguson 1976:8-10; House and Wogaman 1978); and documenting the existence, methods of recovery, and analytical usefulness of local ethnobotanical remains (cf. Trinkley 1976b). Identifiable components over the four project sites ranged from the Early Archaic through the Mississippian and, together with the extensive surface data available from other sites in the locality, provide a basis for broad, general analysis of human adaptation within the Fall Line area.

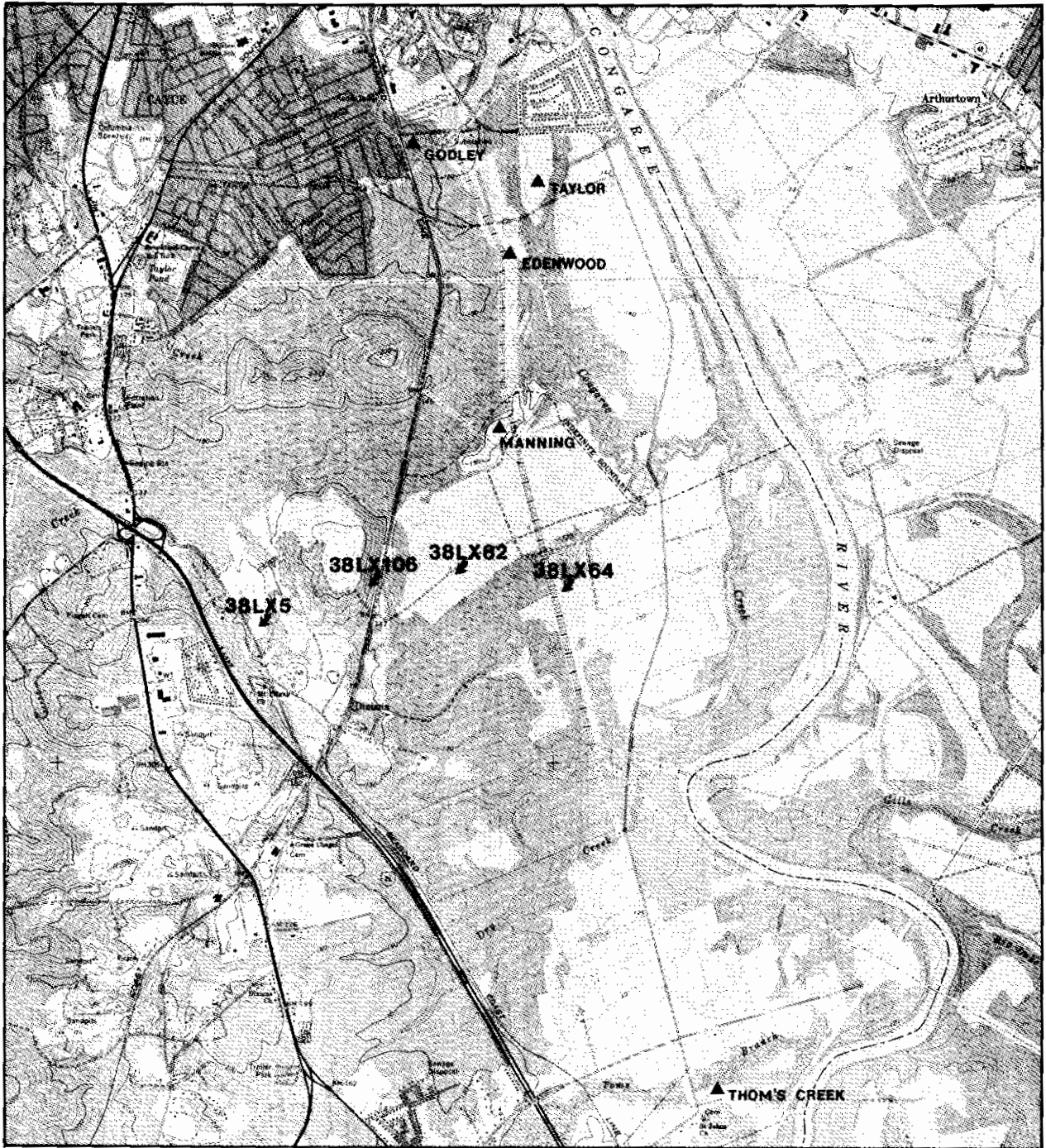
THE FOUR FALL LINE SITES: A SUMMARY

38LX5 DIMENSIONS: A SANDHILL RIDGE CREST SITE

Site 38LX5 was a five acre scatter located on the top and upper slopes of a sandy knoll located just within the Sandhills (Figure 45). The site, located at the 190 foot contour, is not a typical interriverine hill crest, which are commonly 300 to 400 feet in elevation. Instead, it may reflect use of the Sandhills margin, near the floodplain/upland ecotone. The Congaree River floodplain began one half mile to the east, and some 50 feet lower in elevation, and extended for over two miles through low-lying swamps and fields to the main channel of the river. A major tributary, Congaree Creek, cuts through the floodplain, passing to the east and north of the 38LX5 area. At its closest approach, the creek flows just over a half mile from the site, through a swampy, quarter-mile wide floodplain that becomes increasingly constrained further upstream in the Sandhills.

