

5.0 NATIVE AMERICAN LAND USE

The Smyrna to Pine Tree Corners portion of the SR1 corridor offered an opportunity to examine trends in Native American settlement patterning on a smaller scale. Because of the variation in microtopography and the different types of Native American sites along the Smyrna to Pine Tree Corners portion of the SR1 corridor, settlement patterning through time and functional use of the landscape were examined. Pertinent temporal and functional attributes were obtained from existing information for the sites identified in the SR1 corridor as well as previously recorded Native American resources. Data tables were generated and locational information was plotted on the current USGS 7.5' quadrangle maps (USGS 1993a, 1993b, 1993c, 1993d).

5.1 THE PROCESS

5.1.1 Site Files Search

A site files search was conducted at the Delaware SHPO. Existing literature including published and unpublished technical reports relevant to the project corridor was reviewed.

Site files research was conducted at the Delaware SHPO in August 2000 to establish the regional context for the sites in the current study. Originally, the site files record search was defined using a five mile perimeter to the east and west of the proposed SR1 corridor with the northern boundary being the Appoquinimink River and Duck Creek as the southern boundary. Locational data for Cultural Resource Survey (CRS) numbers was provided in a digital ArcView database by the Delaware SHPO. Site attribute data were taken from hard copy site forms in the Delaware SHPO site files. The attribute data were correlated for spatial analysis through CRS numbers.

As of August 2000, the CRS files of the Delaware SHPO listed 407 sites containing Native American occupations in New Castle County within a five mile perimeter of the SR1 corridor. The majority of these resources were originally recorded by UDCAR during the initial planning stages of the Route 13 Relief Corridor (Custer and Bachman 1986; Custer et al. 1987). The majority of the sites identified for this study are located immediately along the corridor itself. A number of other surveys in New Castle County resulted from an increase in population and construction projects. The 407 archaeological sites consist of 361 Native American sites and 46 sites with both Native American and historical occupations.

The cultural context of sites allows for the analysis of trends and distributions of site types in the region for Native American history. Since diagnostic information was not always available, recorded or yet discovered, a large majority of the sites containing Native American components were of unknown temporal association. Such sites consisted of lithic scatters with no temporally diagnostic artifacts. Twenty-two Archaic, 94 Woodland I, and 34 Woodland II temporal components were represented. Most of the Native American sites were documented through the surface collection of artifact; the cultural affiliations were based on the occurrence and typological assignments of temporally diagnostic artifacts rather than radiometric dating and did not rely on stratigraphy or geomorphologic testing.

5.1.2 Data Sets

Information was gathered for 407 sites within a 5-mile radius of the SR1 corridor in Delaware. The information was obtained from Delaware SHPO site file forms, Delaware SHPO GIS coverage, DelDOT Archaeology Reports, and results of field investigations. This data was compiled into a single master database. The database consists of 407 sites with 21 attribute fields for each site (Table 5-1).

Table 5-1. Attribute Data Sets for Native American Sites

Attribute	Description
CRS Number	N0XXXXX
Site Number	7NC-X-XXX
SPO Map	60727
Quadrangle	USGS 7.5" quadrangle name
Hundred	Name
Site Name	Name
Address	
Site Type	Native American Both
Function	
Sub Function	
Survey Date	
Listing	
Status	
Period (component)	Projectile Point type Ceramic type
Theme	
Property Type	
Size	
Integrity	
Condition	
Projectile Point	Table 5-2
Biface	Presence/absence
Uniface/scrapper	Presence/absence
Core	Presence/absence
Dcbitage	Presence/absence
Groundstone	Presence/absence
TAS	Presence/absence
Native American Ceramic	Table 5-2
Specials	Atlatl weights Gorgetts Pendants Slate Steatite Hoc
Other	Flake Tool Utilized Flake Tool unspecified Chopper Drill Shell graver
Notes	

Attribute data included site type (Native American and both) and component or components data (Table 5-1). Differentiating Early and Middle Woodland period components was not practical because the chronological reporting in the site files was not consistent. The Delmarva chronology, which does not distinguish sub-periods between the start of the Late Archaic and the end of the Middle Woodland, was employed throughout on site forms. Temporal information for Native American sites was distinguished as Archaic, Woodland I, and Woodland II. Sites that contained no temporal information (i.e. debitage only) were categorized as unknown. Functional data includes artifactual data that might provide insight to patterning on the landscape as an effect of behavior, material, and environment.

