

APPENDIX IV

PREHISTORIC SETTLEMENT PATTERN

The purpose of this appendix is to provide a short, more technical, discussion of the implications of the mapped prehistoric predictive zones for regional settlement pattern studies. Specifically, the implications of the prehistoric predictive maps from the present study will be compared to those discussed by Eveleigh et al. (1983) and state plan models (Custer 1983b). Implications for each of the major time periods of Delaware prehistory are discussed below.

Paleo-Indian Period

The low numbers of known and potential Paleo-Indian sites for the project area make it difficult to assess the implications of the predictive zones. Also, the training set used in the initial model formulation included few Paleo-Indian sites. However, a few general observations can be noted.

The main point is that the predictive model picked out a series of high probability zones within the concentrations of bay/basin features noted in Figure 4. As was noted earlier, in the report, this was the main area that more impressionistic site location models (Custer 1983b) delineated as a potential locus of Paleo-Indian sites. It is interesting to note that other studies of Paleo-Indian site locations in Coastal Plain areas (Bonfiglio and Cresson 1978) suggest that the most likely location of Paleo-Indian sites in areas around bay/basin features is the southwestern or southern sides of the features. However, the model used here picks a variety of locations adjacent to these features that are not necessarily on the southern and southwestern sides. For example, see Zone 6 on the Middletown Quad and Zones 1-4, 6, and 7 on the Clayton Quad in Attachment V. It seems as if the highest probability zones in these bay/basin concentrations are well-drained ridges that are centrally located in relation to several bay/basin features. Field

testing should be able to determine, which are really site locations. It is possible that the scale of the logistical regression model used here is too large to specifically distinguish site locations at the level discussed by Bonfiglio and Cresson.

Archaic Period

Recent studies of Coastal Plain Archaic site distributions (Custer and Galasso 1983; Eveleigh et al. 1983; Wise 1983; Galasso 1983) have noted that many interior well-drained ridges adjacent to poorly drained settings, including bay/basin features, are often locations of Archaic micro-band base camps and procurement sites. Also, these studies have noted that Archaic Period sites are more numerous than previously thought (eg., Custer 1981). The predictive model used in this study notes many high probability zones in interior zones, many of which are associated with bay/basin features. However, an equal number are associated with swampy, poorly drained floodplains of low order, and often ephemeral, streams. Custer and Galasso (1983) note that these may be locations of either micro-band base camps or procurement sites. Also, some of the Archaic sites may be a different type of site that falls somewhere in between micro-band base camps and procurement sites in terms of size, activities, and artifact type variety. Recent research at the Hawthorn site (Custer and Bachman 1983) suggests that the alternative site type may be termed a processing/staging site which is a small camp related to special forays to procurement sites. Whatever, the site type, the predictive model used here suggests that these, and other Archaic Period sites, may be common throughout the project area in interior zones. The large number of these of potential locations may be interpreted as evidence of relatively intensive use of interior regions during the warm, wet Atlantic climatic episode that is coeval with the Archaic Period. During this period it may be possible that many of the

presently ephemeral streams were perennial and many now-extinct streams were ephemeral in interior regions. If this were the case, groups would have had sufficiently dependable surface water to remain in the interior zone for long periods of time and might not have needed sources to establish base camps along the major drainages. However, interior floodplain settings and productive zones would be smaller than those along the major drainages and smaller settlements, micro-band base camps, would be more common than macro-band base camps. If this pattern was indeed present, then the social organizations of Archaic groups intensively utilizing the interior regions might have been more fragmented than that of coastal groups, or groups living at macro-band base camps along major drainages and large interior swamps (Custer 1982a:Chapter 3). Indeed, it should be noted that potential macro-band base camp locations are present on the predictive maps in areas closer to the coast and along major drainages. In sum, the potential Archaic utilization of both major drainage/coastal settings and interior zones is great. However, field testing of the model's predictions will be necessary to see if the inferred site types noted above are really present in the specified frequencies.