Identifiable components at 38LX5 span the Middle Archaic through Mississippian periods, with the most extensive site use, based on the incidence of diagnostic and associated artifacts, during the Middle Archaic and the Woodland. Middle Archaic site use at 38LX5 was documented by the presence of 23 Morrow Mountain-like points, including one possible cache of 15 bifaces that was radiocarbon dated to 3500 BC (Feature 6). Except for Feature 6 the Middle Archaic bifaces were recovered singly or in small groups from across the site, mostly from the southern and eastern margins, in areas overlooking the tributary. Four hearth-like features were also recovered in the excavation units. These are of possible Middle Archaic age, although one (Feature 2) yielded an Early Woodland period date upon radiocarbon analysis.

Cultural materials associated with the Middle Archaic bifaces at 38LX5 included moderate quantities of fire-cracked rock and ferruginous sandstone, occasionally in concentrations suggesting hearth or floor areas, together with a debitage and flake tool assemblage composed almost exclusively of quartz, with minor quantities of other raw materials present. The tool assemblage contained mostly hafted bifaces and expediently produced low functional angle flake tools. Ferguson (1976: 8-9) has hypothesized that Fall Line sites characterized by a "narrow range of tools and debitage" are probable biotic resource extraction stations. He additionally suggests that sites characterized by a "limited range of artifacts (focused) around cutting functions" are probable deer hunting/processing stations (Ferguson 1976:9). The Middle Archaic tool assemblage at 38LX5, following this line of reasoning, appears to reflect output from deer hunting activity, suggesting use of the site in extraction tasks.



MAP SOURCE: 1972 USGS Topographic
 Southwest Columbia, S.C. Quadrangle



SOUTH CAROLINA



0 1200 METERS

SOUTHEAST COLUMBIA BELTWAY PROJECT
 SOUTH CAROLINA DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

**MAJOR PREHISTORIC ARCHEOLOGICAL SITES OF THE
 UPPER CONGAREE RIVER VALLEY, SOUTH CAROLINA**



FIGURE 45

The quantities of fire-cracked rock present in the Middle Archaic deposits additionally suggest either extended occupation, or extensive short-term re-use. Both Ferguson (1976:8) and House and Wogaman (1978:10), for example, equate the presence of fire-cracked rock with extended habitation, and the absence of this material as a characteristic of short-term extraction loci. It should be emphasized however, that the factors behind the production and occurrence of fire-cracked rock are currently very poorly documented in the general region (cf. Michie 1978). The presence of this attribute may reflect the local availability of stone as much or more than the functional posture of the site. The four possible Middle Archaic hearth clusters found during the excavations were all characterized by a low surrounding artifact density, suggesting relatively short-term use. The observed incidence of these features (four in the 0.5 percent random excavation sample) indicates that up to several hundred of them may be present in the site deposits, suggesting repeated visitation. The site data assemblage, therefore, indicates that upland knolls such as 38LX5, at least those at the margin of the Sandhills, may have been characterized by repeated short-term visitation during the Middle Archaic, with site use focusing on deer hunting and processing activity.

Late Archaic period use of the 38LX5 area was comparatively minor, and was documented by the recovery of a single slate Savannah River Stemmed biface, and 13 sherds of Thom's Creek punctated pottery. The finish variation indicates that several vessels are represented, although no evidence for features or artifact concentrations dating to this period were noted. Low artifact density is a specific characteristic of extraction stations, according to both Ferguson (1976:9) and House and Wogaman (1978:11). In the general absence of associated materials or features, however, it is difficult to infer more than that Late Archaic site-use appears to have been minor, perhaps reflecting one or a few visits. While use of the area in extractive tasks appears probable, identification of those tasks remains unclear.

Woodland period site use at 38LX5 appears to have been fairly extensive, and was documented by the presence of a variety of typologically identifiable biface and ceramic forms. Four radiocarbon determinations taken from three features additionally documented this site use, producing absolute dates from roughly 3000 to 2000 years before the present. Identifiable features consisted exclusively of hearths. No evidence for structures, such as midden concentrations or post molds, was recovered. Given the shallow plowzone and the presence of radiocarbon dated Woodland features below it, it is probable that if structures had been present at 38LX5 some traces of them would have been recovered.

