RESEARCH METHODS

GENERAL RESEARCH METHODS

Each of the three study areas was subjected to a preliminary reconnaissance to determine the surface visibility of the ground surfaces and to determine the percentage of the area which was wooded and could not be studied with surface survey. All locations targeted for surface and subsurface study were identified, landowners and/or tenants notified of our survey intentions, and permission requested from each. Most landowners granted access; however, where access was denied, the land was not surveyed.

Surface survey of locations within the study area consisted of walking the fields in regularly spaced intervals. The extent of surface visibility was noted for each field and expressed as a percent figure. It is an estimate of the visible ground surface versus the vegetated surface and is an impressionistic figure best considered a relative, rather than absolute, value. So as to organize the pedestrian survey, each of the study areas was divided into numbered subareas. Figures 9-11 show the subarea divisions with each of the project areas. The subareas were designed to be roughly equal in size and were delineated by prominent features like roads and perennial streams.

The term "locus" was employed to initially designate discrete artifact concentrations found during the surface survey and was defined as any area with at least one flake, a few pieces of fire-cracked rock or a concentration of historic materials. The very thin scatter of historic materials found throughout many large fields was regarded as "field scatter" associated with cultivation and fertilization . A locus was later determined to constitute an archaeological site if it possessed more than a few artifacts given an area's visibility and erosion conditions. Thus, an archaeological site is here defined as the location of prehistoric and historic activity as expressed by an artifact concentration. Each locus was given a letter designation within the subarea.

Prehistoric fire-cracked rock, debitage, and historic artifacts found during the pedestrian survey were generally not collected. However, these materials were counted and recorded for each locus. Collected were all chipped and ground stone tools, utilized flakes, embossed bottles, and dated coins. No prehistoric ceramics were found during the pedestrian survey.

Following the pedestrian survey, wooded sections of the study areas were examined to see if any might be appropriate locations for subsurface testing. The intent was to overcome any bias in the pedestrian survey introduced by the selectivity of farmers for arable land and to compare wooded and tilled land for prehistoric site selectivity. It was also hoped that the woodlots would produce sites in unplowed contexts. Many of the wooded areas had slopes which were too steep for testing, or were poorly drained and, therefore, unlikely locations for archaeological sites. Nonetheless, many of the wooded areas were possible site locations and subsurface testing produced remains of unplowed prehistoric archaeological sites. Subsurface testing consisted of the excavation of one-by-one meter test units which were numbered consecutively within each subarea. All prehistoric and historic artifacts recovered from the excavated test units were collected.

After all appropriate surface and subsurface testing was completed, an additional survey was made of standing structures and potential historic site locations indicated in the original report (Custer et al. 1984: Attachment II and III). The object of the additional visiting of structures was to see if any of the recorded standing structures has been destroyed since their recording and to ascertain if any historical archaeological resources might be associated with these standing structures. Similarly, potential historical archaeological site locations, which were noted in the original planning study on the basis of analyses of Beers' and Baist's atlases, were visited to see if ruins or other indications of possible historical archaeological sites were present. Field methods for this portion of the study consisted of augering, probing, checking for surface indications of modern disturbance, and simple surface inspection of the terrain looking for artifacts and ruins or foundations.

All sites found during the surface and subsurface phases of the investigation were given State of Delaware Cultural Resource Survey (CRS) numbers and archaeological site numbers and Delaware archaeological survey site forms were completed and filed with the Delaware Bureau of Archaeology and Historic Preservation (BAHP) in Dover. Additionally, Delmarva Archaeological Data System (DADS) forms were completed for all prehistoric sites found so that they could be recorded in the DADS computerized data bank. All artifacts recovered were washed and marked with Island Field Museum accession numbers in accordance with BAHP policies and guidelines on artifact processing and curation.

SPECIAL SAMPLING CONSIDERATIONS - BLACKBIRD AREA

A special sampling program was used for some of the field survey of the Blackbird area due to the large proportion of wooded areas within the Blackbird study area and the large size of this area (Figure 7). All plowed fields within the Blackbird area were subjected to a pedestrian survey; however, only a sample of the wooded areas were subjected to subsurface testing.

A 5% stratified random sample of the wooded areas was undertaken. A stratified random sampling technique was used because this technique has been shown to provide the most accurate and precise estimate of various features of site distributions (Custer 1979). The environmental strata used in the stratified design were based on ten types of surface water associations derived from USGS topographic maps and USDA soil maps:

I - no associated surface water;

II - simple bay/basin association (woodlot is associated with one bay/basin feature);

III - complex bay/basin association (woodlot is associated with 2 or more bay/basin features);

IV - major stream (Blackbird Creek);

V - minor stream (all tributaries to Blackbird Creek and the Sawmill Branch of the Smyrna River);

VI - major/minor stream confluence;

VII - minor/minor stream confluence;

VIII - springhead;

IX - bay/basin-stream association;

X - poorly drained - untestable.

These surface water settings were used as the main basis for the stratification of the wooded portions of the study area because several studies (Eveleigh, Custer, and Klemas 1983; Wells, Custer, and Klemas 1981; Custer, Eveleigh, Klemas, and Wells n.d.) have shown that the presence/absence and type of surface water association explains the largest percentage of the observable site location variation in the Delmarva Coastal Plain. Bay/basin features were of special interest because other studies (Bonfiglio and Cresson 1978) have shown these features to be the foci of prehistoric sites in other parts of the Middle Atlantic and because similar site utilization patterns have been hypothesized for the Delmarva area (Custer 1983a; 1983b; 1984a). It should be noted that in general, USGS 7.5' quadrangle maps and

USDA soil survey maps were useful for locating streams of all orders but were less productive in plotting bay/basin features. Ground examination demonstrated that many bay/basin features were not represented on the available maps. The result was that many of the strata identifications had to be adjusted in the field.

The surface area of all land in each of the ten classifications was calculated using a polar planimeter and a random number generator was used to select a 5% sample of each strata for testing. Appendix II provides the technical data utilized to generate the strata and the sample and Figure 12 shows the sample areas which were subjected to subsurface testing. Appropriate locations within the sampled woodlots were then subjected to subsurface excavation. A total of 56 one-by-one meter test units were excavated to complete the sample.

In addition to the sample subsurface testing, intensive testing was undertaken at two bay/basin features. This intensive testing was undertaken to provide more complete information on the types of archaeological and paleoenvironmental data present at the bay/basin features which are frequent in the Blackbird area. A "wet" bay/basin feature with standing water and a plowed "dry" bay/basin feature were tested with one meter units, two meter units, strata cuts, augering, and pollen coring.