Component assignment was determined using projectile point typology and Native American ceramic types (Table 5-2). If a site form did not explicitly note a projectile point or ceramic type, it was assumed that no temporal data was available for that site. In such cases, the component field was populated using the term "unknown".

Table 5-2. Temporally Diagnostic Artifacts and Time Periods

Time Period (component)	Projectile Point Type	Ceramic Type
Archaic	Bifurcate	N/A
	Kirk Corner Notched	N/A
	Corner notched	N/A
Woodland I	Savannah River	Marcey Creek
	Susquehanna	Selden Island
	Side notched	Dames Quarter
	Fishtail	Wolfe Neck
	Bare Island	Hell Island
	Lackawaxen	Mockley
	Broadspear	Pope's Head
	Fox Creek	Coulbourn
	Lanceolate	Accokeek
	Eshback	Vinette
	Piscataway	Wilgus
	Poplar Island	Nassawango
	Krispin	
	Rossville	
Adena		
Teardrop		
Woodland II	Triangle	Townsend
	Madison	Minguannan
	Levanna	Killens
	Yadkin	Potomac Creek
		Keyser
		Riggins
Unknown		Bowmans Brook
	Side notched	unidentified
	stemmed	
	straight stemmed	
	contracting stemmed	
	unidentified	

5.2 MICROTOPOGRAPHY IN THE STUDY AREA

The Smyrna to Pine Tree Corners portion of the SR1 corridor is characterized by several distinct microtopographic zones. These zones consist of three drainage systems, the Smyrna River, Blackbird Creek and the Appoquinimink River; and two interstream divide areas (between Blackbird Creek and the Smyrna River, between the Appoquinimink River and Blackbird Creek) associated with bay/basins (Figure 5-1).

The southern area of the Smyrna to Pine Tree Corners study area is characterized by a dendritic system of secondary waterways associated with the Smyrna River. These secondary drainages include the Sawmill Branch, Duck Creek, Green Spring Branch and Massey Branch. This area contains undulating terrain ranging from 35 to 50 feet above mean sea level (asml).

An area representing the interstream divide between the Blackbird Creek and the Smyrna River drainages is located along Massey Church Road. This area contains the headwaters of Sawmill Branch which empties into the Smyrna River to the east and south, and the headwaters of Sandom Branch which empties north into Blackbird Creek. The elevation ranges between 50 to 65 feet asml. These upland areas contain numerous bay/basins and indicate a closed drainage system. Bay/basin are broad, circular to oval depressions that are widely distributed along the Delaware Coastal Plain. These bay/basins range from as little as 50 meters, to over 500 meters in greatest dimension. These bay/basins range in size from as little as 50 meters to over 500 meters in greatest dimension. Bay/basins are gently sloping depressions that may hold water seasonally.

The central portion of the study area is characterized by the presence of the Blackbird Creek drainage system. Secondary drainages include Sandom Branch emptying north, Barlow Branch emptying east, and Herring Run and Beaver Branch emptying southeast into Blackbird Creek. The elevation ranges between 30 and 60 feet asml. Broad, level upland terraces illustrate the land north of Sandom Branch. Bay/basins are absent in this portion of the corridor and much of the land is in active agricultural use.

An area representing the interstream divide between the Appoquinimink River and Blackbird Creek is located north of Herring Run in the northwest portion of the study area. This area contains the headwaters of Herring Run and Beaver Branch flowing southeast into Blackbird Creek and unnamed secondary drainages flowing north to the Appoquinimink River. The elevation ranges from 60 to 70 feet asml. This interstream divide also exhibits bay/basins in the upland areas. Minor rises and ridge-like knolls are present in this area. Current land use in the vicinity was primarily agricultural, while areas not suitable for cultivation, due to slopes and drainages, stood in hardwoods. This area exhibited evidence of intensive historical logging. At the time of the Phase II evaluations in the Herring Run to Pine Tree Corners area, generally, the corridor was forested in moderately dense oak, beech, and poplar trees, with an understory of saplings, briars, and ivies.

