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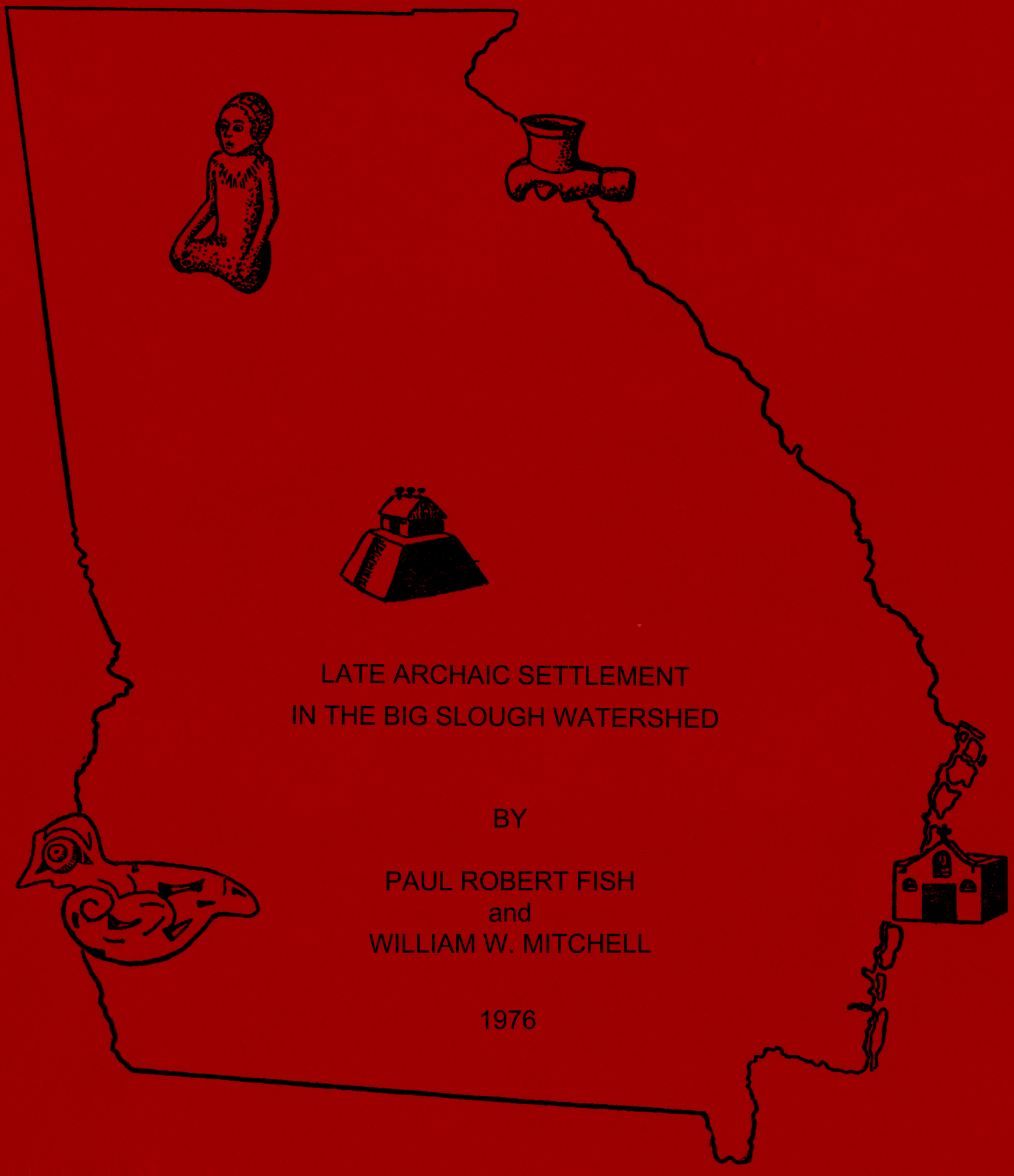

LATE ARCHAIC SETTLEMENT IN THE BIG SLOUGH WATERSHED

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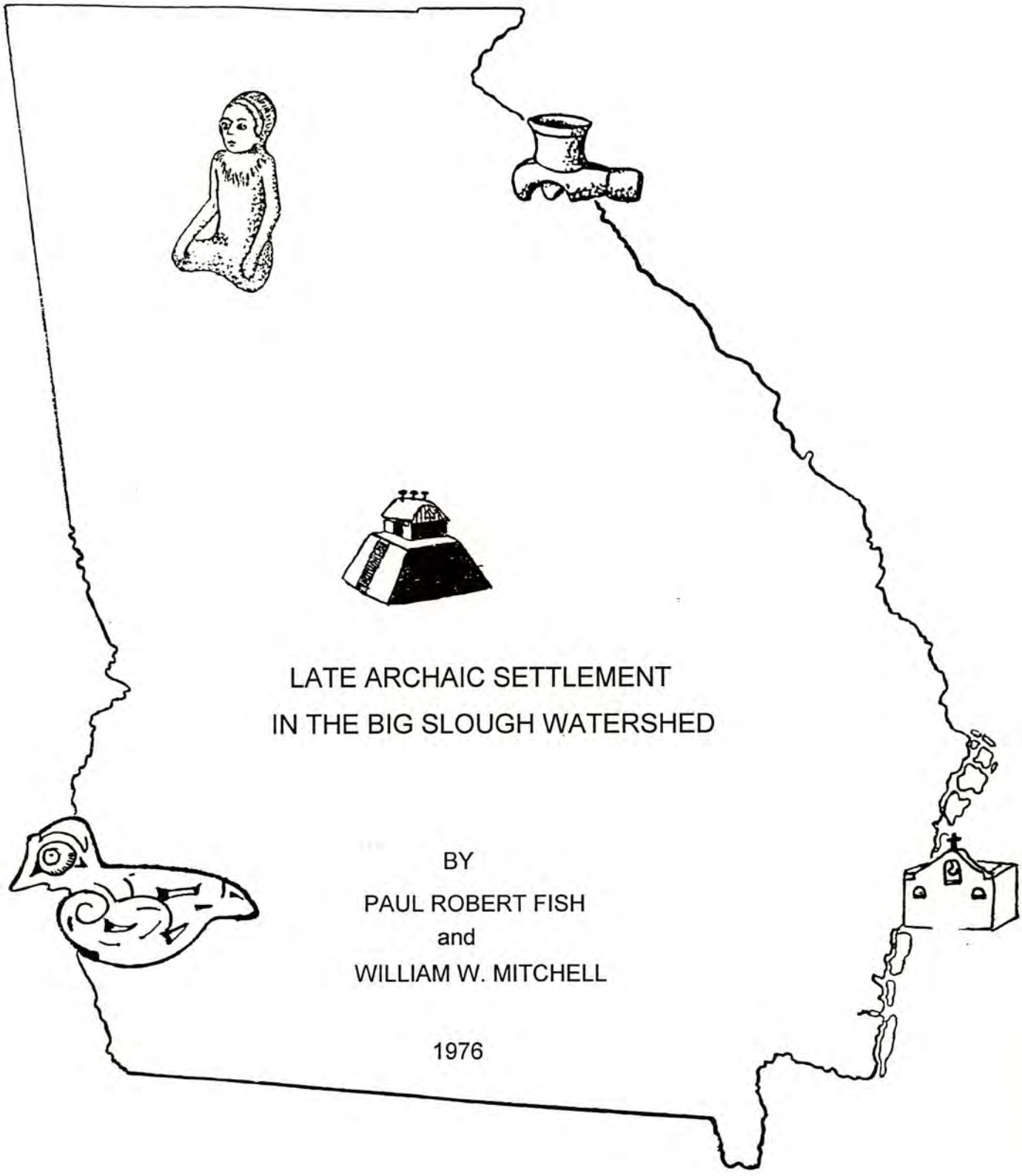

