

**ANNUAL REVIEW OF
CULTURAL RESOURCE INVESTIGATIONS BY
THE SAVANNAH RIVER ARCHAEOLOGICAL
RESEARCH PROGRAM**

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SAVANNAH RIVER
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Cover Photo: Results of immunological (blood protein residue) analysis of Paleoindian and Early Archaic stone tools from Flamingo Bay (38AK469). SRARP field crew member, Lizzie Gillispie, is also shown holding a large bifacial knife recovered *in-situ* and without touching for immunological analysis. Results were positive for “bovine” and indicate the presence of likely *B. bison* or *B. Antiquus* blood protein residue.

MANAGEMENT SUMMARY

The United States Department of Energy-Savannah River Operations Office (DOE) Policy 141.1, *DOE Management of Cultural Resources*, identifies 24 major laws, regulations, executive orders, and guidance that apply to cultural resource management (CRM). Cultural resources include archaeological sites and artifacts, historical structures, and natural resources and sacred objects of importance to American Indians. DOE management responsibilities include identification, evaluation, and protection of archaeological/historical sites, artifact curation, and other mitigation measures.

The Savannah River Archaeological Research Program (SRARP) continued through Fiscal Year 2013 (FY13) with DOE to fulfill a threefold mission of CRM, research, and public education at the Savannah River Site (SRS). This report covers the CRM compliance, research, and outreach activities conducted by the SRARP from August 2012 to August 2013. Due to DOE security concerns, however, parts of this report do not contain material (exact project area size, map scales, etc.) typically contained in standard archaeological documents.

In FY13, 216 acres of land on the SRS were investigated with 2,646 Shovel Test Pits (STPs) for CRM. This activity entailed 27 field reconnaissance and testing surveys. Twenty-three newly discovered sites were recorded, and 11 previously recorded sites were revisited. The site file records were updated accordingly. Geographic Information System (GIS) and Global Positioning System (GPS) technology was incorporated into all compliance projects to aid in maintaining and processing survey and site location information. In addition, SRARP staff maintained continuous support to DOE Cold War Cultural Resources Management Plan (CRMP) efforts through participation on DOE's Cold War Artifact Selection Team and at Heritage Tourism Board meetings.

Research conducted by SRARP personnel during FY13 was published in four professional articles and reports, as well as a documentary film. The SRARP staff presented research results in 19 papers and posters at professional conferences. SRARP personnel peer reviewed one book for publication. Thirteen research projects involving excavation, laboratory analysis, museum, and archival study were conducted. Three grants were acquired to support both on- and off-site research. Employees served as consultants on nine projects in off-site CRM and research activities. The SRARP staff held 27 offices and appointments to committees in various educational, avocational, and professional organizations.

In the area of heritage education, the SRARP continued its activities in FY13 with a full schedule of classroom education, public outreach, and on-site tours. Forty presentations, displays, and tours were provided for schools, civic groups, and environmental and historical awareness day celebrations. And finally, the SRARP staff chaired or served on seven thesis or dissertation committees, as well as taught five anthropology courses at the University of South Carolina and Georgia Regents University, Augusta.

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INTRODUCTION

Since 1990, CRM compliance on the SRS has been based on a programmatic memorandum of agreement (PMOA) among the DOE, the South Carolina State Historic Preservation Office (SCSHPO), and the Advisory Council on Historic Preservation (ACHP). Through this PMOA, the DOE commits to conduct an integrated CRM program at the SRS that features research, public outreach, and compliance components. In return, the SCSHPO waves most DOE project-by-project compliance requirements that fall under Section 106 of the National Historic Preservation Act (NHPA) in favor of one annual compliance report. The PMOA also serves to meet general DOE regulatory responsibilities under Section 110 of the NHPA, Archaeological Resources Protection Act (ARPA), Native American Graves Protection and Repatriation Act (NAGPRA), and various other CRM laws and regulations.

The SRARP provides the DOE with the technical expertise that enables the DOE to meet its PMOA commitments. The specific elements of the SRARP compliance, research, and outreach efforts are identified within a cooperative agreement between the DOE and the South Carolina Institute of Archaeology and Anthropology-University of South Carolina (SCIAA-USC). The cooperative agreement also allows for compliance work to be performed using an SRS-specific archaeological survey and testing model that reduces compliance costs. The result has been quicker, more cost efficient CRM reviews of individual SRS projects.

The following section (Part I) regarding CRM contains the results of FY13 surveys, in addition to updates on other compliance related activities. According to the PMOA (SRARP 1989:185), annual survey results are provided in summary and tabular form in this report. Detailed information regarding artifact assemblage and environmental data for new and previously recorded sites located during FY13 is available upon request from the SRARP.

Research activities of the SRARP are summarized in Part II and include prehistoric, historic, and geoarchaeologic studies conducted on the SRS and in the surrounding region. An extra-local perspective is necessary for understanding the effects of regional processes on local conditions and, hence, enables the more effective management of the cultural resources on the SRS.

Public education activities of the SRARP are summarized in Part III, which highlights the heritage education program, volunteer excavations, and involvement with avocational archaeological groups. An Appendix lists all professional and public service activities of the SRARP staff.

PART I. CULTURAL RESOURCE MANAGEMENT

RESULTS OF FY13 SITE USE AND TIMBER COMPARTMENT SURVEYS

Keith Stephenson, Christopher Thornock, and Tammy F. Herron

Survey Coverage

Archaeological survey of Site Use Permit Application and Timber Compartment Prescription projects by SRARP staff continued through FY13 according to procedures outlined in 1990 (SRARP 1990:7-17). During FY13, archaeological reconnaissance and survey were conducted on 27 proposed projects¹ through the subsurface inspection of 216 acres with a total of 2,646 Shovel Test Pits (STPs) excavated. Altogether, 24 new sites were recorded and delineated, and 11 previously recorded sites were revisited during FY13. Based on the level of survey sampling conducted at all new and previously recorded sites, adequate information was not obtained for most sites to allow National Register of Historic Places (NRHP) eligibility determinations. As such, these sites will be completely avoided by SRS contractors during any land-disturbing activities. At the time these sites are due to be impacted by future undertakings, the SRARP will conduct the appropriate level of archaeological investigation to resolve eligibility determinations. Finally, 11 isolated artifact occurrences were recorded during FY13 surveys. Summary information concerning specific aspects of all new and existing sites, as well as isolated artifact occurrences, is provided in Table I-1 to Table I-4. The locations of all Site Use Application and Timber Compartment surveys are shown in Figure I-1.

Over the past 24 years, the SRARP has conducted compliance survey according to a predictive locational model for archaeological sites, as established in the revised Archaeological Resource Management Plan (SRARP 2013:39-54, 71-79, Appendix D). This Management Plan was developed in agreement with the DOE, the SCSHPO, and the ACHP. The predictive model, with refinements, has proven thus far to be a scientifically sound and efficient method with which to locate and manage archaeological resources on the SRS. Additionally, the predictive model is a cost-effective means of conducting survey—especially in times of federal government financial reductions.

For these reasons, the development of predictive models is encouraged by regulatory guidance to federal landholders who manage archaeological resources on a daily basis. In this way, the SRARP primarily functions according to the Section 110 Regulatory process. In using the predictive model, the SRARP surveys are meeting the inventory and management responsibilities outlined in Section 110. If the undertaking could potentially impact archaeological sites, the SRARP follows the 106 Regulatory process of intensive, systematic, shovel test survey to delineate and evaluate the significance of any sites present. Then, if an eligible site cannot be avoided, the SRARP mitigates the adverse effects by way of data recovery through the 106 process.

¹ A field survey project is defined as subsurface inspection for a DOE Site Use Application or all subsurface investigations within a U.S. Forest Service-Savannah River Timber Compartment Prescription.

Table I-1. Data on the Extent, Depth, and Content of New Sites Recorded, FY13.

STATE SITE NUMBER	SURVEY PROJECT	SURVEY METHOD	SITE SIZE (m)	SURF. VIS. (%)	SITE DEPTH (cmbs)	#	STPs	STPs	POS. COMPONENTS
38AK994	TC 02	Full Coverage	260 x 105	1-25	60	23	6	EA, 19th c.	
38AK995	TC 06	Full Coverage	225 x 40	1-25	30	21	12	19th-20th c.	
38AK996	TC 46	Full Coverage	45 x 45	26-50	35	22	5	19th-20th c.	
38AK997	TC 46	Full Coverage	120 x 60	1-25	30	13	1	20th c.	
38AK998	TC 46	Full Coverage	40 x 25	26-50	50	22	5	Unk. Preh., Unk. Hist.	
38AK999	TC 46	Full Coverage	15 x 15	1-25	30	6	1	20th c.	
38BR1310	TC 75	Full Coverage	100 x 40	1-25	25	24	6	20th c.	
38BR1311	TC 75	Full Coverage	40 x 30	1-25	45	12	5	20th c.	
38BR1313	TC 47	Full Coverage	60 x 15	1-25	60	20	3	LA, LW, 20th c.	
38BR1314	TC 47	Full Coverage	60 x 30	1-25	40	9	1	Unk. Preh.	
38BR1315	TC 63	Full Coverage	60 x 60	1-25	30	40	10	19th c.	
38BR1316	TC 46	Full Coverage	185 x 125	1-25	40	18	12	Unk Preh., 19th-20th c.	
38BR1317	TC 50	Full Coverage	15 x 15	1-25	30	14	3	19th-20th c.	
38BR1318	TC 61	Full Coverage	120 x 30	26-50	30	44	17	19th-20th c.	
38BR1321	TC 61	Full Coverage	45 x 30	26-50	50	18	5	Unk Preh., 19th c.	
38BR1322	TC 57	Full Coverage	60 x 45	26-50	50	17	4	MW	
38BR1323	TC 63	Full Coverage	90 x 30	1-25	50	8	0	LW	
38BR1324	TC 58	Full Coverage	105 x 60	1-25	45	6	2	Unk. Preh., 19th-20th c.	
38BR1325	TC 44	Full Coverage	45 x 15	1-25	45	5	3	Unk. Preh., Unk. Hist.	
38BR1326	TC 61	Full Coverage	75 x 30	1-25	45	24	6	Unk. Preh., 19th-20th c.	
38BR1327	TC 61	Full Coverage	80 x 80	0	30	31	4	19th c.	
38BR1328	TC 62	Full Coverage	15 x 15	1-25	30	10	5	20th c.	
38BR1329	TC 63	Full Coverage	60 x 40	1-25	25	10	3	20th c.	
38BR1330	TC 63	Full Coverage	120 x 115	26-50	30	38	11	19th c.	