Wetlands are important ecological zones that would have supported ferns, cattail species, and other emergent wetland vegetation. Marshes offered both food resources and useful raw materials. A number of mammalian species, notably beaver, muskrat, mink, otter, and weasel, live or feed along wetland fringes. The freshwater streams in the site area would have supported a variety of aquatic and amphibious animals. Terrestrial animals are also attracted to freshwater streams for drinking water.

5.3 PATTERNING ON THE LANDSCAPE

In order to examine patterning in the microtopography, the study area for Native American settlement studies was decreased north to Pine Tree Corners and south to immediately north of Smyrna. Even though the map depictions extend out 1 to 2 miles on either side of SR13, no additional Native American sites were located east or west of the study area. By decreasing the study area size, Native American sites on the Appoquinimink River to the north were excluded.

5.3.1 Chronological Patterns

Three broad time periods are represented by the Native American sites in the study area: Archaic, Woodland I and Woodland II. Previous settlement patterns have been suggested for the mid-drainage divide area in the Delmarva (Custer 1989; 1994).

Archaic Occupations. In the Archaic period (ca. 6500 to 3000 B.C.), local populations were exploiting the new floral and faunal resources appearing with the transformation of the mixed pine-oak forest to a temperate oak-hemlock deciduous forest. Although the main resource procurement strategy is generalized foraging, seasonally specialized, transient procurement stations are identified, functioning as support facilities for estuarine base camps (Gardner 1978; Custer 1986). Macro-band and micro-band base camps, and procurement locations characterize the types of sites occupied by Archaic peoples during the seasonal round. Macro-band base camps are expected to be located in environmental transition zones where a variety of ecozones and resources can be accessed. Macro-band camps exhibit a wide range of maintenance activities and tool classes.

One of the most important environmental changes affecting Native American populations throughout the Middle Atlantic region during the Archaic period was the gradual rise in sea level accompanying the retreat of the continental ice sheets. Among the effects of inundation were a marked rise in local water tables, an increase in shoreline complexity associated with estuary development, and a consequent increase in floral and faunal resources in newly formed marsh or wetland areas (Potter 1982). Large marshes and swamps became an important focus of occupation during the period (Gardner 1978). Archaic sites associated with bay/basins are small with limited artifact assemblages and represent short term hunting or processing sites (Custer 1989:135).

Only 10 Archaic sites occur in the study area (Figure 5-2). Archaic activity was focused along the drainages including Blackbird Creek (n=3), Sandom Branch (n=1), and Sawmill Branch (n=1). The three Blackbird Creek sites suggest base camps located at the ecotone between riverine resources in the creek bottoms and terrestrial resources in the uplands. The small site on Sandom Branch may represent a short term procurement location for upland resources. The large Archaic base camp located at the headwaters of Sawmill Branch suggests a different set of locational parameters focused on primary use of upland resources during repeated occupations or for longer periods of time in the Archaic.

Archaic activity was also evident in the south central portion of the study area with sites located adjacent to bay/basins and in swampy upland areas between the Blackbird Creek and Smyrna River drainages. These sites may indicate short term procurement locations of specialized resources associated with closed drainage depression systems and wet areas (e.g. plant resources or migratory waterfowl).

Woodland I Occupations. A marked increase in site frequency is observed during the early portions of the Woodland I, suggesting both an overall population increase and movement into new environmental zones (Turner 1978). Regional environments during the Woodland I were initially characterized by the prevalence of an oak-hickory forest. Riverine and estuarine environments formed and supported significant populations of shellfish and anadromous fish in larger streams. The focus of settlement shifted during the initial part of the period to these riverine and estuarine locales to take advantage of the increasingly predictable fish and shellfish resources (Custer 1978; Gardner 1978). Some sites in the riverine and estuarine areas tend to be larger and more complex than any occupied during previous periods, suggesting a trend toward sedentism and organized resource procurement strategies (Johnson 1986). In the fall line regions, large spring-and-summer base camps existed during the initial Woodland I at which anadromous fish were harvested (Gardner 1982). Small fall-and-winter base camps were situated along inland streams near the freshwater/saltwater transition to take advantage of the abundant shellfish resources there, while multi-seasonal, transient camps were located in a variety of environments, offering additional support to the large and small base camp occupations (Gardner 1982).