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Late Archaic Settlement in the Big Slough Watershed: Results of an Archaeological Survey for the U.S.D.A. Soil Conservation Service in Grady and Mitchell Counties, Georgia

By

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and

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Athens
1976

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ABSTRACT. A total of 89 prehistoric archaeological sites and no historic sites were identified during this survey. Of these 89 sites, 86 occurred within areas benefitted by the proposed Soil Conservation Service drainage channels and levees. With the exception of remains at a single site located along the Flint River and outside the study area, all diagnostic artifacts suggest that watershed utilization was restricted to the Late Archaic time period. No sites eligible for nomination to the National Register of Historic Places were identified within the rights-of-way of the proposed drainage channels and levees.

INTRODUCTION

This report summarizes the results of an archaeological survey of proposed Soil Conservation Service drainage channels and levees in the Big Slough Watershed, Grady and Mitchell Counties, Georgia. The structural measures surveyed consist of approximately 449,950 linear feet of channel improvement and 57,370 linear feet of dikes or levees. The watershed is approximately 230 square miles, of which over 72 square miles will be benefitted by the proposed project. Slightly over 15 percent of the channel and dike structures are in the northernmost portion of Grady County, while the remainder are widely distributed throughout the southern half of Mitchell County.

The field survey was conducted by the University of Georgia archaeologists Paul R. Fish, William R. Mitchell and Paul Efland. Field work was started March 19, 1976 and was completed in early June, 1976. The field survey required 95 man/days to complete and an additional 145 man/days were allotted to laboratory analysis and report preparation. Dr. Paul R. Fish and Dr. David J. Hally acted as Co-Principal Investigators for this project.

The primary purpose of this report is to provide planning information to the Soil Conservation Service for use in the Big Slough Watershed Protection and Flood Prevention Project. The archaeological objectives of the project revolve around the establishment of a baseline from which archaeological remains and research designs can be evaluated by future investigators in the watershed. This goal is closely related to our primary obligation to the Soil Conservation Service--to identify and evaluate the significance of archaeological remains which could be

adversely affected by the proposed channelization and levee construction project. A background or baseline which provides a setting of archaeological problems and questions is essential for the required evaluation of significance.

ENVIRONMENTAL SETTING

The Big Slough Watershed is located within the pine barrens/wiregrass section of the Coastal Plain physiographic province of Southwest Georgia. The drainage area of the upper reaches of Big Slough defines the limits of the watershed. Big Slough flows into the Flint River which is two to five miles from the northern and eastern border of the watershed.

The watershed includes two distinct physiographic provinces: the Dougherty Plain and the Tifton Upland. The Dougherty Plain is characterized by very level tracts with few elevations that could be termed hills. Aside from Big Slough, there are relatively few small streams and branches, with drainage being in large measure subterranean.

Due to extensive underground solution of the soft underlying Ocala limestone, lime sinks are numerous. The sinks vary in size from small, shallow depressions not more than 20 feet in diameter to those occupying several hundred acres (e.g. Gee Pond). In the past, these usually contained water and formed shallow ponds or lakes. The amount of water in the ponds varied with the seasons and the smaller ones became dry during droughts and dry periods. Vegetation surrounding the ponds usually consisted of a thick growth of cypress and other trees. Recent desiccation of the sinks has been attributed to the removal of timber and the resulting increased evaporation and oxidation of organic matter (Veatch 1911: 30-31).

The Tifton Upland, on the other hand, is represented by a fairly steep escarpment in the northern and eastern portion of the watershed. The comparative steepness of the escarpment can be seen in the change in elevations from Camilla at 175 feet above sea level to the Tifton Uplands at 365 feet above sea level near Pelham, some eight miles to the southeast. A characteristic of the Tifton Upland topography is low, rolling hills with smooth outlines. Streams and creeks are much more numerous than on the Dougherty Plain.

The Tifton Upland in the watershed is represented only by the northwest to west-facing solution escarpment. The escarpment has greater relief and is more finely dissected than areas located on either the Dougherty Plain or the Tifton Upland proper. Sinks are present but differ from those of the Dougherty Plain in that they are less numerous, deeper, smaller and more active. Some of the sinks are as much as 60 feet in diameter but few exceed 200 feet.

These physiographic divisions appear to have had an important influence on the distribution of precontact forests. Examination of the witness tree record provided by the 1819 land survey supports this contention. The Big Slough Watershed includes Land Districts 9 and 10 in Mitchell County and Land Districts 16 and 17 in Grady County. In all four land districts, pine represents the only type of witness tree recorded. Important differences, however, do occur in the relative frequency of tree and stake markers. The occurrence of stakes in the survey records suggests an absence of suitable trees to use as markers. The witness tree frequencies were obtained for a transect four land lots wide across the center of the study area. The results are presented in

Table 1.

While the witness tree record does appear to reflect a forest composed almost exclusively of pine, the relative frequency of stake markers does indicate that important differences existed in the spacing of trees. Historical accounts tend to substantiate the influence of increased spacing of pine on the Tifton Uplands. Harper (1914) has called the area the "rolling wiregrass country" with the spacing of pines being from 30 to 50 feet apart. Botanist Gayther Plummer (1975) points out that the area may have been part of the great "savana" recorded on maps in the late 1600's and the area of the "Chaouana" Indians from which the Savannah River was named.

The longleaf pine-wiregrass and thick pine barren communities appear to have supported a wide range of small animal species in historic times. Rodents, the fox squirrel, the cottontail rabbit, fox, raccoon, opposum and bobcat are numerous. The reptile population is large and diverse. Although the population of migratory waterfowl is not high, the watershed is located on the Atlantic Flyway and a variety of ducks are consistent, seasonal occupants of the area. The deer population is not now high nor does it appear to have been in the recent past.

Fishing is concentrated in the limesink ponds, such as Gee Pond. Limited stream fishing is possible in the Big Slough during short periods of seasonal flooding. When the water flow ceases, fish are confined to potholes and sinks.