The wide range of Woodland ceramic and biface forms recovered at 38LX5, indicates several episodes of site use. Early Woodland use is documented by four radiocarbon dates and the presence of a number of distinctive biface (Otarre, Thelma) and ceramic (Deptford) forms. Later Woodland period site use is indicated by the presence of fabric and cord marked pottery, although the temporal ranges of these wares is currently poorly understood. A number of triangular and stemmed bifaces were also recovered that are assumed to be later Woodland forms, although again this remains to be documented in the South Carolina area. Until stratified, or identifiable single component sites dating to the Woodland can be excavated, the placement of specific assemblages within this period will remain uncertain.

The Woodland artifact assemblage at 38LX5 was characterized by hafted bifaces, pottery, flake tools with (generally) low functional angles, ferruginous sandstone abraders, and a range of cobble tools consisting mostly of hammerstones but with pitted cobbles and possible abrading or grinding tools also present. Placement of individual artifacts and tool categories to specific periods within the Woodland was not possible, except in the case of typologically diagnostic artifacts. Functional interpretation of site use must therefore remain general in nature, encompassing the entire period. Over the Woodland an increased proportional use of chert, slate, and rhyolite was also evident, at least in comparison to the occurrence of these materials in the Middle Archaic tool and debitage assemblage. Use of quartz appears to have declined somewhat during the Woodland, possibly due to the substitution of other materials.

The Woodland assemblage at 38LX5 suggests a greater diversity of activity than noted during the Middle Archaic. The range of tool forms, together with the presence of fire-cracked rock and pottery, fit the pattern of an intensive habitation site according to Ferguson's (1976) model for the recognition of Fall Line site variability. Plant resource processing was indicated by the presence of cobble tools, and deer hunting and processing by a hafted biface/flake tool assemblage directed toward cutting functions. The presence of hearths, coupled with the absence of evidence for structures, however, suggests that site use may have encompassed relatively short-term visitation, possibly focused toward extractive tasks. The variation in the Woodland assemblage, indicative of two or more different extractive tasks, may document site use over different periods of the year, rather than the performance of a variety of tasks during one occupation. Fall site use is inferred by the recovery of hickory nut shell fragments in the fill of Feature 9, an Early Woodland feature.

Unfortunately, no clear evidence for site use during other seasons was recovered, although it is probable that much of the assemblage, particularly the hunting/butchering tools, could have been deposited during any season.

Mississippian period site use at 38LX5 was minor, and was documented by only three widely scattered sherds and possibly by a few small triangular arrow points and fragments. The low artifact density suggested short-term visitation, probably for extraction related tasks. The excavation assemblage from 38LX5, therefore, indicated two major periods of site use, during the Middle Archaic and the Woodland. No evidence for Paleo-Indian or Early Archaic components was recovered, and Late Archaic and Mississippian period site use was found to be minor.

Over all periods, the identifiable feature and artifact assemblages point to short-term use of 38LX5 by fairly small groups focusing on extraction related tasks. Hunting activity is indicated, with an increased emphasis on plant processing suggested during the Woodland. Aboriginal use of plant foods, particularly nuts, was also documented by the ethnobotanical analysis of charcoal from site features. Two probable Woodland features and one possible Middle Archaic feature yielded traces of acorn and hickory nut shell. Given the poor bone preservation, however, and the infrequency of charcoal-bearing features, interpretation of aboriginal subsistence and site use patterns at 38LX5 must remain based primarily on the surviving artifactual data.

38LX106 DIMENSIONS: A SANDHILL RIDGE SLOPE SITE

Site 38LX106 was a small scatter located on the lower slopes of a high knoll at the extreme edge of the Sandhills. The site was located only a few dozen meters away from, and slightly above, the flat alluvial floodplain of the Congaree River. Located just within the Sandhills, the site area was characterized by a xeric vegetational community of pines and scrub hardwoods, although hardwoods dominate the flat terrain of the floodplain at the base of the hill. Use of the 38LX106 area may have been related to the ecotonal nature of the location. The area would provide dry camping during periods of flooding and the location would provide a vantage point from which to watch for game at the base of the slope. The ecotone itself, reflecting the interface of two vegetational communities, may have been a particularly favorable area for hunting game, although this remains to be demonstrated.