Recon. – Reconnaissance

SU – Site Use

STPs – Shovel Test Pits

EA – Early Archaic

MA – Middle Archaic

LA – Late Archaic

EW – Early Woodland

MW – Middle Woodland

LW – Late Woodland

Miss. – Mississippian

Unk. Preh. – Unknown Prehistoric

na – not applicable

Table I-2. Data on the Extent, Depth, and Content of Site Revisits, FY13.

STATE SITE NUMBER	SURVEY PROJECT	SURVEY METHOD	SITE SIZE (m)	SURF. VIS. (%)	SITE DEPTH (cmbs)	#	STPs	STPs	POS. COMPONENTS
38AK121	TC 12	Full Coverage	720 x 360	1-25	110	226	128	EA-Miss., 18th-19th c.	
38AK864	Recon.	Opportunistic	75 x 45	1-25	Unk.	0	0	19th c.	
38AK892	TC 02	Purposive	950 x 400	26-50	70	0	0	LA	
38AK895	TC 02	Full Coverage	265 x 165	1-25	80	12	2	Unk. Preh., 18th c.	
38BR31	TC 46	Full Coverage	520 x 500	1-25	50	60	38	EW-Miss., Unk. Hist.	
38BR346	TC 46	Full Coverage	320 x 105	1-25	50	32	17	LA, 19th-20th c.	
38BR434	TC 86	Purposive	60 x 50	1-25	30	85	31	MW, LW, 19th-20th c.	
38BR450	TC 46	Full Coverage	250 x 200	1-25	50	35	21	EW-Miss.	
38BR686	TC 75	Full Coverage	200 x 190	26-50	30	139	70	19th-20th c.	
38BR1117	TC 74	Full Coverage	100 x 30	1-25	25	10	2	20th c.	
38BR1250	TC 63	Full Coverage	100 x 50	26-50	50	18	8	LW, 20th c.	

Recon. – Reconnaissance

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MA – Middle Archaic

LA – Late Archaic

EW – Early Woodland

MW – Middle Woodland

LW – Late Woodland

Miss. – Mississippian

Unk. Preh. – Unknown Prehistoric

Unk. – Unknown

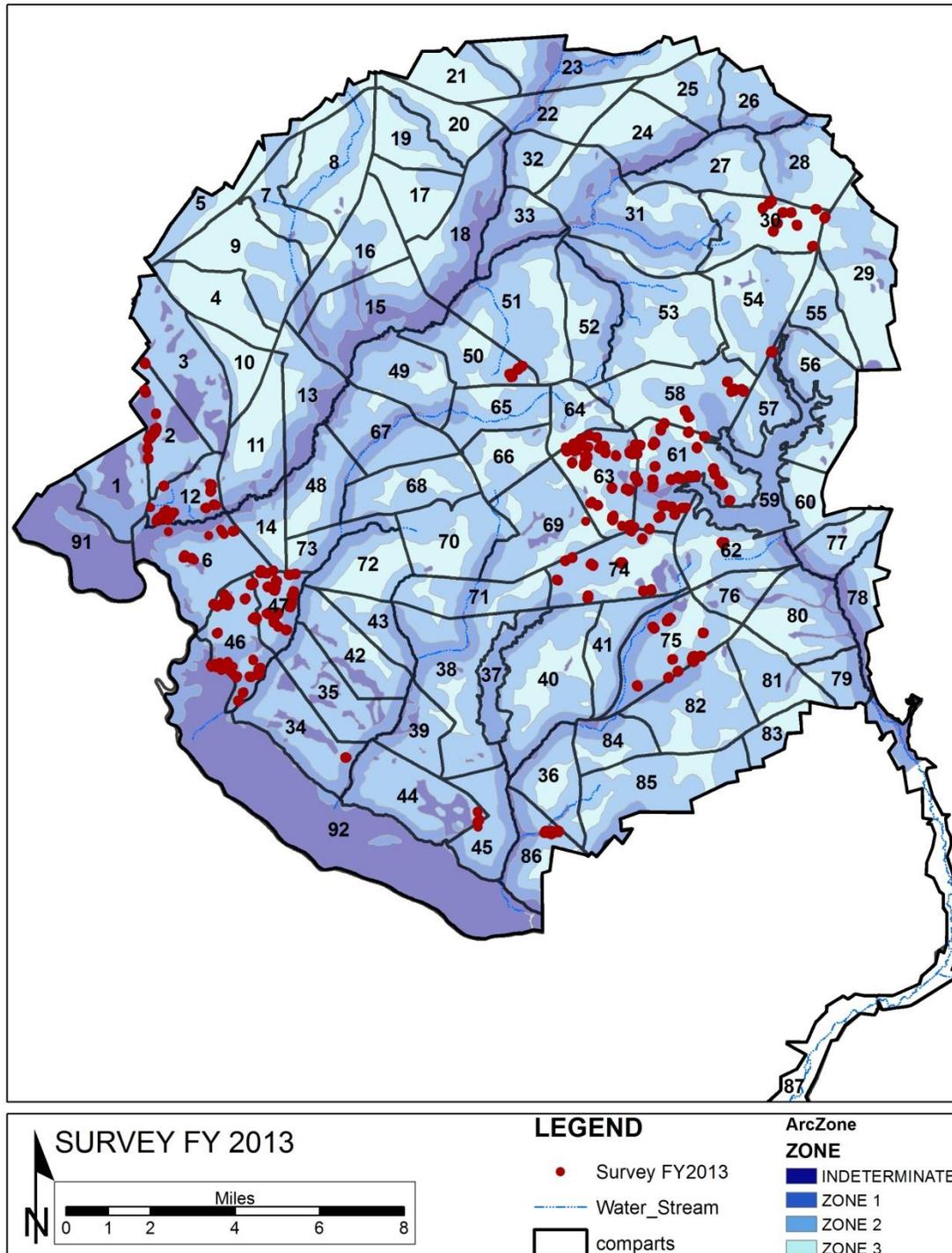


Figure I-1. Location of FY13 Timber Compartment project areas on the SRS.

SR-88 Site Use Permit Application Surveys

The SRARP received 30 Site Use Permit Applications from various contractors on the SRS during FY13. Each permit application underwent review by SRARP management for proposed land modification. Of these, 10 Site Use projects required field reconnaissance or archaeological survey (Table I-5). These Site Use projects comprised 41 acres (19%) of the total survey coverage in FY13.

Table I-5. SR-88 Site Use Application Projects, FY13.

PROJECT	TOTAL PROJECT STPs	PROJECT AREA SURVEYED (ac)	NEW SITES	SITE REVISITS
SU Log No. 3035	na	na		
SU Log No. 3040	na	na		
SU Log No. 3044	na	na		
SU Log No. 3050	na	na		
SU Log No. 3056	na	na		
SU Log No. 3057	na	na		
SU Log No. 3058	na	na		
SU Log No. 3063	85	41		38BR434
SU Log No. 3065	na	na		
SU Log No. 3067	na	na		
TOTAL	85	41	0	1

na – not applicable

The following summaries describe Site Use projects and survey results during FY13. Certain aspects of archaeological work are standard for all projects. Prior to fieldwork, a review of 1951 aerial photography is conducted to identify standing historic structures at the time of federal acquisition. The SRARP site files are consulted to identify previously recorded cultural resources. All STPs measure 35 x 35 cm and are excavated to a depth of at least 80 cmbs, unless a gravel or clay substratum is encountered. Upon completion of each survey project, point data for all STPs, as well as all new and previously recorded sites and isolated artifact occurrences, are recorded using GPS equipment. Exceptions to this fieldwork procedure include historic site locations identified from 1951 aerial photographs that are situated in low-probability areas for prehistoric sites (see discussion of Archaeological Sensitivity Zones in SRARP 1989). At these locations, STPs are excavated to just below the plowzone (usually between 20 - 40 cmbs). The reduced depth of STPs on historic sites is justified because late-period historic sites generally lack thick, stratified deposits (Cabak and Inkrot 1997:29-31). The soil from the STPs is sifted through 0.25-in. wire mesh, and artifacts are collected and bagged by provenience.

SU Log No. 3035 Amendment 1 – *Proposed Boundary to Install Two Groundwater Monitoring Wells*

This Site Use Permit, issued on August 6, 2012, proposed the installation of two new groundwater monitoring wells. Review of the SRARP database showed no previously recorded sites in the project area. Field survey of this area was conducted for Site Use Log 3032 and reported in FY12 (SRARP 2012:20).