The average temperature in the watershed ranges from 54 degrees in the winter to 81 degrees in the summer. The mean annual growing season is 270 frost-free days. Although amounts of rainfall vary widely from

Table 1. The Witness Tree Record for an East-West Transect Four Land Lots Wide Across the Center of the Big Slough Watershed.

Watershed Section	Number of Pine	Percent of Pine	Number of Stakes	Percent of Stakes
Flint River to Camilla	94	98.9	1	1.1
Camilla to Upper Edge of Solution Escarpment	54	69.2	24	30.8
Tifton Uplands	33	38.4	53	61.6

year to year, 51 inches is considered normal. July is the wettest month with an average rainfall over six inches, and October with only two inches is the driest.

THE ARCHAEOLOGICAL BACKGROUND TO THE SURVEY PROJECT

Archaeological literature pertaining to the pine barrens and wiregrass sections of the Georgia Coastal Plains is very limited in extent, as is the amount of scientific investigation producing it. In fact, the Big Slough Watershed was totally unexplored for archaeological remains prior to this study. Examination of the State Archaeological Survey files revealed that no archaeological sites had been recorded in the watershed and only one site had been identified in both Mitchell and Grady Counties.

At the present time, the general consensus on prehistoric use of the longleaf pine forest and wiregrass zones on the Coastal Plain emphasizes a restricted subsistence and settlement pattern in response to limited resources. Referring to the Mississippian time period, Lewis Larson (1969:99) states:

> My evaluation of the subsistence importance of the Pine Barrens Sector to Southeastern societies during the Mississippi Period leads me to the conclusion that the sector had little or no value for the aboriginal inhabitants of the Southeast. The longleaf pine forest and the floodplain areas alike offered little of any consequence in the way of technologically accessible resources. Both areas were, therefore, unoccupied by any permanent population during this time.

Most settlements are thought to occur along major rivers and their tributaries with transitory camping stations for particular procurement activities sparsely distributed elsewhere (McCluskey 1976:89-90; Sheldon 1975). It should be noted, however, that in a recent systematic survey

of less than 10 percent of the Ebenezer Creek Watershed in the Coastal Plain pine barren Effingham and Screvan Counties, over 100 sites representing all prehistoric periods were identified. At least in some areas and at some time periods, then, the pine barrens appear to have been more extensively exploited than the literature would indicate.

While the first white settlers moved into the watershed during the early 1800's, intensive agriculture did not develop until after the Civil War. All of the towns in the area were incorporated in the late nineteenth or early twentieth centuries. The region experienced considerable population growth during the post-Civil War period and this time period corresponded with the clearing of large tracts of pine barrens.

METHOD AND SCOPE OF SURVEY

Since the Big Slough Watershed was totally unexplored for archaeological remains prior to our survey, our first effort was directed towards gaining the necessary background to conduct the field investigation. Initial preparation consisted of acquiring pertinent topographic maps, project maps, aerial photographs and design specifications for the proposed Soil Conservation Service drainage channels and levees. The channels were plotted on U.S.G.S. topographic maps and Soil Conservation Service aerial photographs. Major drainages, sources of permanent water, well drained soils and areas of differential elevation were identified since it was expected that these factors might reflect the location of resources which could influence aboriginal occupation and utilization of the watershed.

Initial orientation to the watershed was provided by Soil Conservation Service personnel in Camilla. All channels and access roads were identified

and survey permits for areas bordering the proposed channels and levees were provided. In addition, attempts were made to contact local amateur archaeologists in order to obtain some insight into the kinds and spatial distributions of archaeological remains which might be encountered during survey. This aspect of investigation met largely with failure. Individuals identified as the most active collectors had moved considerable distances outside the watershed in the recent past. Also, since the field study was undertaken during the height of planting season, few farmers had the time to identify known sites or to show us collections that they had made. Conversations with local individuals, however, did suggest that sites were widely scattered throughout the watershed and that the largest sites were concentrated near the edge of the solution escarpment. Furthermore, the few collections actually observed and the many artifacts described in conversation indicated that watershed utilization was almost exclusively limited to the Late Archaic.

At the time of the survey, none of the channels designated as part of the Big Slough project had been cleared but many of the channels had been dredged by local county and individual efforts of more than twenty years ago. Most of the proposed channels were located in broad, flat areas dotted with sinks and standing water. Except for the few areas where the channels crossed fields and pastures, the rights-of-way were covered by dense undergrowth and standing water. In these situations, ground surface visibility was at or near zero.

Based on a preliminary inspection of channel localities throughout the watershed, it seemed unlikely that archaeological remains would be located within the rights-of-way of the proposed channels. Nevertheless,

in order to test these initial impressions, we considered it necessary to survey a representative sample of areas within the proposed channel rights-of-way. This was accomplished by foot survey of the right-of-way with posthole tests excavated in the most promising localities. Beyond survey of the rights-of-way, survey was conducted in open fields located within the channel benefit areas. In all, about 25 percent of the channel rights-of-way were surveyed as were all nearby agricultural fields. Actual survey areas are shown in Figure 1.

When a site was encountered, a systematic collection of all artifacts was made. Estimates of site size, artifact density, relationship to topographic and other environmental features, and evaluation in terms of potential for future research were all described as part of the site record. Location of the site was plotted on aerial photographs and on U.S.G.S. topographic maps. For the purposes of this survey, any occurrence of artifactual material was designated a site.

After completion of the reconnaissance, two of the largest sites (9Mi7 and 9Mi43) were tested in order to make a preliminary evaluation concerning the potential of undisturbed deposits below the plowzone. The testing procedure involved the excavation of two squares measuring two meters on a side. The tests were located near the center of the surface artifact concertrations at both sites. In order to insure systematic recover of artifacts, fill removed from the squares was passed through one-quarter inch mesh screen. In no case did that test suggest that undisturbed deposits remained at the localities.

ARCHAEOLOGICAL RESULTS OF THE PROJECT

Introduction

Even at this stage in the analysis of survey data, the Big Slough Watershed project has added a new dimension to our understanding of the archaeological configurations of southwest Georgia. Not only was the intensive aboriginal use of the Coastal Plain pine barren and wiregrass uplands undocumented and unsuspected, but prior to this investigation, most regional summaries had suggested that such areas never offered resources to attract prehistoric inhabitants. An important contribution to the archaeology of the state by the survey is the demonstration of the intensive exploitation of these environments during the restricted time period of the Late Archaic.

A total of 89 prehistoric archaeological sites were identified during this investigation and 86 of these occurred within areas benefitted by the proposed Soil Conservation Service drainage channels. None of the identified sites will be directly affected by proposed construction activities. Detailed descriptive data on each of the 89 sites is provided in tabular form in Appendix I. Figure 2 is a map indicating the location of all sites identified during survey. All artifacts found during the survey were processed and analyzed in the Laboratory of Archaeology, Department of Anthropology, University of Georgia. Artifacts were cleaned, entered in the Laboratory's catalogue and subsequent to analysis integrated into the Laboratory's site survey collections. Likewise, all field notes and photographs have been deposited with the Laboratory in order to provide a permanent record of the study.