The data assemblage recovered from 38LX106 documents a single period of site use during the Late Archaic. A chert Savannah River Stemmed base, and the base of a contracting stemmed quartz biface were the only tools found; the remainder of the assemblage consisted of later stage debitage and a few fragments of possible fire-cracked rock and ferruginous sandstone. The small quantity and narrow range of artifacts recovered, together with the localized nature of the scatter, in an area about 10 meters in diameter, strongly suggest use of the site for extraction tasks (cf. Ferguson 1976). Hunting and butchering activity is inferred, given the nature of the assemblage, which appears to derive from the maintenance and use of hafted biface cutting tools. No subsistence remains were recovered from the site, however, precluding accurate determination of prey species, or patterns of their exploitation and use. Following ecological arguments developed by House and Wogaman (1978:19-23), however, it is probable that white-tailed deer were the principal species exploited.

38LX82 DIMENSIONS: A LOW-LYING FLOODPLAIN SITE

Site 38LX82 was a small, 30 meter diameter scatter located within the flat to slightly rising terrain of the Congaree River, roughly one and one half miles west of the main channel and one half mile from the base of the Sandhills. The floodplain is generally flat, although dissected in places by swampy tributaries and broken by low terraces and eroded ridgelines. Archeological sites are common throughout the floodplain environment, although they are almost invariably located on visible rises or else along the margins of present day tributary/swamps. Site 38LX82 occupies a somewhat unusual position, however, in that it is not on or near either of these types of terrain, but is located in a flat, undifferentiated setting. A circular boggy depression located some 100 meters to the north of the site probably explains the occurrence of the scatter. Prior to modern farming and drainage activity this depression may have been wetter or more extensive, providing the swampy environment seemingly selected by local prehistoric populations.

It should be emphasized that the apparent association of archeological sites with swamps within the Fall Line floodplain reflects modern conditions in the area. Prehistorically, the extent of these swamps may have been considerably different. Given lowered sea levels, and a somewhat cooler climatic regime, swamps may have been less widespread during the Early Holocene (Whitehead 1973:624-626). Even given a relative stabilization of regional climate and vegetational communities after the Early Holocene (cf. Watts 1971, n.d., Chapter 2),

the effect of minor fluctuations in these variables remains to be determined. Historic period removal of the climax forest cover from throughout the area may have also affected drainage and silting patterns. What may be indicated by the patterning evident in prehistoric site distribution is not so much selection for swamp margins as for a nearby source of water. The relatively unusual placement of the 38LX82 scatter within the floodplain, therefore, serves to emphasize the subtle factors characterizing prehistoric land use in the area.

The data recovery operations at 38LX82 documented prehistoric site use during the Late Archaic and/or Early Woodland. Temporally diagnostic artifacts recovered included one quartz Savannah River Stemmed base and one rhyolite Otarre Stemmed-like biface. These forms have been dated throughout the region, including at site 38LX5, to between 2000 and 1000 BC, during the Archaic-Woodland transition. Two probable Woodland period potsherds were also recovered, but the low incidence of ceramics or other Woodland artifacts suggests minor use of the area after about 1000 BC. No features were discovered, although the site artifact assemblage was found to occur almost entirely in the plowzone, precluding preservation. Both fired clay and fire-cracked rock were recovered in moderate quantities in the plowzone, suggesting the presence of hearth areas. The associated artifact assemblage included pitted and battered cobble tools, retouched flakes with generally low functional working edge angles, a predominantly quartz debitage assemblage characterized by both initial and advanced stage materials, several biface fragments, and half of a carved steatite disk that may have served as a cooking stone.

The artifact assemblage indicated that a range of activities were occurring on the site, including probable tool manufacture and maintenance, as suggested by the debitage, and both plant and animal processing, as suggested by the cobble and cutting tool forms. The moderate range of tool and debitage forms, the occurrence of fire-cracked rock, and the presence of steatite are all attributes of an intensive habitation site according to both Ferguson (1976:8) and House and Wogaman (1978:10). The small size of the scatter, however, suggests that site use was limited in duration, possibly representing temporary settlement by a fairly small group. Given the highly localized nature of the scatter, re-use of the area over differing seasons or periods as an explanation for the observed assemblage diversity appears unlikely. The range of materials indicated site use beyond that for a single extraction task, suggesting habitation, although this was probably of limited duration.

SITE 38LX64 DIMENSIONS: A LOW-LYING FLOODPLAIN TRIBUTARY/
SWAMP MARGIN SITE

Site 38LX64 was a three acre scatter located along the margin of a swampy tributary cutting through the Congaree River floodplain, about one mile from the main channel (Figure 45). The swampy tributary forms a distinctive micro-environment within the floodplain, one that apparently saw considerable prehistoric use (Goodyear 1975a:26). As indicated in the discussion of site 38LX82, the swamp itself may be a fairly recent feature, only peripheral to the reason the area was occupied. Aside from the proximity of the tributary, the 38LX64 area is undistinguished, and the vicinity of the scatter is almost perfectly flat and featureless. Higher areas, which would have provided refuge in case of flooding, are absent. The occurrence of an extensive assemblage in the area, given the location, might suggest site use during drier seasons, when flooding would not have been likely.