SU Log No. 3040 – Installation of a Boundary to Install Broadband Seismic Equipment

This Site Use Permit, issued on September 12, 2012, proposed the installation of 14 monitoring instruments in hand dug holes approximately 18-24 inches in depth. Review of the SRARP database showed no recorded sites in the project area. The SRARP concurred with the comment that prior to any proposed land modification, the specific project area needs to be designated followed by notification from the project engineer. As notification is still pending, this survey project will be continued into the next fiscal year.

SU Log No. 3044 – Enlarge Existing Exercise Trail in Timber Compartment 17

This Site Use Permit, issued on October 29, 2012, proposed the construction of a new exercise trail extension in Timber Compartment 17. Review of the SRARP database showed no recorded sites in the project area. The area contains an upland wetland that was surveyed in 2002. The proposed project area is located in Archaeological Sensitivity Zone 3, which holds little potential for archaeological resources on the SRS. A pedestrian survey was conducted of the entire proposed walking trail, and no cultural remains were noted. Thus, there will be no adverse effects to any historic properties by the proposed Site Use action.

SU Log No. 3050 – Canister Interim Storage Project (CISP) in S Area

This Site Use Permit, issued on January 8, 2012, proposed 40.5 acres to be used for the CISP involving a staging area, stockpiles, and detention pond. Review of the SRARP database showed two recorded sites (38AK169 and 38AK261) in and along the project area. Site 38AK169, recorded in 1974, consisted of four chert flakes exposed in an unpaved roadbed. This site could not be relocated during a 1994 survey. Site 38AK261, recorded in 1979, was a historic homeplace. According to comments in the site form, 38AK261 was destroyed during S Area activities at some unknown time. Field reconnaissance determined that the proposed project area was sufficiently disturbed so that no additional archaeological survey was required. Thus, there will be no adverse effects to any historic properties by the proposed Site Use action.

SU Log No. 3056 – Environmental Field Plot Development and Sample Collection Locations

This Site Use Permit, issued on March 21, 2012, proposed the establishment of up to four field plots, each 6x6 ft. square, by raking the topsoil to ensure proper sowing of seeds. Review of the SRARP database showed no recorded sites in the project area. Field reconnaissance determined that the proposed project area was situated in the floodplain of Tim's Branch, considered an archaeologically excluded area with little potential for cultural deposits. Thus, there will be no adverse effects to any historic properties by the proposed Site Use action.

SU Log No. 3057 – Installation of Six New Groundwater Monitoring Wells

This Site Use Permit, issued on March 25, 2013, proposed the installation of new groundwater monitoring wells. Review of the SRARP database showed no recorded sites in the project area. The proposed project area was previously surveyed during Site Use Log 3033 and reported in FY12 (SRARP 2012:20-21). Two additional well locations are scheduled to be surveyed during the upcoming fiscal year.

SU Log No. 3058 – Installation of Additional Monitoring Wells and Soil Borings

This Site Use Permit, issued on March 26, 2013, proposed the installation of additional groundwater monitoring wells and soil borings. Review of the SRARP database showed no recorded sites in the project area. Field reconnaissance determined that the proposed project area was previously disturbed through earlier well installation. Additionally, the area of impact is a waste disposal burial ground with soil contamination. Thus, there will be no adverse effects to any historic properties by the proposed Site Use action.

SU Log No. 3063 – Proposed Compartment 86 North Fire Salvage Project

This Site Use Permit, issued on June 4, 2013, proposed a timber salvage through the use of controlled burning followed by mechanical and hand-planting operations, as well as secondary road maintenance (Figure I-2). Review of the SRARP database showed one recorded site (38BR434) in the project area. Site 38BR434 consists of a prehistoric component, a colonial period occupation, and three historic period homesites. For purposes of this project, fieldwork consisted of survey to delineate the extent of the three 19th-/20th-century homeplaces. Following these survey efforts, the US Forest Service-Savannah River cancelled the proposed timber salvage project. Thus, there will be no adverse effects to any historic properties by the proposed Site Use action.

SU Log No. 3065 – New Monitoring Wells, Boring Sites, and Access Roads for Settling Basin Near A Area

This Site Use Permit, issued on June 18, 2013, proposed the installation of new monitoring wells and soil borings in 17 separate locations, and the construction of four secondary access roads. Review of the SRARP database showed one recorded site (38AK953) in the project area. The SRARP concurred with the comment that prior to any proposed land modification the specific project area needs to be designated followed by notification from the project engineer. As notification is still pending, this survey will continue into the next fiscal year.

SU Log No. 3067 – Construction of Shipment Routes Clear Zone

This Site Use Permit, issued on June 25, 2013, proposed the mechanical removal of merchantable trees at 100 ft. from the existing tree lines along specified major

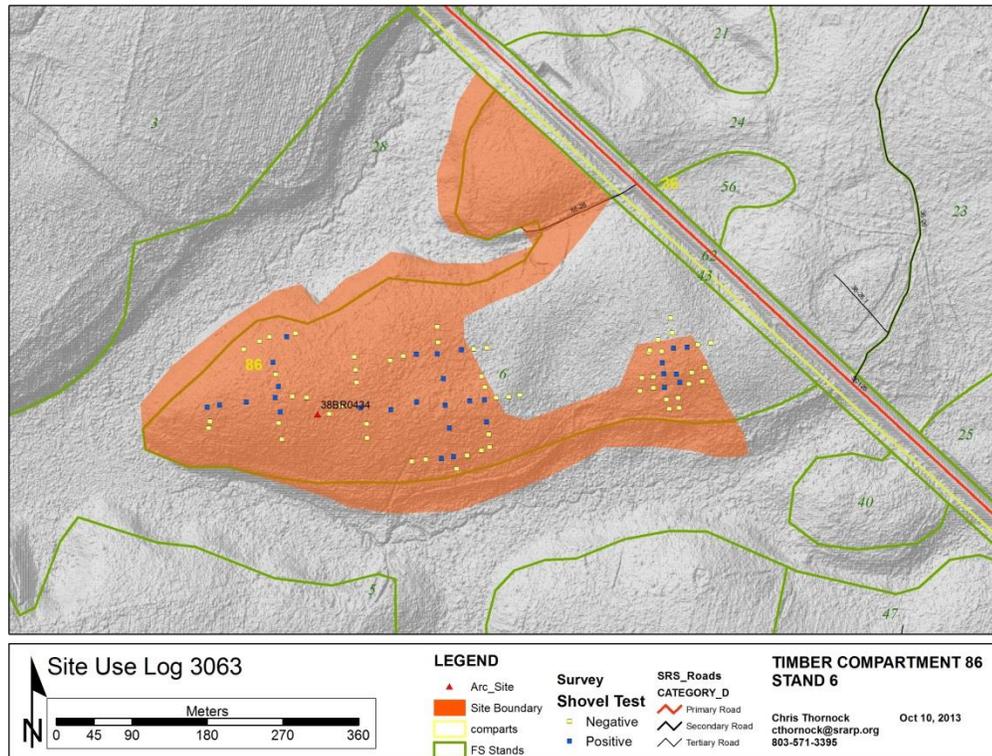


Figure I-2. SU Log No. 3063 survey area.

roadways to enhance the security and protection of shipments made between K and H Areas. Review of the SRARP database showed one recorded site (38BR626) in the project area. The SRARP concurred with the comment that prior to any proposed land modification the specific project area needs to be designated followed by notification from the project engineer. Notification was received by the SRARP towards the end of FY13, and archaeological survey was initiated in October FY14. The results of this survey will be reported in the next fiscal year report.

Timber Compartment Surveys

The USFS-SR is the most extensive land user on the SRS, as this agency's primary function is one of research and forest management in support of silvicultural practices. Each year, the USFS-SR issues a list of Timber Compartment Prescriptions indicating those areas on the SRS where timber management activities are scheduled to occur. As a policy, the USFS-SR issues this list two to three years before the planned thinning or harvesting is scheduled. Employing these Prescriptions, the SRARP identifies areas that must be surveyed prior to any land-use activities. Because of the lead-time provided by way of this process, the SRARP has the opportunity to locate and evaluate all resources within the area of proposed land use at least one year in advance of the Site Use Application request detailing all proposed timber management actions. Additionally, the USFS-SR, in consultation with the SRARP, insures that all archaeological sites deemed significant for research potential are avoided completely during the development of secondary roads and timber loading decks. Finally, all historic and prehistoric sites with potential research significance are avoided completely during harvesting activities. As a result, all adverse effects to historic properties are mitigated through avoidance.

The SRARP management reviews each Timber Compartment Prescription to determine the level of survey required for each Timber Stand slated for timbering. The review process involves determining the potential for archaeological resources in each Timber Stand. This is accomplished by applying the predictive locational model of site discovery developed by the SRARP for management of cultural resources on the SRS (SRARP 1989). Information from the SRS site files, previous survey records, and historic documentation are also incorporated into the review process to insure that all resources are located and previous survey efforts are not duplicated. The following summaries describe Timber Compartment projects and survey results during FY13. Surveys of Log Decks and Timber Stands were conducted in 25 Timber Compartments. These surveys involved 175 acres (81%) of the total survey area coverage in FY13. Table I-6 provides a listing by Timber Compartment of all sites investigated.