Projectile points were the only stylistically diagnostic artifacts recovered during survey and these were classified according to approximate temporal position using criteria provided in Cambron and Hulse (1969) and Coe (1964). Debitage was divided into three broad, descriptive categories: flakes of bifacial retouch, normal percussion and formless debris. Formless debris was used as a catchall category and included all unidentified broken flakes as well as shatter. Other characteristics observed in the analysis of debitage included amount of cortex and the frequency of occurrence of exotic stone materials. A table representing the results of this analysis is presented in Appendix II.

Intentional retouch, pecking or grinding were required criteria before a specimen could be considered for placement into a tool category. A specimen meeting these criteria was then placed into one of 14 broad descriptive types. These types are projectile points, thick biface, thin biface, chopper, nutstone/anvil, grinding slab/mortar, bifacial sidescraper, unifacial sidescraper, discoidal scraper, serrated sidescraper, endscraper, graver/drill, notch, and axe. The results of this classification is provided in Appendix III.

Chronological Relationships

For practical purposes, all stylistically diagnostic artifacts recovered during watershed survey were projectile points. Three extremely small and undiagnostic sherds were found at a single site (9Mi7). Another site (9Mi82) produced several sherds reflecting a Santa Rosa-Swift Creek Component. This site, however, was located on a terrace overlooking the Flint River and is outside the watershed.

A total of 132 projectile points were collected during survey. Of these, 94 could be fitted to existing point types and nearly all of these suggest a Late Archaic time period. Savannah River, Clay, Elora and Wade types account for 89 (94.7%) of all classified specimens. Bullen (1975:6) has suggested that this particular range of styles reflects a time span from 3000 to 2000 B.C. The remaining five classified points are types normally considered Middle Archaic. Representative projectile points are depicted in Figures 3 and 4.

Definition of Site Types

One of the assumptions underlying our analysis has been that the range in functional types present in the artifact assemblages would reflect variation in the types and numbers of aboriginal activities undertaken at the locality. In a previous study (Fish 1976:13-15), it was found that proportions of artifacts collected from the surface of small sites varied widely upon recollection at the same locality. The numbers of types represented in different collections from the same site, however, remained relatively constant. Therefore, it was decided that the most reliable index for our comparison should be based on the diversity of types present rather than on differing frequencies of particular artifact categories from site to site.

For this purpose, a simple index of diversity was calculated. This measure of diversity deals with observed artifact categories within entire assemblages. The categories used in this study include 14 types consisting of retouched, ground and pecked stone tools. In cases where artifacts on a presence and absence basis are widely distributed among categories, the

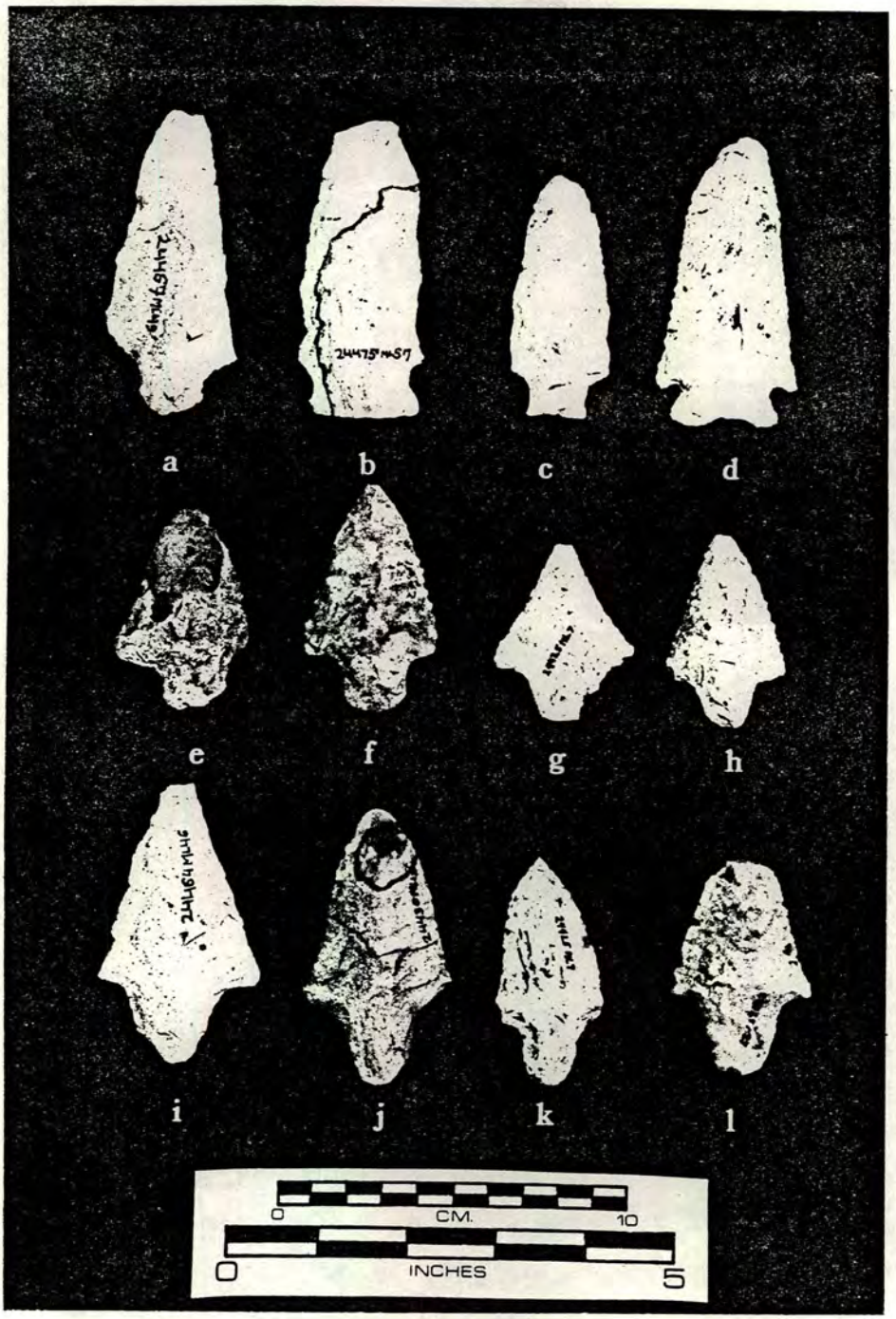

Figure 3. Representative Projectile Points from the Big Slough Watershed: (a) 9Mi49; (b) 9Mi57; (c) 9Mi7; (d) 9Mi43; (e) 9Mi7; (f) 9Mi7; (g) 9Mi7; (h) 9Mi7; (i) 9Mi46; (j) 9Mi12; (k) 9Mi7; (l) 9Mi7.