The data recovery operations at 38LX64 documented prehistoric site use throughout the Archaic and into the Woodland. Considerable quantities of stone tools, debitage, and fire-cracked rock were recovered, suggesting fairly intensive use of the area. The deposits were shallow and fairly mixed, however, rendering separation of individual component assemblages difficult. Quartz was the principal raw material recovered on the site, accounting for almost 90 percent of the debitage assemblage by weight. Small quantities of chert, slate, rhyolite, and quartzite were also present, with chert the second most prevalent raw material. Both initial and later stage reduction debris was present over all raw material categories, suggesting both tool manufacture and maintenance. A number of well-made unifacial tools were recovered, although much of the stone tool assemblage appeared to reflect the expedient use of flakes. The majority of the specimens in the wear and intentionally retouched flake assemblage were characterized by acute functional working edges, although a number of flakes were also recovered with intermediate or steep functional edges. The overall retouched flake assemblage appeared to reflect use in a number of functions.

Early Archaic site use was documented by the recovery of three Palmer and two Kirk projectile points. Several well made unifacial tools, including sidescrapers, endscrapers, and graters, were also recovered at depths suggesting a possible Early Archaic age. Well made unifacial tools are locally considered, indicative of Paleo-Indian or Early Archaic site use (Wogaman, House, and Goodyear 1976:11; Michie 1979:14). While this remains to be demonstrated, many of the unifacial tools at the site were found in contexts suggesting an Early Archaic origin.

The nature of Early Archaic site use at 38LX64 is difficult to infer. Most of the probable tools dating to this period are composed of nonlocal cherts or rhyolites, suggesting resource exchange or procurement over large areas. The artifact assemblage consists almost entirely of broken or exhausted hafted bifaces, plus a few kinds of steep angled unifacial tools. Given the nature of the deposits, attributing other, nondiagnostic artifacts to this period is risky, but it is probable that some of the recovered debitage and fire-cracked rock was associated with the Early Archaic component. The assemblage appeared directed toward a number of specialized activities, including minimally hunting or butchering extraction tasks. The biface assemblage documented animal processing extraction activity at or near the site; resolving the nature of other site activities entails delimiting the functions of the specialized unifacial tools, and settlement implications of their occurrence, on prehistoric sites. Some investigators (Goodyear 1974, Morse 1975), for example, view the presence of at least limited quantities of specialized unifacial tools as plausible at special activity stations, an orientation that has been challenged by other researchers (cf. Schiffer 1975). Early Archaic site use at 38LX64, given the absence of evidence for structures or even well defined working floors, must be interpreted on the basis of a few possible associated tool forms.

Middle Archaic site use at 38LX64 was documented by the presence of 11 Morrow Mountain-like biface forms. Again, determining associated artifacts and features was difficult, and only one possible hearth (Feature 1) could be assigned to this period. Given the limited stratification evident in the deposits, it is probable that moderate quantities of the fire-cracked rock and debitage, and some of the flake and cobble tools recovered date to this period. One of the site features, a cluster of cobble tools and ferruginous sandstone nodules, was found with a Morrow Mountain point in the center, although unfortunately this feature was of uncertain formation. The identifiable Morrow Mountain points recovered at 38LX64 were predominantly of quartz and quartzite, and it is probable that some of the debitage of these materials is also of Middle Archaic age. No evidence for structures was noted, although their recognition would prove difficult.

The Middle Archaic assemblage at 38LX64 points to site use encompassing a variety of tasks, including both plant and animal resource processing, and stone tool manufacture and maintenance. The incidence of both early and later stage reduction debris, particularly over the quartz assemblage, supports both tool manufacture and maintenance activity. Plant resource processing was suggested by the

occurrence of a variety of stone tools, including pitted, abraded, and battered cobbles, one possible pestle, and a large mortar or basin. While the exact age of these specimens was uncertain, assignment to the Middle and/or Late Archaic is probable, given the depth and associations of the various artifacts. Animal resource processing was suggested by the retouched flake assemblage, which included a number of tools with low functional working edges, and by the presence of a hafted biface assemblage, which could have also been employed in cutting functions (cf. Ahler 197). Following Ferguson (1976) and House and Wogaman (1978), Middle Archaic site use at 38LX64 appears to reflect intensive habitation or, alternatively, re-use of the same location over different periods for differing extractive tasks. Given the high density of materials, and the spatial proximity of the artifact and tool forms, however, extended habitation appears more probable.