Certain aspects of archaeological work are standard for all projects. Prior to fieldwork, a review of 1951 aerial photography is conducted to identify standing historic structures at the time of federal acquisition. The SRARP site files are consulted to identify previously recorded cultural resources. All STPs measure 35 x 35 cm and are excavated to a depth of at least 80 cmbs, unless a gravel or clay substratum is encountered. Upon completion of each survey project, point data for all STPs, all new and previously recorded sites, and isolated artifact occurrences are recorded using GPS equipment. Exceptions to this fieldwork procedure include historic site locations identified from 1951 aerial photographs that are situated in low-probability areas for prehistoric sites (see discussion of Archaeological Sensitivity Zones in SRARP 1989). At these locations, STPs are excavated to just below the plowzone (usually between 20 - 40 cmbs). The reduced depth of STPs on historic sites is justified because late-period historic sites generally lack thick, stratified deposits (Cabak and Inkrot 1997:29-31). The soil from the STPs is sifted through 0.25-in. wire mesh, and artifacts are collected and bagged by provenience. For most log deck projects, archaeological sites are avoided

Table I-6. Timber Compartment Prescription and Log Deck Surveys, FY13.

PROJECT	PROJECT STPs	PROJECT AREA SURVEYED (ac.)	NEW SITES	SITE REVISITS
Timber Comp. 2	117	8	38AK994	38AK892 38AK895
Timber Comp. 6	70	8	38AK995	
Timber Comp. 12	54	7		38AK121
Timber Comp. 30	98	11		
Timber Comp. 34	9	1		
Timber Comp. 44	11	2	38BR1325	
Timber Comp. 45	2	1		
Timber Comp. 46	150	19	38AK996 38AK997 38AK998 38AK999 38BR1316	38BR31 38BR346 38BR450
Timber Comp. 47	153	16	38BR1313 38BR1314	
Timber Comp. 50	45	5	38BR1317	
Timber Comp. 57	9	1	38BR1322	
Timber Comp. 58	63	7	38BR1324	
Timber Comp. 61	253	30	38BR1316 38BR1321 38BR1326 38BR1327	
Timber Comp. 62	15	1	38BR1328	
Timber Comp. 63	318	34	38BR1315 38BR1323 38BR1329 38BR1330	38BR1250
Timber Comp. 74	117	13		38BR1117
Timber Comp. 75	160	11		38BR686
TOTALS	1,644	175	22	9

completely during forestry activities; however, in the event that a site cannot be avoided, proposed log decks are relocated where there will be the least impact to archaeological deposits, i.e., areas determined to have either the lowest artifact density and diversity, or deeply buried deposits.

Timber Compartment 2

Archaeological survey in Compartment 2 involved subsurface inspection of 8 proposed Log Decks totaling 1 acre each in Stands 1, 4, 13, 24, 26, and 27 (Figure I-3 and Figure I-4). Review of the SRARP database indicated two previously recorded sites (38AK892 and 38AK895) in the project area. Fieldwork consisted of 78 STPs (8 positive) excavated on a 30-m grid at each Log Deck location. These efforts resulted in a site revisit to 38AK895, the discovery and delineation of one new site (38AK994), and the recovery of one isolated find (AK-OCC-153). Additionally, artifacts were surface collected across the road from previously recorded site 38AK892, thereby expanding the site boundary. Sites 38AK892 and 38AK994 will be avoided completely during current timbering activities. As site 38AK895 could not be avoided during timbering activities, two log decks were located where there would be the least impact to archaeological deposits. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 2.

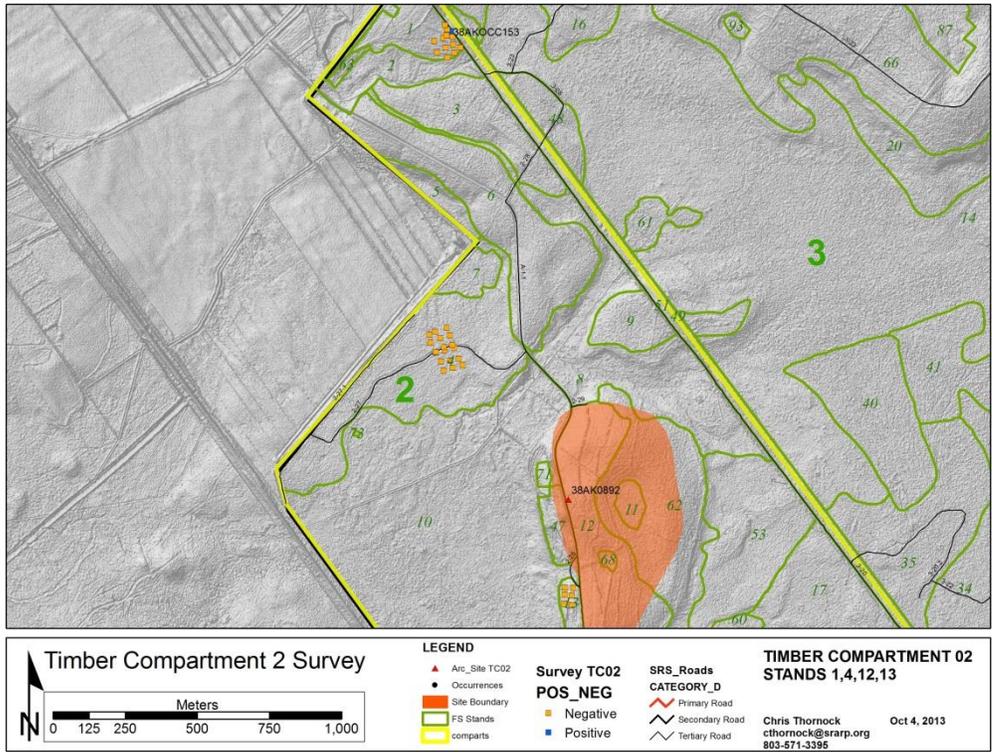


Figure I-3. Timber Compartment 2 survey area.

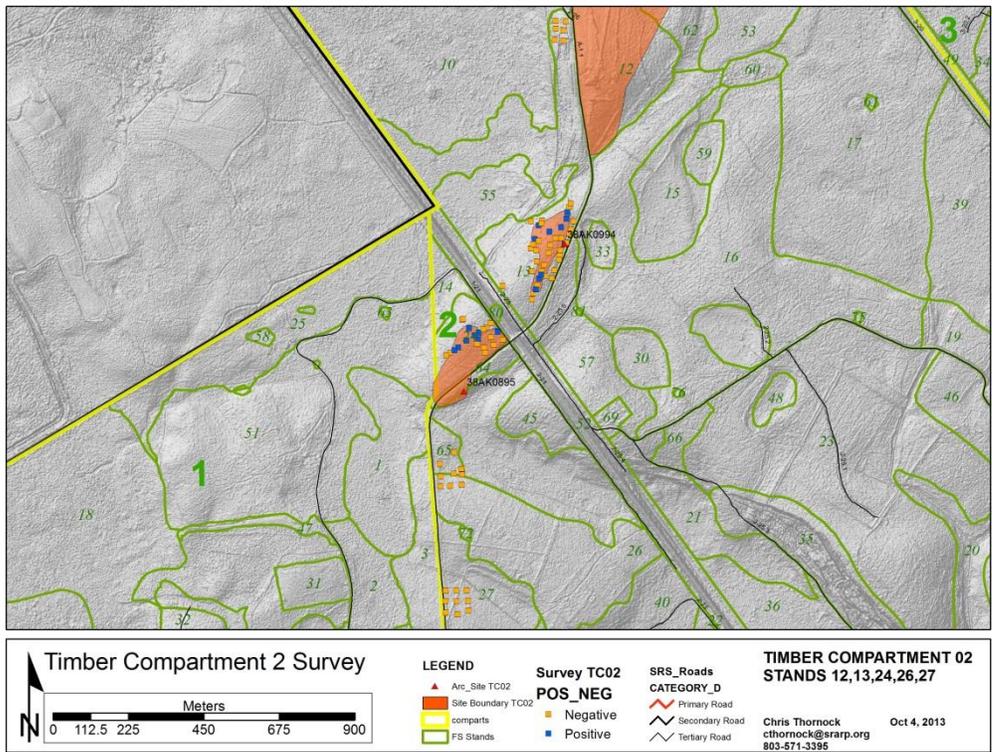


Figure I-4. Timber Compartment 2 survey area continued.

Timber Compartment 6

Archaeological survey in Compartment 6 involved subsurface inspection of 8 proposed Log Decks totaling 1 acre each in Stands 7, 10, 48, 53, and 80 (Figure I-5 and Figure I-6). Review of the SRARP database showed no previously recorded sites in the project area. Fieldwork consisted of 70 STPs (12 positive) excavated on a 30-m grid at each Log Deck location. These efforts resulted in the discovery and delineation of one new site 38AK995. As this site could not be avoided completely during timbering activities, a log deck was located where there would be the least impact to archaeological deposits. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 6.

Timber Compartment 12

Archaeological survey in Compartment 12 involved subsurface inspection of 7 proposed Log Decks totaling 1 acre each in Stands 14, 20, 29, and 31 (Figure I-7). Review of the SRARP database showed three previously recorded sites (38AK121, 38AK343, and 38AK345) in the project vicinity. Fieldwork consisted of 54 STPs (7 positive) excavated on a 30-m grid at each Log Deck location. Shovel test survey linked together the three previously recorded sites, and these were combined under site number 38AK121. Given the extent of this site, it could not be avoided during timbering activities; therefore, two log decks were located in areas of least impact to archaeological deposits. Survey efforts also resulted in the recovery of two isolated finds (AK-OCC-143 and AK-OCC-151). The artifact occurrences have no research potential to advance our understanding of the history of the region. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 12.