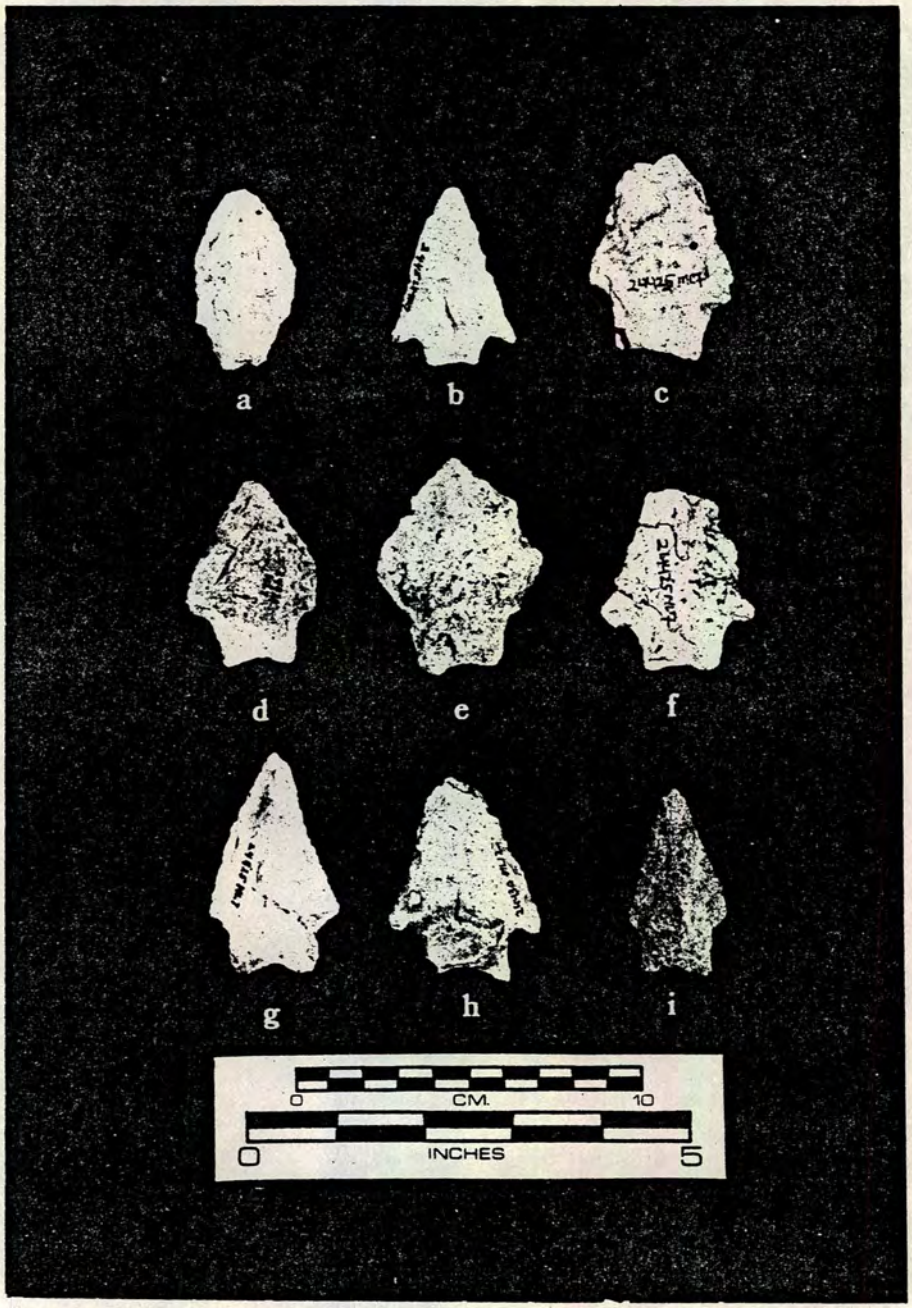

Figure 4: Representative Projectile Points from the Big Slough Watershed: (a) 9Mi7; (b) 9Mi7; (c) 9Mi7; (d) 9Mi7; (e) 9Mi7; (f) 9Mi7; (g) 9Mi7; (h) 9Mi12; (i) 9Mi43.

result is a high diversity index and involves an assumption of a wide range of activities. When the bulk of the artifacts occurs in a few categories, the index is low and the assumption is a restricted number of activities.

Figure 5 shows the number of sites exhibiting given values for the index of diversity. Three classes were defined by inspection, using apparent natural breaks in the distribution. For the purposes of discussion in this report, it has been assumed that the differences in site classes correspond to specialized activity sites, temporary campsites and short term base camps, and base camps. Indices of diversity for specific sites can be found in Appendix III.

It should be noted that the interpretive labels chosen for each of the three groups are somewhat tentative. The group with the lowest index of diversity seems the most unequivocal as the loci of simple specialized activities. The intermediary group has been called temporary campsites and short term base camps, and an argument can be made that at least some of the sites do represent this phenomenon. For example, ground and pecked stone of exotic materials appears at some of these localities. On the other hand, some sites in the second group may reflect more complex specialized activities. The third category is represented by only one member and is interpreted as a long term base camp. In this case, the index of diversity is so much greater than at any other site, an interpretation of prolonged occupation seems plausible.

Specialized activity sites contained either no tools or only a single tool type. The overall total of tools from specialized activity sites is relatively small as only about 35 percent of these localities yielded any