Late Archaic site use at 38LX64 appeared similar to the pattern noted for the Middle Archaic. Seven Savannah River Stemmed-like bifaces most of slate or rhyolite, document site use at this time. Probable associated remains included fire-cracked rock, debitage and flake and cobble tools. Two hearth-like features were detected that may, on the basis of depth, date to the Late Archaic, although it was not possible to conclusively document this inference. Again, no evidence for structures was noted. Only two definite Thom's Creek sherds were recovered, and much of the Late Archaic assemblage may predate the introduction of pottery into the area. The role of ceramics on Fall Line sites of any period is currently poorly understood, however, and not a problem related strictly to the Late Archaic in the area. As during the Middle Archaic, site use at 38LX64 during the Late Archaic appears to have been directed toward a variety of tasks, and extended habitation is inferred. Given the general absence of preserved subsistence remains, however, it was not possible to determine seasonality of occupation for either this or any period of occupation on the site. The presence of smooth pitted cobbles may indicate fall nut processing during the Middle and Late Archaic, although no nut remains were discovered by the ethnobotanical analysis.

Post-Archaic use of the 38LX64 area appears to have been relatively minor. Only 16 potsherds were recovered, all of probable Late Archaic or Early Woodland age, and no identifiable Woodland bifaces were recovered. The presence of Woodland pottery does suggest some visitation at this time, however, and the low overall artifact density implies site use in short-term extraction tasks (cf. Ferguson 1976:9).

The absence of bifacial tools, coupled with the presence of at least some pottery, may suggest the possible nature of this Woodland activity. The presence of containers (i.e. pots) suggests collection of some kind, possibly of water, seeds or other resources. This inference is admittedly highly speculative, based as much on the absence of hunting/butchering implements as on the occurrence of pottery. Some cobble tools were recovered on the surface at 38LX64, and may date to post-Archaic times, additionally suggesting plant resource collection, although it should be emphasized that a Woodland age for these tools cannot be demonstrated. The pottery may, alternatively, reflect casual transport and/or discard from other locations, possibly through prehistoric action, or by modern agricultural or other land use activity. Evidence for Woodland site use is minor, however, and the most extensive periods of activity at 38LX64 clearly date to the Archaic.

STEPS TOWARD A LOCAL CULTURAL SEQUENCE: INFERENCES FROM THE SOUTHEASTERN COLUMBIA BELTWAY PROJECT

From a purely cultural-historical perspective, the Southeastern Columbia Beltway Project produced a range of information of value toward the construction of a local cultural sequence. Major contributions of the project in this regard include the additional stratigraphic documentation of the local biface sequence, and the identification and absolute dating of specific, diagnostic artifact forms. Prior to the Beltway project, Michie's (1969) work at Thom's Creek formed the only stratigraphic record of the artifactual sequence in the upper Congaree Fall Line area to be reported in detail. The excavations at Thom's Creek documented a local Archaic biface sequence similar to that reported by Coe (1964) for Fall Line North Carolina, with the following types recognized, ranging from earliest to latest: Taylor, Hardaway, Palmer, Morrow Mountain, Guilford, Savannah River Stemmed, and a variety of Woodland forms (Michie 1969:7-9, 14). The limited stratigraphic data from two of the Beltway project sites, 38LX5 and 38LX64, complement and support the sequence developed from the Thom's Creek site.

At 38LX64, the deposits were shallow and mixed, but over the entire bifacial assemblage it was possible to document a stratigraphic succession from Palmer and Kirk forms, through Morrow Mountain, to the Savannah River Stemmed type. This information, while hardly novel, serves to complement and additionally confirm the local Archaic sequence originally posited by Michie. Site 38LX5 also produced a limited amount of stratigraphic data. At this site the distribution of bifaces in the plowzone and subplowzone

documented a clear temporal priority for Morrow Mountain and Otarre-like forms, which were located almost exclusively in the subplowzone. An intermediate age for Thelma-like points was suggested by their relatively even distribution in both the plowzone and subplowzone, while a comparatively recent age for a number of small stemmed and triangular forms was suggested by distributions restricted almost exclusively to the plowzone. While this information is admittedly of limited scope, the sequence documented for local Woodland period forms (Otarre-Thelma-small stemmed and triangular) represents an improvement on previous information, and provides initial, tentative confirmation of the general utility of Woodland biface sequences developed elsewhere in the region. In particular, the 38LX5 data support the generally accepted assumption that sequences developed by Coe (1964) in eastern North Carolina, and Keel (1976) in western North Carolina, are of some utility in the central South Carolina area.