Timber Compartment 30

Archaeological survey in Compartment 30 involved subsurface inspection of 11 proposed Log Decks totaling 1 acre each in Stands 9, 12, 15, 16, 33, 37, and 67 (Figure I-8). Review of the SRARP database showed no previously recorded sites in the project area. Fieldwork consisted of 98 STPs (1 positive) excavated on a 30-m grid at each Log Deck location. These efforts resulted in the recovery of one isolated find (BR-OCC-312). The artifact occurrence has no research potential to advance our understanding of the history of the region. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 30.

Timber Compartment 34

Archaeological survey in Compartment 34 involved subsurface inspection of 1 proposed Log Deck totaling 1 acre in Stand 21 (Figure I-9). Review of the SRARP database showed no previously recorded sites in the project area. Fieldwork consisted of 9 STPs (0 positive) excavated on a 30-m grid at the Log Deck location. As these survey efforts resulted in only negative STPs, no further archaeological work was required. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 34.

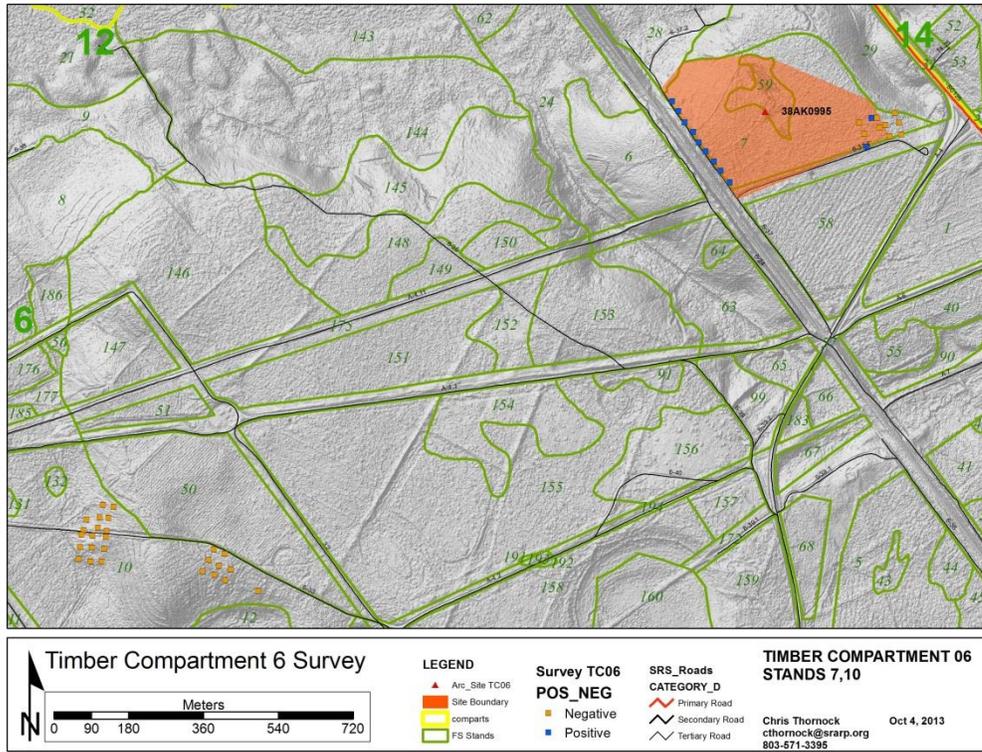


Figure I-5. Timber Compartment 6 survey area.

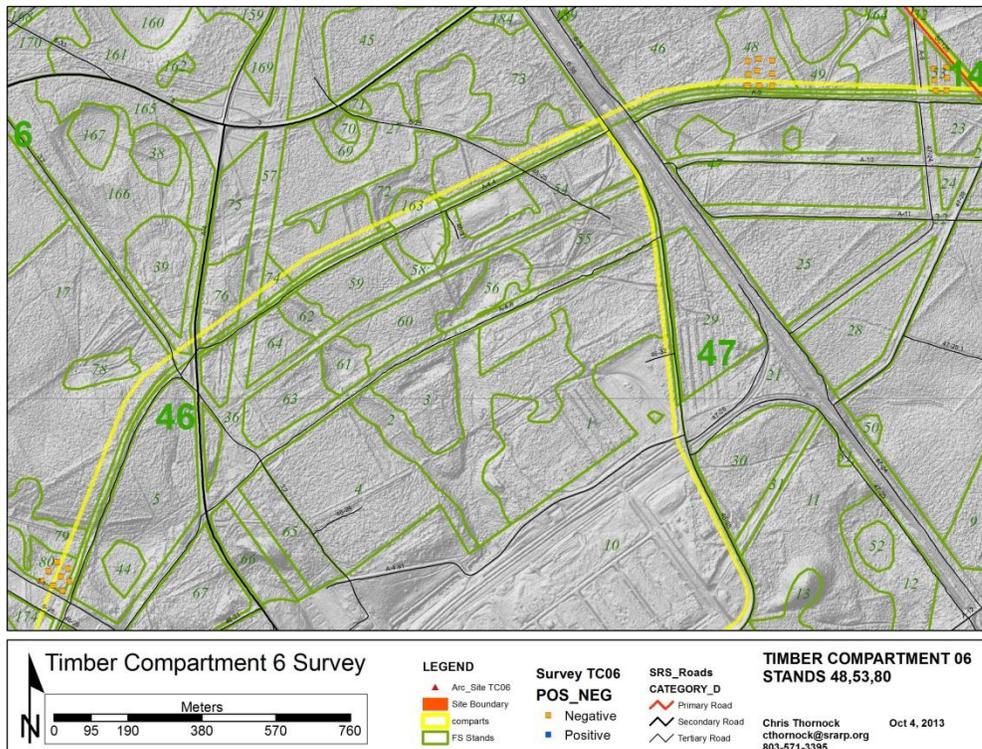


Figure I-6. Timber Compartment 6 survey area continued.

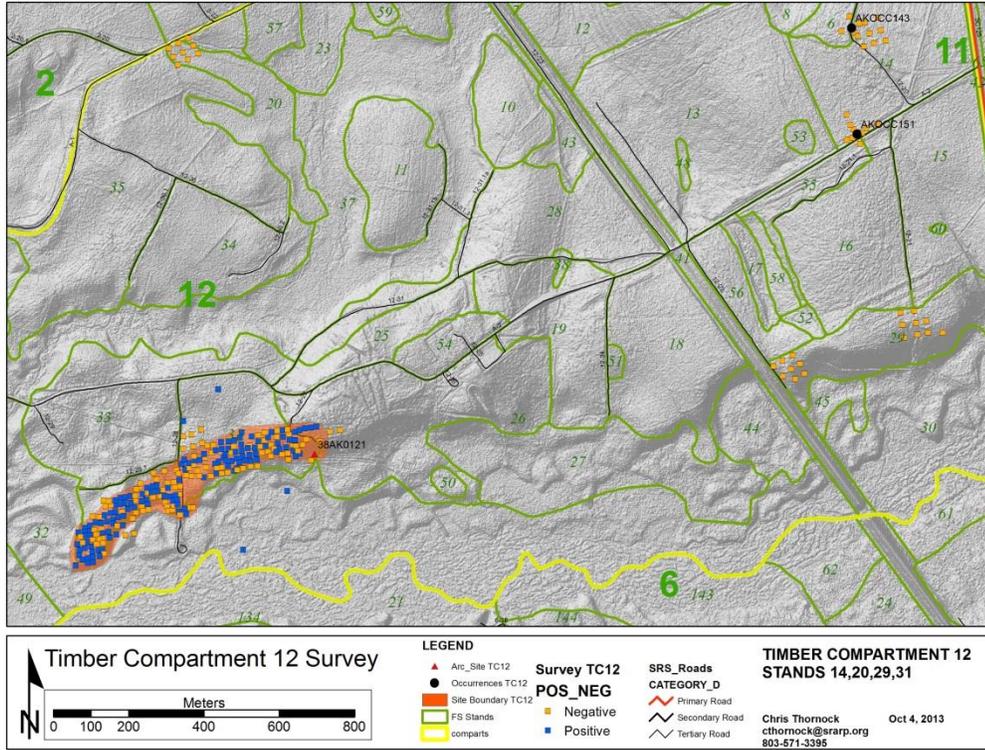


Figure I-7. Timber Compartment 12 survey area.