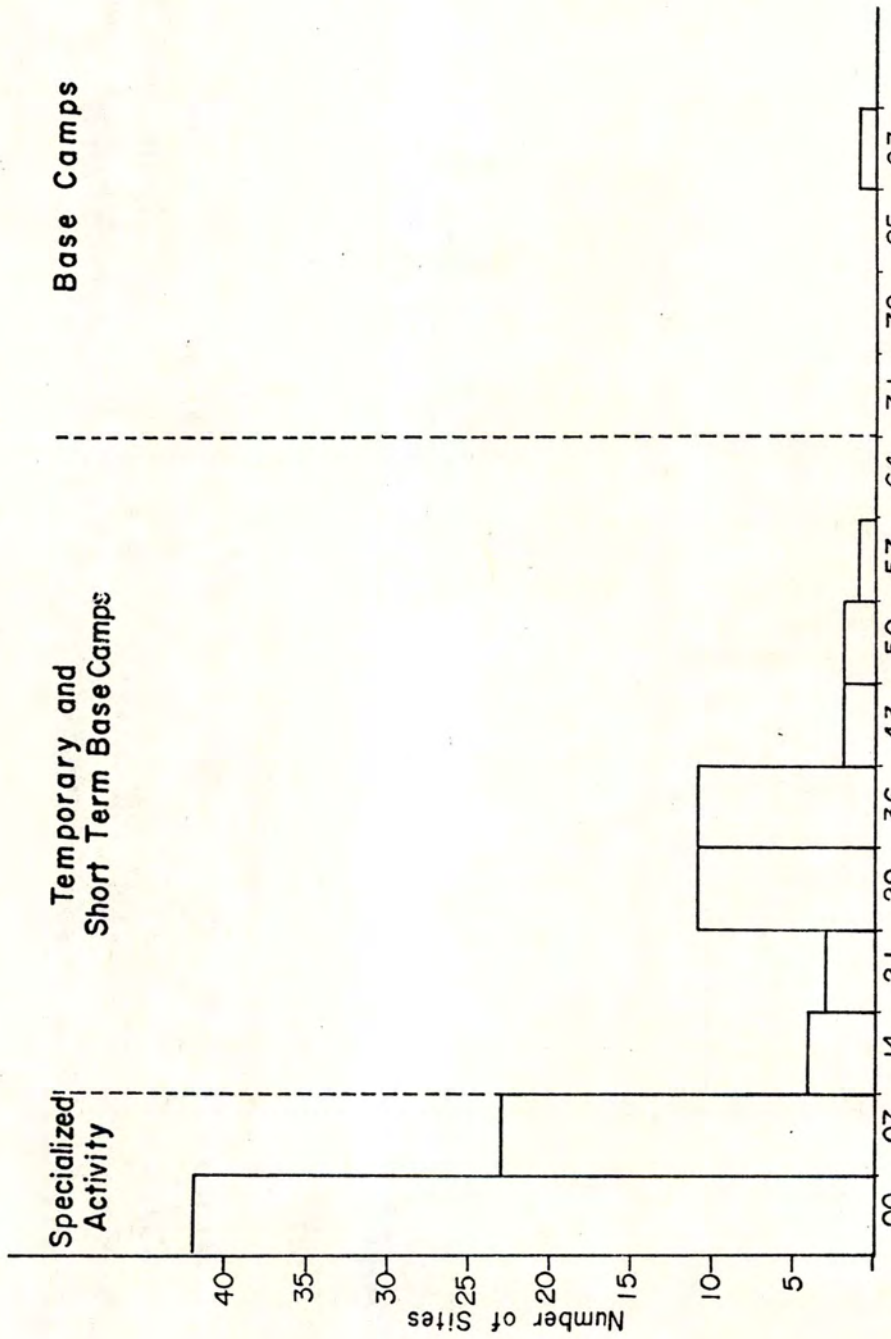

Figure 5: Indices of Artifact Diversity

tools. Although almost all tool types are represented at specialized activity sites, there does seem to have been a considerable emphasis on hunting as reflected by the large numbers of projectile points. Temporary campsites and base camps display a much wider range of tool types. Projectile points, choppers, thick bifaces and a variety of scraper types are characteristic elements in an overall assessment of Big Slough assemblages.

Spatial Distributions of Site Types

The spatial patterning of specialized and camp sites can be fitted to a hypothetical model of resource location and utilization. Table 2 gives numbers of site types per square unit of each physiographic subdivision considered in this report. These are the Dougherty Plain, Big Slough, Dougherty Plain/Solution Escarpment Boundary and the Solution Escarpment.

The Dougherty Plain with the more closed-cover forest of pine gives evidence of the least use in all categories. Only one campsite was encountered in the 32.5 square kilometers surveyed, and it was located in a situation atypical of the plain as a whole. This site was at Tuggle's Sink which is a particularly large sinkhole draining over 12,000 acres and which would therefore have offered accessibility to an unusual range of resources.

Big Slough, while running through the Dougherty Plain, was considered to constitute a separate culturally defined physiographic province on the basis of an alternative set of resources. This physiographic province was defined as the area one kilometer to either side of the slough. After the Dougherty Plain, this area has the fewest specialized activity sites per

Table 2. Distribution of Sites by Physiographic Subdivision.

Physiographic Subdivisions	Number of Square Kilometers Surveyed	Number of Specialized Activity Sites	Number of Camp Sites	Number of Specialized Activity Sites Per Sq. Km.	Number of Camp Sites Per Sq. Km.
Big Slough	23.0	14	4	.61	.17
Dougherty Plain	32.5	16	1	.49	.03
Dougherty Plain/ Solution Escarpment Boundary	19.2	17	10	.89	.52
Solution Escarpment	21.8	21	4	.96	.18

square kilometer, and a rather moderate number of campsites. The Big Slough is an ephemeral stream, but runs during the summer.

The Solution Escarpment forming the edge of the Tifton Uplands to the east has reconstructed vegetation of pine interspersed in a wiregrass savannah. The number of campsites per unit area is little different from the Big Slough province, but the numbers of specialized activity sites is greater than any of the regions under consideration.

The fourth subdivision consists of a boundary area between the Dougherty Plain and the Solution Escarpment, one kilometer to either side of the escarpment edge. Vegetation is assumed to be transitional in this area between savannah and forest. Specialized activity sites are not quite as high as on the Solution Escarpment. The most marked difference is in the number of campsites which are almost three times more frequent than in any other physiographic subdivision. The single site in the third category with an extremely high index of diversity occurs here as well.

Inferred Activities: Location and Type

Human use of the Big Slough Watershed in the Late Archaic Period seems to have focused on hunting activities. Projectile points account for over 37 percent of the tools recovered during survey in spite of intensive collecting activities by amateurs at many localities. Another line of evidence for particular concern with hunting implements is seen in the fact that almost half of the projectile points are of exotic materials while other flaked stone tool types were manufactered from local lithic resources. Other common tool types in assemblages such as

choppers, the wide variety of end and sidescrapers and bifaces could be related to butchering, specifically of large animals. The uniform large size of projectile points also would be commensurate with the pursuit of large game.

Some emphasis on the utilization of specialized resources can be argued. Specialized activity sites and campsites are more frequent near Big Slough than in the Dougherty Plain in general. The single campsite identified on the Plain which is not adjacent to Big Slough occurred at a large sink. Both the vegetational and faunal resources of slough and sink may have been somewhat different than those of the large physiographic subdivision as well as offering the advantage of a water source.

The boundary area between the plain and the escarpment was the region of by far the most concentrated campsites. One interpretation of this emphasis by Late Archaic peoples in choice of such sites would involve the convenience of efficient access to both savannah and forests. An alternative explanation would be based on the localization of some desired resource in the boundary itself.

The site assemblages throughout the watershed exhibit a homogeneity that seems to reflect a number of repetitions of a restricted range of activities during the Late Archaic. In addition, none of the sites attest to the presence of large groups nor apparently lengthy occupations. Not withstanding the limited group size of many hunting and gathering societies, we would expect a wider range of activities and more permanent habitation sites to complete the archaeological record of a seasonal round. The fact that such sites are absent in the watershed implies incorporation of the Big Slough Watershed into a broader but unknown

territorial pattern.

Perhaps the most startling result of the present survey is the discovery that almost the entire utilization of the watershed took place within a single archaeological time period. Occupations of other periods are known from the surrounding areas. Less than five miles from the watershed boundary, a site (9Mi82) on the Flint River contains components dating from the Early Archaic through Middle Woodland. It is intriguing to speculate why the Big Slough Watershed attracted repeated visits during the Late Archaic but little attention before or after this period. One possible explanation might lie in an optimal interval of environmental conditions not present at other points in time. This question would be a logical focus for future archaeological research in the watershed.