Changes in regional settlement patterns have been postulated during the final stages of the Woodland I, with semi-sedentary base camps or macro-band base camps increasing in size (Custer 1989, 1994). Studies indicate a shift in the locations of these base camps from small creek floodplains to large river floodplains. A shift in base camp locations was observed from the confluence areas of freshwater streams and estuaries to locations farther upstream (Custer 1986, 1994).

A settlement model for the Woodland I in a setting similar to the study area defined the location of a macro-band camp along a major drainage at the transition between freshwater riverine resources upstream and brackish estuarine resources downstream (Custer 1994:89). Micro-band camps could occur in upland areas along minor drainages downstream and adjacent to estuarine resources; procurement locations could be situated either in the uplands or along the estuary depending on the resource to be procured.

The Woodland I occupations in the study area are almost triple the number of the Archaic occupations (Figure 5-2). Additional site locations occur along Blackbird Creek in the Woodland I period; two Archaic site locations were reused during this period. Five site locations are associated with the secondary streams: two along Sandom Branch and three at the headwaters of an unnamed drainage north of Blackbird Creek. The sites along Blackbird Creek and the northern drainage are relatively large suggesting base camps or re-occupied transient camps.

Additional small Woodland I sites are located north of Herring Run, in the central bay/basin portion of the study area, and in swampy upland areas between the Blackbird Creek and Smyrna River drainages. Several site locations represent continuity with Archaic site locations (e.g., 7NC-J-97/98/99 and 7NC-J-225). These smaller sites contain limited assemblages and few tool types; these sites may indicated short term hunting or plant gathering locations in the interstream divide uplands and adjacent to bay/basins.

Woodland II Occupations. Two regional Woodland II complexes are recognized within Delmarva, the Minguannan Complex and the Slaughter Creek Complex. Each complex is

distinguished by characteristic ceramic wares and certain variations in settlement pattern. The Minguannan Complex is characterized by sand-, grit-, or crushed quartz temper ceramics with smoothed or cord-marked exteriors. The Minguannan Complex is evident in the Piedmont/Fall Line and Upper Coastal Plain zones with settlement patterns similar to those identified during the Woodland I period. The second Woodland II cultural complex, Slaughter Creek, occurs mostly in the Low Coastal Plain. Diagnostic artifacts of the complex include the thin-walled, shell-tempered, and fabric-impressed Townsend ceramics (Blaker 1950; Griffith 1977). Both simple and complex decoration occurs on Townsend ware, applied either with incised lines or cording. Settlement is characterized by large macro-band base camps and seasonal micro-band camps located in coastal, mid-drainage and interior settings (Custer 1989:317; Thomas et al. 1975).

The number of Woodland II sites in the study area represents a decrease from the Woodland I period occupations (Figure 5-2). The Woodland II patterning exhibits with minimal continuity with the Woodland I site locations. Seven sites occur along Blackbird Creek and its secondary drainages. One site is located at the confluence of Blackbird Creek and Beaver Branch on the floodplain while the other sites are situated on the terraces above the creek. Three small sites occur near a bay/basin and in the swampy uplands in the southern portion of the study area. No Woodland II sites are located north of Blackbird Creek or are associated with the Smyrna River drainage system. Based on small number and size of Woodland II sites, occupations may represent seasonal micro-band camps and upland hunting or plant processing locations.

5.3.2 Functional Patterns

General activities in the area were examined by the presence of different types of artifacts and their location on the landscape. Four activities were defined: hunting, flintknapping (core reduction and biface manufacture), heating/cooking activities and specialized activities associated with scraping tool.