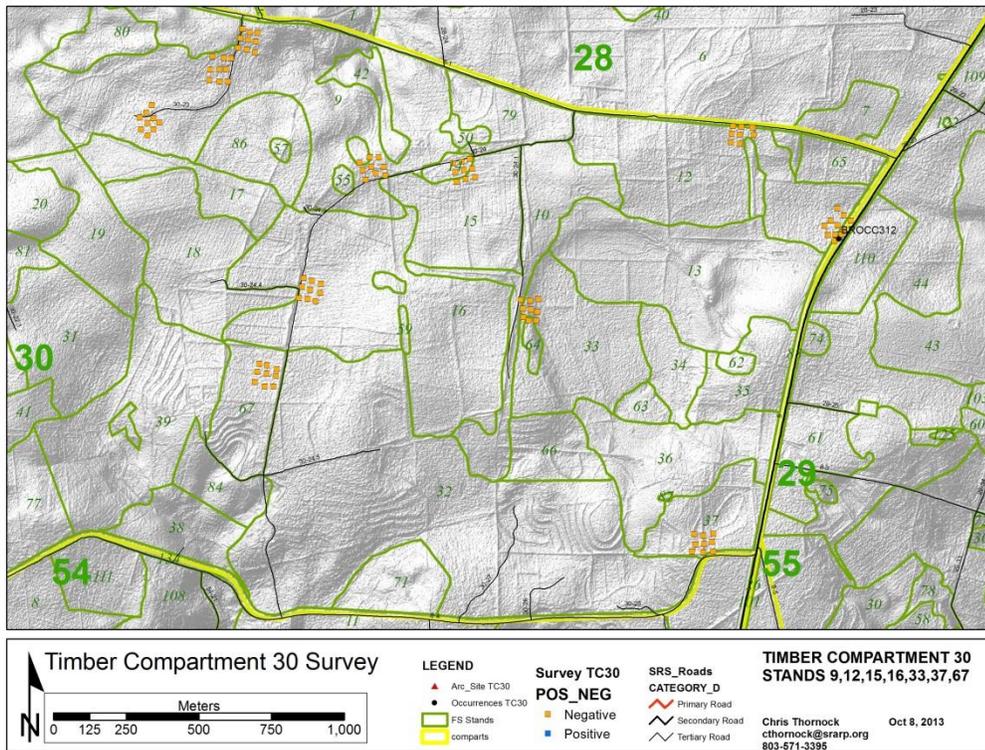


Figure I-8. Timber Compartment 30 survey area.

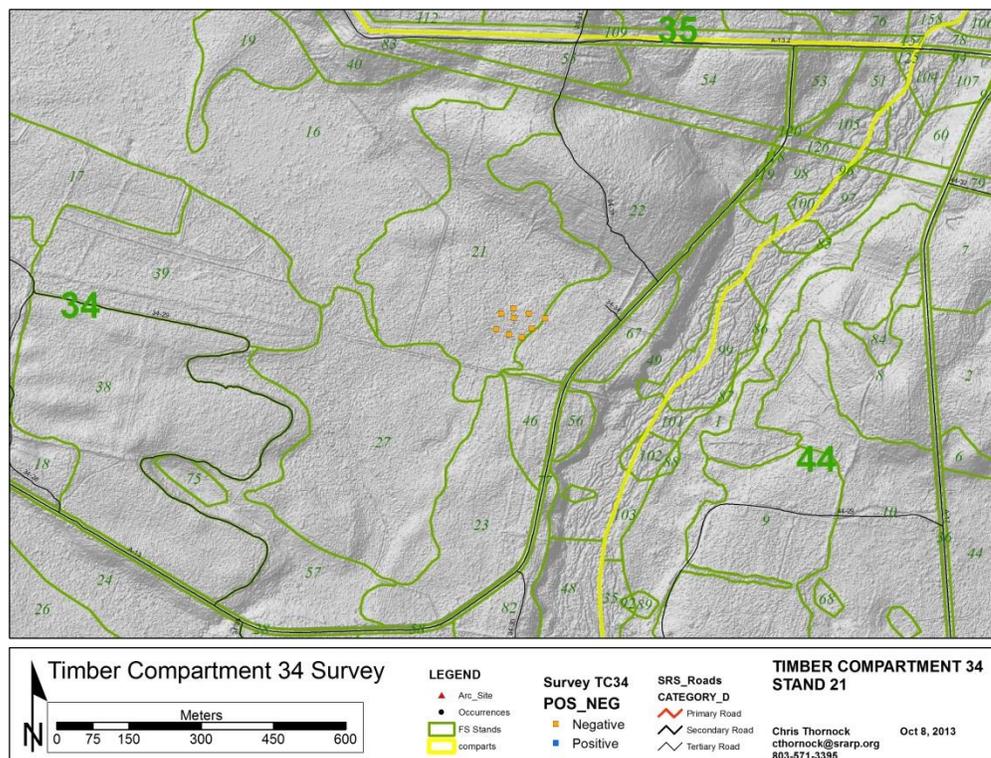


Figure I-9. Timber Compartment 34 survey area.

Timber Compartment 44

Archaeological survey in Compartment 44 involved subsurface inspection of 2 proposed Log Decks totaling 1 acre each in Stand 29 (Figure I-10). Review of the SRARP database showed no previously recorded sites in the project area. Fieldwork consisted of 11 STPs (1 positive) excavated on a 30-m grid at each Log Deck location. These efforts resulted in the discovery and delineation of one new site (38BR1325). As this site could not be avoided during timbering activities, the two log decks were located where there would be the least impact to archaeological deposits. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 44.

Timber Compartment 45

Archaeological survey in Compartment 45 involved subsurface inspection of 1 proposed Log Deck totaling 1 acre in Stand 21 (Figure I-11). Review of the SRARP database showed no previously recorded sites in the project area. Fieldwork consisted of 2 STPs (1 positive) excavated on a 30-m grid at the Log Deck location. These efforts resulted in the recovery of one isolated find (BR-OCC-311). Just prior to delineating the occurrence, the SRARP personnel realized there was a misunderstanding of the exact project footprint based on prior information provided by the USFS-SR. As this area was not slated for a log deck, fieldwork proceeded in another proposed log deck location. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 45.

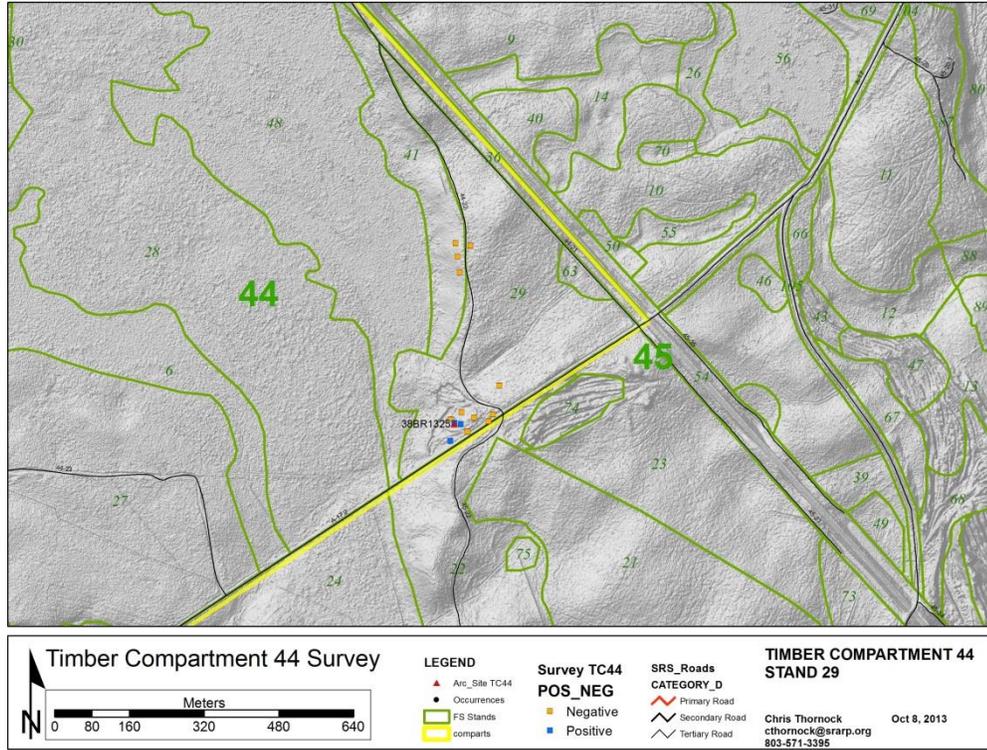


Figure I-10. Timber Compartment 44 survey area.

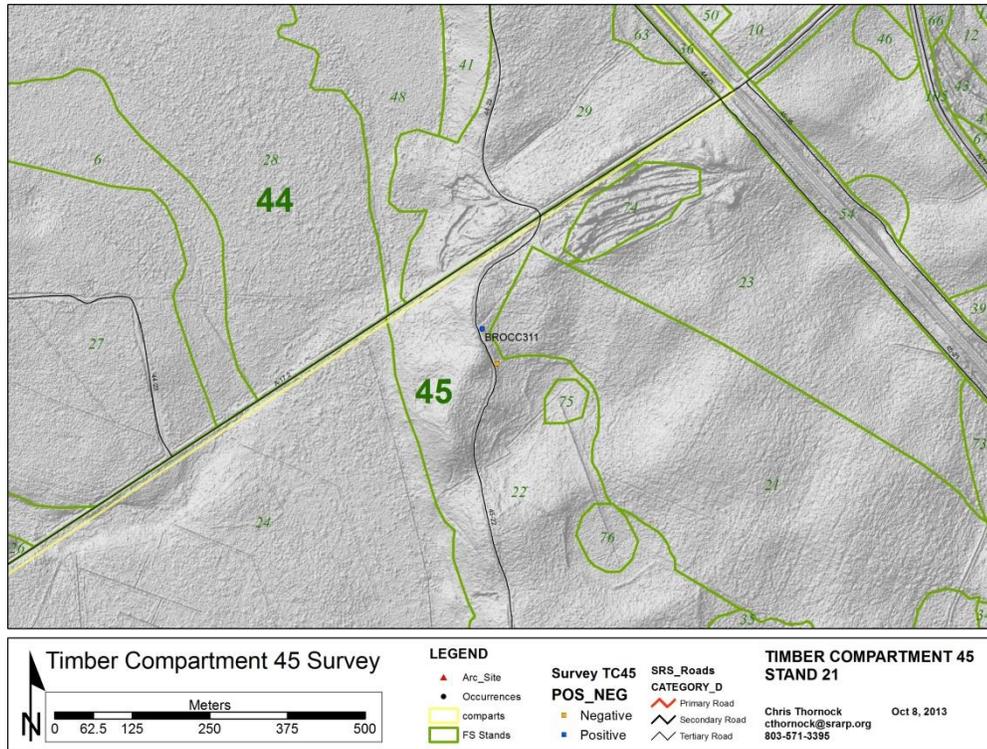


Figure I-11. Timber Compartment 45 survey area.