The Southeastern Columbia Beltway Project additionally provided information of value toward the identification and absolute dating of specific typologically diagnostic artifact forms. The Morrow Mountain-like biface cluster (Feature 6) found at 38LX5, for example, helps to document the probable range of morphological variation that might be expected within local Middle Archaic assemblages. The associated radiocarbon determination, roughly 3500 BC, additionally provides an absolute age measure for these biface forms in the local area. Otarre Stemmed (Keel 1976) and Thelma-like (South 1959) bifaces were also recovered on the project sites, and through examination of their context, together with three associated radiocarbon dates, it was possible to place these forms temporally in the Congaree Fall Line area.

The Otarre Stemmed type appears to be a transitional, Late Archaic/Early Woodland biface form in the South Carolina Fall Line area. On each of the three project sites where it was recovered, it was found in generally aceramic contexts, and at both 38LX82 and 38LX64 it was found in probable association with Savannah River Stemmed forms. At 38LX5, two radiocarbon determinations placed the form at about 1200 BC, a date in agreement with the original estimates based on stratigraphic associations and radiocarbon dates from the Appalachian summit of western North Carolina and eastern Tennessee (Keel 1976). Thelma-like points, in contrast, appear to be slightly later in age, and were found in association with pottery. At 38LX5, two Thelma-like points were found near Feature 9, a hearth with Deptford plain, check, and linear check stamped pottery

present in the fill. Charcoal from this feature produced a radiocarbon date of about 860 BC. This determination is in approximate agreement with South's (1959) estimated age for the biface form based on fieldwork in coastal North Carolina. Thelma-like points were recovered only at 38LX5 during the Southeastern Columbia Beltway project. Since this was the only site of the four producing pottery in quantity, it reinforces the inference that the form dates to the Early Woodland (ceramic) period in the area.

The date from Feature 9 is somewhat earlier than expected for Deptford pottery, by perhaps as much as two to three hundred years. Milanich (1971:143) tentatively begins his Deptford phase around 600 BC, and South (1976:29) employs the same approximate date for the appearance of Deptford pottery in coastal South Carolina. Until additional dates can be collected to confirm this determination, only tentative acceptance is warranted. The artifactual data and radiocarbon determination does, however, indicate a general association of Deptford pottery with stemmed, Thelma-like bifaces, and additionally suggests an absolute age for these forms in the early to middle part of the first millennium BC.

PREHISTORIC SETTLEMENT IN THE UPPER CONGAREE RIVER FALL LINE ENVIRONMENT: THE EVIDENCE FROM THE PROJECT ASSEMBLAGES

The archeological assemblages from the four sites examined during the project provide a basis for examining patterns of prehistoric settlement, over time, in the upper Congaree River Fall Line area of South Carolina. It is immediately apparent, for example, that the major periods of prehistoric use vary considerably over the four locations. Furthermore, the variation in functional posture evident over the project components helps to document how each specific microenvironment was utilized by local aboriginal populations.

No Paleo-Indian components were noted on the project sites, and the only Early Archaic components detected were found at 38LX64, within the alluvial floodplain along a swampy tributary margin. Both Palmer and slightly later Kirk biface forms were recovered, indicating at least two periods of site use. The absolute age of these components, based on radiocarbon determinations from elsewhere in the southeast, are roughly 9500 and 9000 years ago, during the early Holocene (Chapman 1976:2-5). Given lowered sea levels and increased stream gradients in the past, it is possible that the modern tributary/swamp area to the north of the scatter was either an open lake or else a relatively free flowing stream. A broadleaf hardwood forest canopy undoubtedly

dominated the area, although the principal species were probably oak, hickory and maple. The modern swamp communities, characterized by cypress, tupelo, and sweet-gum, do not appear to have become fully established until somewhat later in the Holocene (Whitehead 1965, 1973, Watts 1971, n.d.). Specific use of the site area appears to have been directed toward a number of specialized activities focusing on hunting/butchering extractive tasks. The limited nature of the recovered data assemblage precludes an accurate appraisal of site use patterns, however, and the nature of the Early Archaic components remains largely unknown.

Middle Archaic components were recognized at two sites by the presence of Morrow Mountain points. Components were identified at 38LX5, an upland knoll crest in the inner margin of the Sandhills, and at 38LX64, along a swampy tributary within the Congaree alluvial floodplain. The absolute age of these components dates from roughly 7000 to 5000 years ago, based on radiocarbon determinations from elsewhere in the region (Chapman 1976:8-9), and supported by a single date of about 5500 BP from 38LX5. By this time, an essentially modern vegetational community was established in the area, although perhaps characterized by fewer pines and more hardwoods than occur at the present. Site use in both areas appears to have included hunting/butchering extraction tasks, although at 38LX64, evidence for a greater range of activities was evident, including possibly plant resource processing. The project data suggest repeated short-term use of the 38LX5 area, probably in hunting-related activities, and extended use, including probable habitation, of the 38LX64 area. One unusual cluster of Middle Archaic tools found at 38LX5 appears to be a hunting/butchering tool kit that was either lost or possibly deliberately left on the site, in a cache or burial context.