IMPACTS OF THE PROPOSED PROJECT ON ARCHAEOLOGICAL AND HISTORICAL REMAINS

No archaeological remains were located in areas subject to direct impacts by the proposed project. The Office of the State Archaeologist and the National Historic Preservation officer have been contacted and no archaeological or historic site, located in proposed construction rights-of-way or in the related benefit areas, is on or currently proposed for nomination to the National Register of Historic Places.

Although secondary impacts will undoubtedly be more extensive, they are difficult to precisely identify and the responsibility of the Soil Conservation Service in reference to this type of impact awaits definition. However, the purpose of the proposed project is to increase land productivity and it is reasonable to assume that more intensive land use will result in or quicken the destruction of at least some archaeological sites.

Deeper plowing and construction of privately sponsored feeder channels appear to be the most likely secondary results which could have adverse consequences in terms of archaeological remains. In fact, approximately one-half the landowners questioned during the archaeological survey indicated that they planned to construct feeder channels once the watershed project was completed.

No archaeological remains were located within proposed construction rights-of-way, thus recommendations for future mitigation studies are unnecessary. Furthermore, it is our belief that because archaeological remains which may be subject to secondary impacts have been identified in this report, the Soil Conservation Service has largely fulfilled its obligations with respect to this area of concern.

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APPENDIX I

Descriptive Summaries of Sites in the Big Slough Watershed

Site	Universal Transverse Mercator Easting	Universal Transverse Mercator Northing	Site Size In Meters North-South	Site Size In Meters East-West	Elevation Above Sea Level in Feet	Distance To Nearest Slough In Meters	Site Type
9Mi1	771120	3457610	1	1	190	210	Specialized
9Mi2	771860	3457380	1	1	195	140	Specialized
9Mi3	770480	3457400	10	15	190	160	Specialized
9Mi4	771100	3456770	10	5	190	340	Specialized
9Mi5	770620	3457040	1	3	185	220	Specialized
9Mi6	770270	3457090	5	1	185	140	Specialized
9Mi7	769860	3457350	510	250	180	385	Camp
9Mi8	771400	3456740	1	1	195	620	Specialized
9Mi9	771660	3456370	20	5	205	130	Specialized
9Mi10	772310	3455360	100	1	200	330	Specialized
9Mi11	772310	3456880	. 1	1	200	235	Specialized
9Mi12	774350	3456300	190	225	250	215	Camp
9Mi13	774340	3456250	20	25	245	35	Camp
9Mi14	774400	3456100	2	3	250	320	Specialized
9Mi15	774660	3456060	215	50	255	215	Specialized
9Mi16	774700	3456070	40	20	255	145	Specialized
9Mi17	772000	3457980	1	1	195	260	Specialized
9Mi18	771840	3457980	25	20	195	265	Specialized
9Mi19	771910	3458800	20	45	200	190	Specialized
9Mi20	772090	3458400	1	1	200	285	Specialized
9Mi21	773830	3458620	1	1	215	95	Specialized
9Mi22	769880	3457020	110	60	180	80	Camp
9Mi23	773040	3460450	1	1	200	100	Specialized
9Mi24	773215	3460520	1	1	205	325	Specialized
9Mi25	773390	3460640	1	1	210	220	Specialized
9Mi26	773200	3462100	1	1	210	480	Specialized
9Mi27	770720	3460280	45	50	185	315	Specialized
9Mi28	770330	3460300	500	125	185	390	Specialized

APPENDIX I (continued)

Site	Universal Transverse Mercator Easting	Universal Transverse Mercator Northing	Site Size In Meters North-South	Site Size In Meters East-West	Elevation Above Sea Level In Feet	Distance To Nearest Slough In Meters	Site Type
9Mi29	771000	3460580	5	5	185	395	Specialized
9Mi30	771400	3462050	5	5	210	110	Specialized
9Mi31	771400	3462650	1	1	210	100	Specialized
9Mi32	771350	3461450	625	450	200	635	Camp
9Mi33	768650	3458410	1	1	190	320	Specialized
9Mi34	768790	3458410	1	1	175	190	Specialized
9Mi35	771300	3462000	175	160	200	265	Camp
9Mi36	770700	3461850	10	5	190	475	Specialized
9Mi37	771350	3461800	10	10	190	500	Specialized
9Mi38	776575	3462500	60	60	200	330	Specialized
9Mi39	770700	3462300	1	1	195	345	Specialized
9Mi40	770250	3462250	225	130	200	810	Specialized
9Mi41	769300	3462150	1	1	180	635	Specialized
9Mi42	769400	3466850	200+	400+	185	475	Camp
9Mi43	769100	3461250	210	480	185	560	Camp
9Mi44	768650	3467025	50	1	185	575	Specialized
9Mi45	768325	3460650	50	110	190	620	Camp
9Mi46	769650	3466250	40	60	185	380	Camp
9Mi47	770100	3465625	25	40	180	345	Specialized
9Mi48	770300	3464325	1	1	180	230	Specialized
9Mi49	770600	3464150	90	55	180	230	Camp
9Mi50	770750	3464150	30	60	185	255	Specialized
9Mi51	770850	3463950	35	5	185	190	Camp
9Mi52	771100	3463950	5	45	180	225	Specialized
9Mi53	771200	3464225	45	65	190	330	Camp
9Mi54	764900	3463000	25	20	170	620	Specialized
9Mi55	764500	3462600	5	5	160	835	Specialized
9Mi56	765325	3462250	250	100	180	255	Camp
9Mi57	763625	3461350	275	225	170	340	Camp
9Mi58	763500	3460550	150	75	165	240	Specialized
9Mi59	761720	3457920	5	10	160	275	Specialized
9Mi60	762390	3460100	150	100	160	40	Specialized
9Mi61	762360	3459950	5	5	160	40	Specialized

APPENDIX I (continued)