Timber Compartment 46

Archaeological survey in Compartment 46 involved subsurface inspection of 30 proposed Log Decks totaling 1 acre each in Stands 1, 5, 12, 17, 18, 23, 26, 30, 40, 64, 65, and 66 (Figure I-12 and Figure I-13). Review of the SRARP database showed three previously recorded sites (38BR31, 38BR450, and 38BR346) in the project area. Fieldwork consisted of 150 STPs (30 positive) excavated on a 30-m grid at each Log Deck location. These efforts resulted in site revisits to 38BR31, 38BR450, and 38BR346, as well as the discovery and delineation of five new sites (38AK996, 38AK997, 38AK998, 38AK999, and 38BR1316). Sites 38BR346, 38AK996, 38AK998, and 38BR1316 will be avoided completely during any timbering activities. As sites 38BR31, 38BR450, 38AK997, and 38AK999 could not be avoided completely, log decks were located where there would be the least impact to archaeological deposits. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 46.

Timber Compartment 47

Archaeological survey in Compartment 47 involved subsurface inspection of 16 proposed Log Decks totaling 1 acre each in Stands 1, 3, 6, 10, 14, 18, 19, 28, and 55 (Figure I-14). Review of the SRARP database showed no previously recorded sites in the project area. Fieldwork consisted of 153 STPs (5 positive) excavated on a 30-m grid at each Log Deck location. These efforts resulted in the discovery and delineation of two new sites (38BR1313 and 38BR1314), as well as the recovery of one isolated find (BR-OCC-306). All sites will be avoided completely by any timbering activities. This artifact occurrence has no research potential to advance our understanding of the history of the region. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 47.

Timber Compartment 50

Archaeological survey in Compartment 50 involved subsurface inspection of 2 proposed Log Decks totaling 1 acre each in Stand 26 (Figure I-15). Review of the SRARP database showed no previously recorded sites in the project area. Fieldwork consisted of 45 STPs (1 positive) excavated on a 30-m grid at each Log Deck location. These efforts resulted in the discovery and delineation of one new site (38BR1317). This site will be avoided completely by any timbering activities. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 50.

Timber Compartment 57

Archaeological survey in Compartment 57 involved subsurface inspection of 1 proposed Log Deck totaling 1 acre in Stand 38 (Figure I-16). Review of the SRARP database showed no previously recorded sites in the project area. Fieldwork consisted of 9 STPs (2 positive) excavated on a 30-m grid at the Log Deck location. These efforts

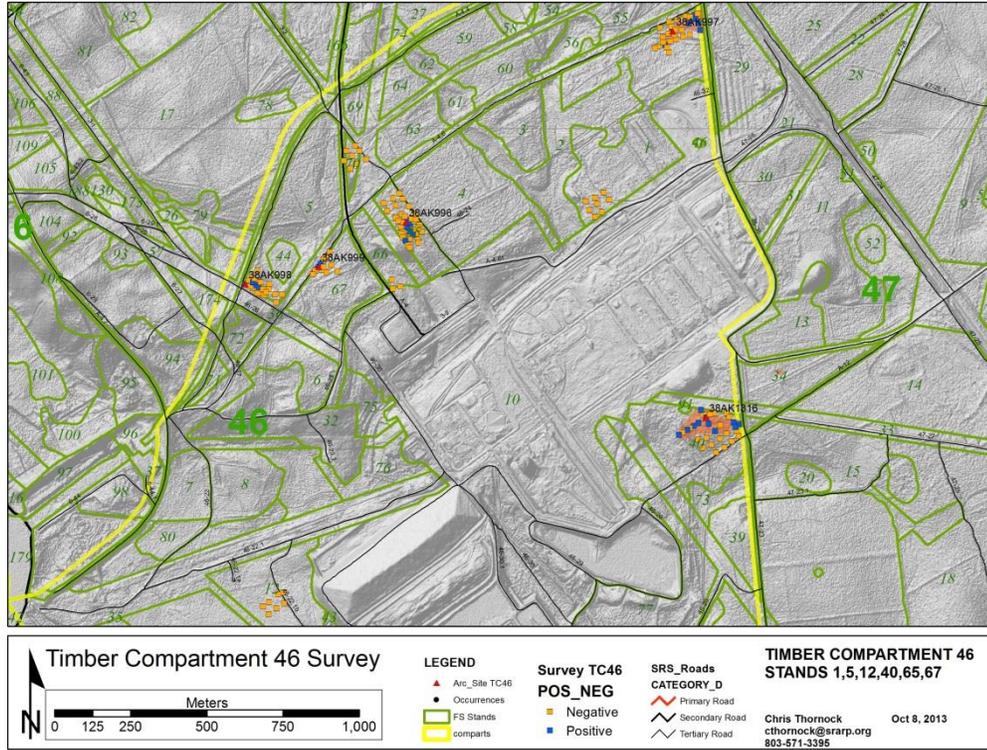


Figure I-12. Timber Compartment 46 survey area.

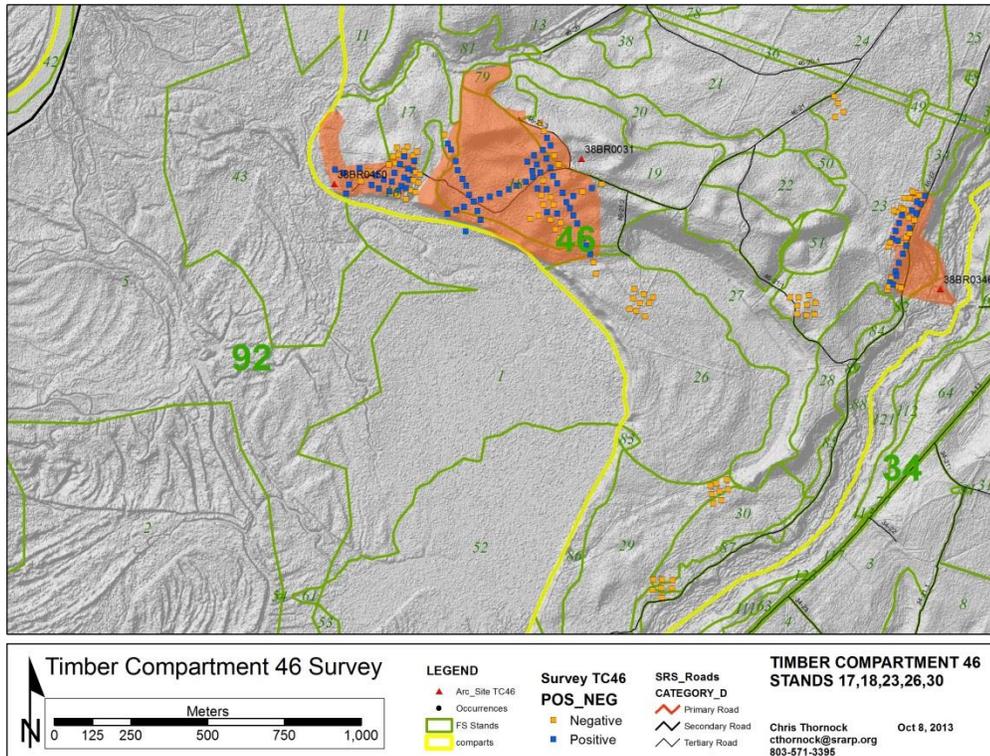


Figure I-13. Timber Compartment 46 survey area continued.

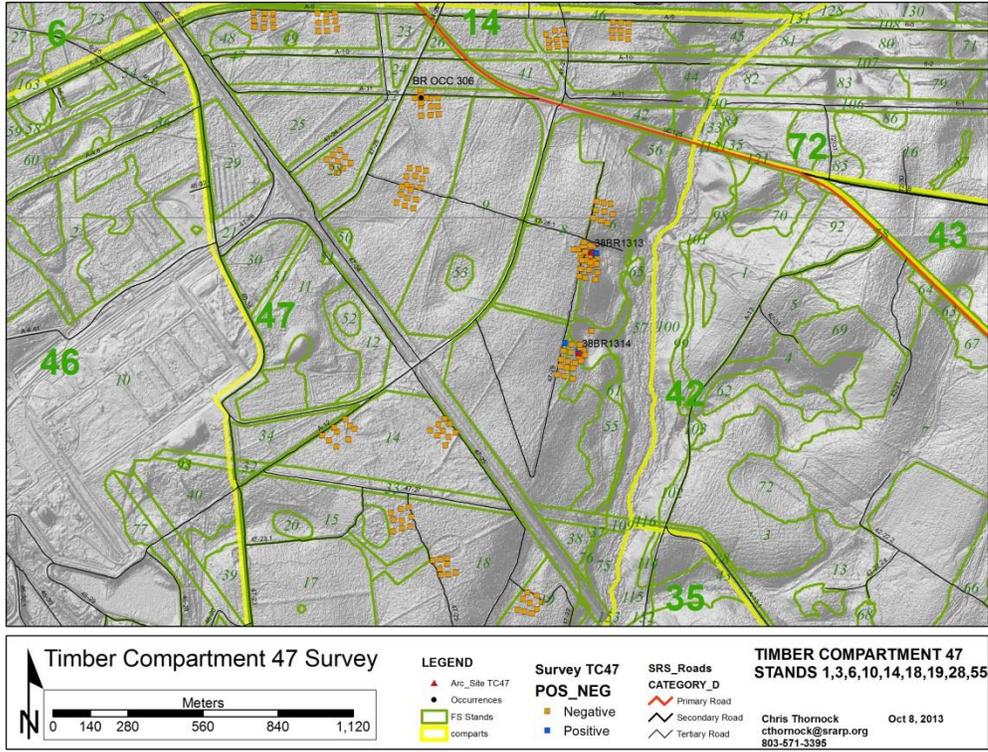


Figure I-14. Timber Compartment 47 survey area.