Late Archaic components were recovered at all four of the project sites, and were documented by the presence of Savannah River and Otarre points and Thom's Creek pottery, the latter category noted only at 38LX5 and 38LX64, the two large sites. The absolute age of these components is from roughly 5000 to 3000 years ago, as documented by numerous radiocarbon dates on associated artifact forms from throughout the region (cf. Coe 1964, Keel 1976, Trinkley 1976a). Two radiocarbon dates from 38LX5 for Otarre Stemmed bifaces, help provide an absolute chronology from within the project area. Vegetation and drainage patterns during the Late Archaic were probably similar to modern conditions, at least those just prior to historic contact (Whitehead 1973, Watts 1971, n.d.).

Late Archaic site use appears to have been somewhat different in each of the four locations examined during the Beltway project. At 38LX106, the sandhill ridge slope site at the extreme margin of the uplands, site use appears to have been short-term and directed exclusively toward animal resource extraction. A single period of site use by a small group at this location appears probable. At 38LX5, the sandhill ridge crest site, Late Archaic site use was ambiguously defined by a single biface and a few sherds of pottery. Use of the site in short-term extractive tasks appears likely, although the nature of these tasks remains obscure.

At 38LX82, the low-lying floodplain site, Late Archaic site use appeared directed toward a moderate range of activities, including tool manufacture and plant and animal processing. The data suggest intensive habitation of the area by a small group of people, probably for only a short period of time. The Late Archaic use of the 38LX64 area appears to have been directed toward a variety of tasks, and intensive habitation is inferred, probably over a fairly lengthy period. Generally, the project data set suggests Late Archaic use of the upland sandhills area in extraction activities, coupled with extensive habitation, and varied task performances, in the floodplain area.

Woodland components were observed on three of the four project sites, two in the floodplain and one (38LX5) in the uplands. The absolute age of these components dates between roughly 3000 and 1000 years before the present. At 38LX5, it appears as if this entire range was represented, while at 38LX64 and 38LX82 the few sherds recovered suggest visitation during the earlier half of this range. A few sherds were noted on both sites in the floodplain, but no other artifacts on these sites could be conclusively dated to the period. The data suggest that Woodland populations ranged into the floodplain, although specific use appears to have been short-term and possibly related to extraction tasks. Use of the site 38LX5 area, on an upland ridge crest, in contrast, appears to have been much more extensive. The data suggest that site use was directed toward a variety of activities, indicative of intensive habitation or minimally repeated re-use in different extractive tasks. Evidence for the final period of prehistoric occupation in the region, the Mississippian, was noted at only one site, 38LX5, where a small number of sherds and points suggested short-term site use for probable extraction related tasks.

The Beltway project data set may be used to generate inferences about prehistoric settlement patterning in the upper Congaree River area. 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 utilized for animal extraction tasks. Late Archaic use of the uplands, however, appears to have been relatively minor when compared with use of this zone during the preceding and succeeding periods. Late Archaic settlement 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 margins or the flat, low-lying interior areas.

The patterning in prehistoric Fall Line settlement observed over the four sites provides an initial datum for comparative analysis. Goodyear (1975a, 1976:8-11), for example, had previously proposed a general model of prehistoric site distribution in the upper Congaree River area. Goodyear specifically argued that distinctive shifts in settlement patterning occurred over time in the Congaree Creek locality, basing his inferences largely on survey data. The settlement data from the four Beltway sites complement Goodyear's observations, and provide previously undocumented information about specific prehistoric use of certain environmental zones. In particular, no Early Archaic components were noted on the two sandhill sites examined, supporting Goodyear's (1976:8) observation that "sites of this period do not appear to be present in the sandy uplands to the west". In a similar fashion, the inferred distributions of Middle and Late Archaic sites (in both the uplands and floodplain) and for the Woodland (in the sandhills) are supported by the excavation data. Goodyear (1976:11-12) additionally documents the presence of extensive Mississippian period sites along the immediate Congaree River/Congaree Creek margin, and suggests that this location was selected to take advantage of the periodic overflow, which would renew the soil and make cultivation relatively efficient. These floodplain Mississippian sites are inferred to be base settlements, with use of the interior restricted to brief, extraction