Hunting Activities. Hunting activities were defined by the presence of projectile points. Projectile points may be discarded at two primary functional locations in a settlement system: at base camps, where tool manufacture and tool refurbishing occurred; or at hunting or butchering locations, where broken projectile points (blades or tips) may be inadvertently left in unbutchered or unwanted elements of the kill or where broken dart or arrow shafts were left (containing broken projectile point bases in the haft).

Projectile points were distributed across 46 locations on the landscape in the study area drainages (Figure 5-3). Twenty seven sites were located on the terraces above Blackbird Creek or along secondary drainages such as Sandom Branch and Barlow Branch; another four sites were located along the headwaters of the Sawmill Branch drainage. The larger sites along Blackbird Creek may represent micro-band base camps whereas the smaller sites along the upland terraces adjacent to Barlow Branch and along the estuaries of lower Blackbird Creek characterize hunting locations for game observation and localized kill/butchering locations.

Limited hunting activity occurred in the Herring Run area. The presence of only one small site with a single projectile point suggests that this bay/basin interstream divide area between the Blackbird Creek and Appoquinimink River drainages was not a primary hunting area.

Hunting activity was also evident in the bay/basin area and interstream divide between Sawmill Creek and Blackbird Creek. These sites were also most likely hunting locations and kill/butchering areas.

Flintknapping Activities. A high percentage of all Native American sites contain debitage which reflects tool manufacture and tool resharpening. Tool manufacturing debris may include debitage associated with core reduction, flake tool production, biface finishing, and formal tool shaping and finishing. In order to examine flintknapping activities across the landscape, debitage was not included as a defining factor because it is a constant on most Native American sites. The presence of cores, hammerstones and bifaces were selected to examine flintknapping activities associated with core reduction and biface manufacture.

The presence of cores, hammerstones and bifaces was widespread throughout the study area (Figure 5-4). Once again, most locations were associated with the Blackbird Creek (n=52), Sawmill Branch (n= 7) and Duck Creek (n= 5) drainage systems. Sites included both larger base camps with generalized lithic reduction and tool manufacture activities as well as smaller sites reflecting transient camps or resource procurement locations and either intentional or incidental core reduction. The density of flintknapping areas along the drainages may also suggest procurement of local cobbles and gravels from those areas. Interstream divide areas north of Blackbird Creek (n= 8) and between Sawmill Creek and Blackbird Creek (n= 12) also contained flintknapping activity.

Heating/Cooking Activities. Heating/cooking activities were defined by the presence of TAS and ceramic sherds. Although TAS may represent warming fires, cooking fires or ritual/ceremonial fires, it is used here as an indication of less transient activity. Ceramic vessels may be used for storage, processing or transfer. The primary function is assumed to be storage or processing (i.e. heating or cooking) of foodstuffs, although use of ceramic vessels may also include ritual activity such as containers for medicinal practices (Petraglia et al. 2002) or may be used as trade items or as vessels containing trade goods. Very few sites containing ceramics occurred in the study area (Table 5-3). Heating/cooking activities may be expected at base camps where a wide range of economic and ritual activities occurred, at transient camp sites, at specialized processing sites, and at locations of ritual activity (i.e. sweatlodges).

Heating/cooking activities occurred on large sites along Blackbird Creek and in the headwaters of Sawmill Branch. These sites most likely reflect a range of heating, cooking and ritual activities associated with base camps. Smaller sites with TAS are situated along Blackbird Creek, Sandom Branch, Barlow Branch, Sawmill Branch, and Duck Creek may indicate short term or transient camps associated with hunting or plant gathering activities along the drainages (Figure 5-5). TAS was evident in the Herring Run area and due to the small size of the sites and the limited assemblages may indicate warming fires at transient camps along travel routes between the Blackbird Creek and Appoquinimink River drainages. Evidence of heating/cooking activities also occurred on sites in the bay/basin area in the south central portion of the study area.

Scraping Activities. The presence of unifaces or scrapers on archaeological sites suggests additional kinds of activity. Scraping activities include hide working/processing, plant processing for food or fiber related goods (i.e. basketry), and wood working. Such activities may