Site	Universal Transverse Mercator Easting	Northing	Site Size In Meters North-South	East-West	Elevation Above Sea Level In Feet	Distance To Nearest Slough In Meters	Site Type
9Mi62	762250	3459920	5	5	160	35	Specialized
9Mi63	762220	3459880	10	5	160	35	Specialized
9Mi64	761540	3455760	50	1	150	25	Specialized
9Mi65	762090	3455110	5	5	155	100	Specialized
9Mi66	762090	3454890	50	70	155	150	Camp
9Mi67	761660	3453630	5	5	155	190	Specialized
9Mi68	762100	3454140	10	5	150	125	Specialized
9Mi69	762230	3454800	5	5	160	620	Specialized
9Mi70	761060	3452500	50	75	150	130	Camp
9Mi71	765495	3455760	20	50	170	180	Specialized
9Mi72	765230	3455750	5	5	170	145	Specialized
9Mi73	764740	3452920	5	5	170	1,650	Specialized
9Mi74	764080	3451800	20	20	175	2,075	Specialized
9Mi75	769000	3450240	80	10	225	630	Specialized
9Mi76	763920	3448960	1	1	200	320	Specialized
9Mi77	762800	3448850	20	35	165	195	Specialized
9Mi78	762120	3449320	20	50	160	170	Specialized
9Mi79	761900	3439660	5	5	220	465	Specialized
9Mi80	762060	3441720	60	40	190	280	Specialized
9Mi81	761910	3446060	5	5	170	250	Specialized
9Mi82	765000	3472425	150	200	140	150	Camp
9Mi83	764275	3470500	300	110	145	170	Camp
9Mi84	762270	3446370	5	5	150	320	Specialized
9Mi85	758300	3445800	250	140	155	120	Camp
9Gr2	756180	3438450	1	1	165	160	Specialized
9Gr3	755390	3438580	1	1	145	625	Specialized
9Gr4	755390	3439480	5	5	150	510	Specialized
9Gr5	756220	3439440	20	20	155	600	Specialized

APPENDIX II

Debitage Frequencies for Surface Collections from the Big Slough Watershed

Site	Flakes of Bifacial Retouch			Normal Percussion Flakes			Formless Debris			
	Noncortical	Partial Cortical	Cortical	Noncortical	Partial Cortical	Cortical	Noncortical	Partial Cortical	Cortical	Cores
9Mi1										1
9Mi3	4			7			1			
9Mi4				4		1				
9Mi5				1						
9Mi6				2						
9Mi7	101	1		393	740	7	689	164	13	76
9Mi8					1					
9Mi9								1		
9Mi10				3	1					
9Mi11	3									
9Mi12	50	1		425	36	1	106	21		3
9Mi13	2			3	1		17	1		
9Mi14				1			1			
9Mi15	6			11			2			
9Mi16	2			1						
9Mi17							1			
9Mi19	11			2	1	1	4	2		1
9Mi20				1						
9Mi22	8	1		19	5		24	3	1	2
9Mi23	1			2			1			
9Mi24				1						
9Mi27	2	1		6						
9Mi28	15			31	3	2	5			
9Mi29				2						
9Mi30					1		1			
9Mi31							1			
9Mi32	7			28	5		4	1		
9Mi34										1
9Mi35	5			64	3	3	18	2		
9Mi36							3			
9Mi37				2						
9Mi38	1									
9Mi39					1					
9Mi40	6			21			6			
9Mi41	1									
9Mi42	32			33	13		24	4		
9Mi43	29	3		581	121	11	728	182	23	123

APPENDIX II (continued)

Site	Flakes of Bifacial Retouch			Normal Percussion Flakes			Formless Debris			Cores
	Noncortical	Partial Cortical	Cortical	Noncortical	Partial Cortical	Cortical	Noncortical	Partial Cortical	Cortical	
9Mi44								1		1
9Mi45	1			12			4	2	1	
9Mi46	1			5	1			2		4
9Mi47				6						5
9Mi48										1
9Mi49	1			1			4	2		1
9Mi50	1			7	1		2	1		2
9Mi51	1			5			1	1		3
9Mi52	4			30	2	1	4	2	2	3
9Mi53	1									
9Mi54				5						
9Mi55	1			3	2			1		
9Mi56	6			19	1		3	1		1
9Mi57	8			69	3	4	14	3	1	5
9Mi58	12			49	2	4	7	1	1	2
9Mi59				2						
9Mi60	8			22			5	2		
9Mi61				1						
9Mi62				5			1	1		
9Mi63				4						
9Mi64				6						3
9Mi65				1			1			
9Mi66				14	1		2			1
9Mi67				6			1			
9Mi68				2						
9Mi70	6	1		45			8	4		3
9Mi71							2			
9Mi72				1						
9Mi73				1						
9Mi74	1									
9Mi75	4			16			9	6	1	
9Mi76				3			1			1
9Mi77							2			
9Mi78				4			3			
9Mi80	1			5	1		2			
9Mi81	3			2						2

APPENDIX II (continued)

Site	Flakes of Bifacial Retouch			Normal Percussion Flakes			Formless Debris			Cores
	Noncortical	Partial Cortical	Cortical	Noncortical	Partial Cortical	Cortical	Noncortical	Partial Cortical	Cortical	
9Mi82	16	1		108	3	2	21	3	1	7
9Mi83	4			30	2	1	11	1		
9Mi84	4			18			8	6		3
9Mi85	18			132	7	1	32	1		8
9Gr2				1						
9Gr3				1						
9Gr4				4			1			
9Gr5				1			1			
9Gr6				2						

APPENDIX III

Tool Frequencies for Surface Collections from the Big Slough Watershed

Site	Projectile Points	Thick Biface	Thin Biface	Chopper	Nutstone/Anvils	Grinding Slab/Mortars	Bifacial Sidescraper	Unifacial Sidescraper	Discoidal Scraper	Serrated Scraper	End Scraper	Graver/Drill	Axe	Notch	Index of Diversity
9Mi2													1		.07
9Mi5	1														.07
9Mi7	42	9	28	7	6	2	5	23		18	8	10	2	2	.93
9Mi10								1							.07
9Mi12	17	1	2								1				.29
9Mi13	2							1							.14
9Mi15	1														.07
9Mi16														1	.07
9Mi18							1								.07
9Mi19	1														.07
9Mi21		1													.07
9Mi22	1			1				1		2		1		1	.43
9Mi23				1											.07
9Mi25							1								.07
9Mi26					1										.07
9Mi32	2	1						1						2	.50
9Mi33	1														.07
9Mi35	10			2				5	1		3	1		1	.50
9Mi38								1							.07
9Mi39										1					.07
9Mi42	5	1	1			2		1	1						.43
9Mi43	1		1	2			1	4		2		1		1	.57
9Mi45	2								1	1					.21
9Mi46	4	1		1	1		1								.36
9Mi49	5	1						1						1	.29
9Mi50	1														.07
9Mi51		1						1							.14
9Mi52		1						1			1			1	.29
9Mi55	2										1				.14
9Mi56	4							1		1				2	.29
9Mi57	8				1		2	1			3				.36

APPENDIX III (continued)

Site	Projectile Points	Thick Biface	Thin Biface	Chopper	Nutstone/Anvil	Grinding Slab/Mortars	Bifacial Sidescraper	Unifacial Sidescraper	Discoidal Scraper	Serrated Scraper	End Scraper	Graver/Drill	Axe	Notch	Index of Diversity
9Mi58								1			2				.14
9Mi60	4														.07
9Mi66	2														.07
9Mi69	1														.07
9Mi70	4							1		1				1	.19
9Mi79									1						.07
9Mi81				1											.07
9Mi82	3		1	1				1						1	.36
9Mi83				1				1						2	.21
9Mi85	7							1	1	1	1				.36
9Gr4	1														.07