Woodland I Period

Most of the known sites in the project area date to the Woodland I Period and the predictive maps in Attachment V best apply to this time period. Because a major portion, the southern two-thirds, of the present study area corresponds to the area initially studied by Eveleigh et al. (1983), the interpretations of the model predictions will not be discussed for this area. The interested reader should check the article by Eveleigh et al. (1983) for these interpretations. In this section the discussion will focus on the predictions of the model for the northern portions of the project area.

The predictive model notes several, large high probability zones surrounded by larger medium probability zones in the northern portions of the study area along what was once Saint Georges Creek, and Drawyers Creek, the Appoquinimink River, Duck Creek, the Smyrna River, and the Leipsic River. These probability zones are centered on the oligohaline zone which represents the transition zone between salt and fresh water in the drainages. This zone is especially productive for hunters and gatherers and has been noted as a major focus for large Woodland I macro-band base camps (Custer 1983a:Chapter 4; 1983b). In general, the results of the application of the predictive model in this study confirm the models used previously and underscore the focus of settlement in the mid-drainage zone during Woodland I times. Moreover, this focus is an important part of explanations of Woodland I social complexity (Custer 1982) and the model results indicate that the increases in population densities which are part of these models were present in the northern areas of the Delaware Coastal Plain as well as in southern areas.

The model results also show many potential interior locations for Woodland I sites, including many potential Woodland I micro-band base camp locations. Galasso (1983) notes that in addition to the process of intensification of utilization of major drainage floodplain locations during Woodland times, there is an extensification of the variety of environments utilized. Because this extensification would presumably include a series of forays away from major base camps into interior zones, including the potential micro-band base camp and procurement site locations noted by the model, the results of the model, which note numerous potential site locations of this type, support these contentions. Specifically, the present study shows that these processes were in operation in northern areas of the Coastal Plain as well as in the more southern areas studied by Galasso (1983) Custer and Galasso (1983).

Woodland II Period

Research by Eveleigh et al.(1983) indicated that some Woodland II macro-band base camps and micro-band base camps were included within the high probability zones mapped out by the predictive model. Also, Woodland II micro-band base camps and procurement sites were noted for medium probability zones. The application of the predictive model in this study shows many of these sites throughout the study area. This finding is especially interesting because some earlier studies had noted the northern portions of Kent County and the southern portions of New Castle County as a potential buffer zone during Woodland II times. As was noted earlier in this report, re-examination of many of the collections showed that numerous known sites within the supposed "buffer zone" were indeed Woodland II sites and the appearance of numerous medium and high probability zones, which probably include many Woodland II sites, further underscores the fact that the "buffer zone" is an artifact of archaeological survey data, not a cultural reality.

It should also be noted that newly available ceramic distribution data indicates that the "buffer zone" probably did not exist. One of the original sets of data that the "buffer zone" concept was supposed to explain was the apparent discontinuity in the distribution of Woodland II ceramic design types. Northern Delaware, north of the Appoquinimink, was characterized by Minguannan ceramics, while southern Delaware, south of Duck Creek, was characterized by Townsend ceramics (Custer 1983a:Chapter 5). Although the ceramic types were recognized as very similar, and indicative of some interaction among the groups that manufactured them, it was thought that they were sufficiently different, in terms of temper, to indicate some degree of cultural differences. However, recent excavations at Killens Pond State Park by Cara Wise have recovered some Woodland II ceramics that are a blend of Minguannan and Townsend wares. These

newly discovered ceramics are tempered with a mix of shell and grit and may indicate a subtle shift in temper preferences among groups living in the interface zone of the two ceramic styles distribution. This overlapping of ceramic styles suggests a continuous distribution of interacting populations and also seems to contradict the existence of a buffer zone during Woodland II times.

In spite of these indications of interacting populations for the middle sections of the study area during Woodland II times, it should be noted that the adaptations are quite different between the two areas. In northern areas, which fall within the Minguannan Complex, a more fragmented social organization with few large sedentary sites seems to prevail. In southern areas which fall within the Slaughter Creek Complex, more macro-band base camps are present and a more complex social organization including more individuals is inferred.

In sum, the predictive model from this study confirms many of the existing models that were developed previously. However, in some cases it shows that existing models must be re-evaluated. The model also provides a guide to future research that can be oriented toward improving our ideas of what the past was like.