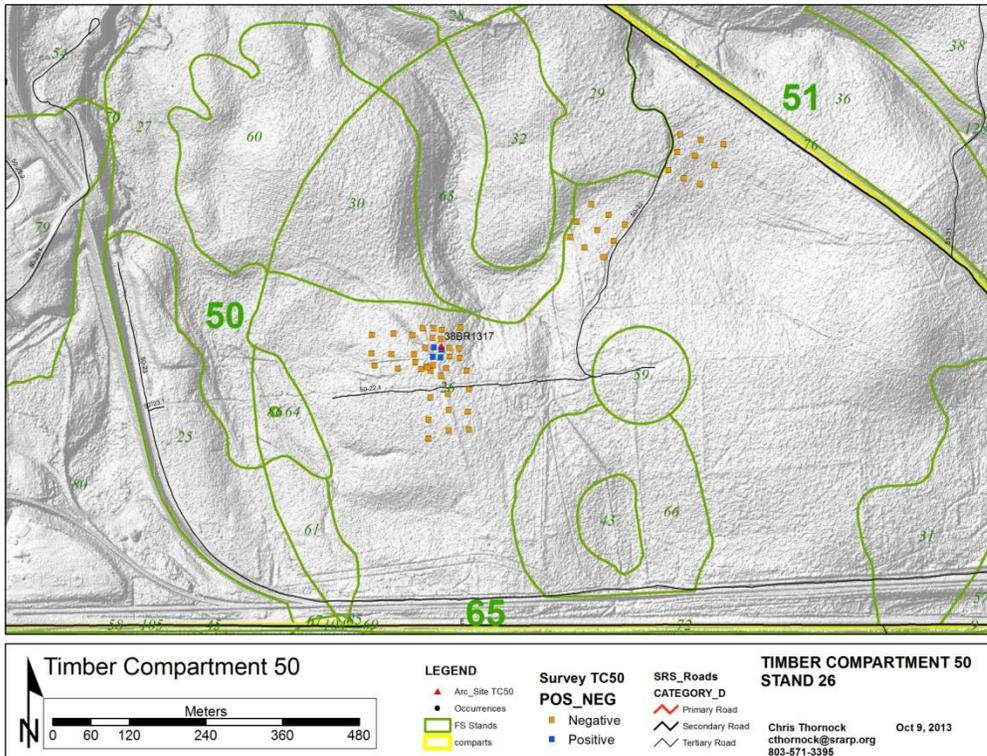


Figure I-15. Timber Compartment 50 survey area.

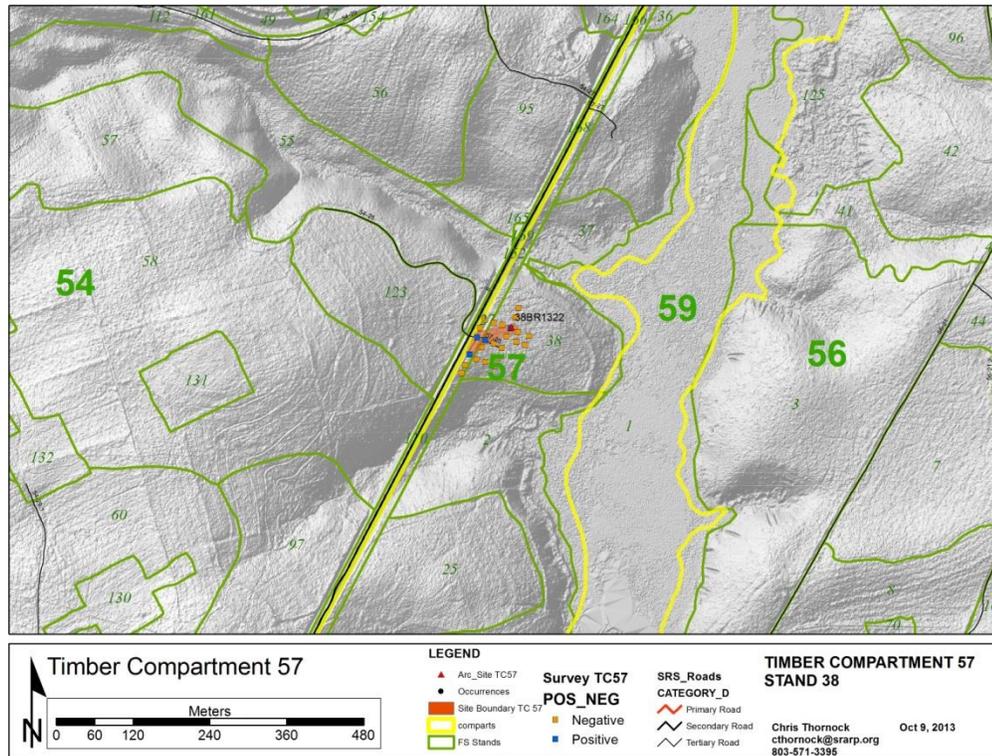


Figure I-16. Timber Compartment 57 survey area.

resulted in the discovery and delineation of one new site (38BR1322). As this site could not be avoided completely, the log deck was located where there would be the least impact to archaeological deposits. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 57.

Timber Compartment 58

Archaeological survey in Compartment 58 involved subsurface inspection of 7 proposed Log Decks totaling 1 acre each in Stands 25, 28, 99, and 128 (Figure I-17). Review of the SRARP database showed no previously recorded sites in the project area. Fieldwork consisted of 63 STPs (5 positive) excavated on a 30-m grid at each Log Deck location. These efforts resulted in the discovery and delineation of one new site (38BR1324). This site will be avoided completely by any timbering activities. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 58.

Timber Compartment 61

Archaeological survey in Compartment 61 involved subsurface inspection of 30 proposed Log Decks totaling 1 acre each in Stands 4, 5, 9, 11, 19, 27, 30, 34, 40, 42, 43, 53, 58, 60, 62, 70, and 75 (Figure I-18 and Figure I-19). Review of the SRARP database showed no previously recorded sites in the project area. Fieldwork consisted of 253 STPs (11 positive) excavated on a 30-m grid at each Log Deck location. These efforts resulted

in the discovery and delineation of four new sites (38BR1318, 38BR1321, 38BR1326, and 38BR1327), as well as the recovery of 3 isolated finds (BR-OCC-307, BR-OCC-308, and BR-OCC-310). All sites will be avoided completely by any timbering activities. The artifact occurrences have no research potential to advance our understanding of the history of the region. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 61.

Timber Compartment 62

Archaeological survey in Compartment 62 involved subsurface inspection of 1 proposed Log Deck totaling 1 acre in Stand 47 (Figure I-20). Review of the SRARP database showed no previously recorded sites in the project area. Fieldwork consisted of 15 STPs (1 positive) excavated on a 30-m grid at the Log Deck location. This effort resulted in the discovery and delineation of one new site (38BR1328). This site will be avoided completely by any timbering activities. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 62.

Timber Compartment 63

Archaeological survey in Compartment 63 involved subsurface inspection of 34 proposed Log Decks totaling 1 acre each in Stands 6, 7, 9, 10, 11, 20, 22, 31, 32, 35, 36, 54, 55, 67, 69, 73, and 98 (Figure I-21 and Figure I-22). Review of the SRARP database showed one previously recorded site (38BR1250) in the project area. Fieldwork consisted of 318 STPs (14 positive) excavated on a 30-m grid at each Log Deck location. These efforts resulted in the relocation of site 38BR1250, as well as the discovery and delineation of 4 new sites (38BR1315, 38BR1323, 38BR1329, and 38BR1330). Sites 38BR1250, 38BR1315, 38BR1329, and 38BR1330 will be avoided completely by any timbering activities. As site 38BR1323 could not be avoided completely, two log decks were located where there would be the least impact to archaeological deposits. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 63.

Timber Compartment 74

Archaeological survey in Compartment 74 involved subsurface inspection of 13 proposed Log Decks totaling 1 acre each in Stands 3, 9, 17, 27, 29, 33, 65, and 94 (Figure I-23). Review of the SRARP database showed one previously recorded site (38BR1117) in the project area. Fieldwork consisted of 117 STPs (3 positive) excavated on a 30-m grid at each Log Deck location. These efforts resulted in the relocation of site 38BR1117, as well as the recovery of 1 isolated find (BR-OCC-309). The site will be avoided completely by any timbering activities. The artifact occurrence has no research potential to advance our understanding of the history of the region. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 74.

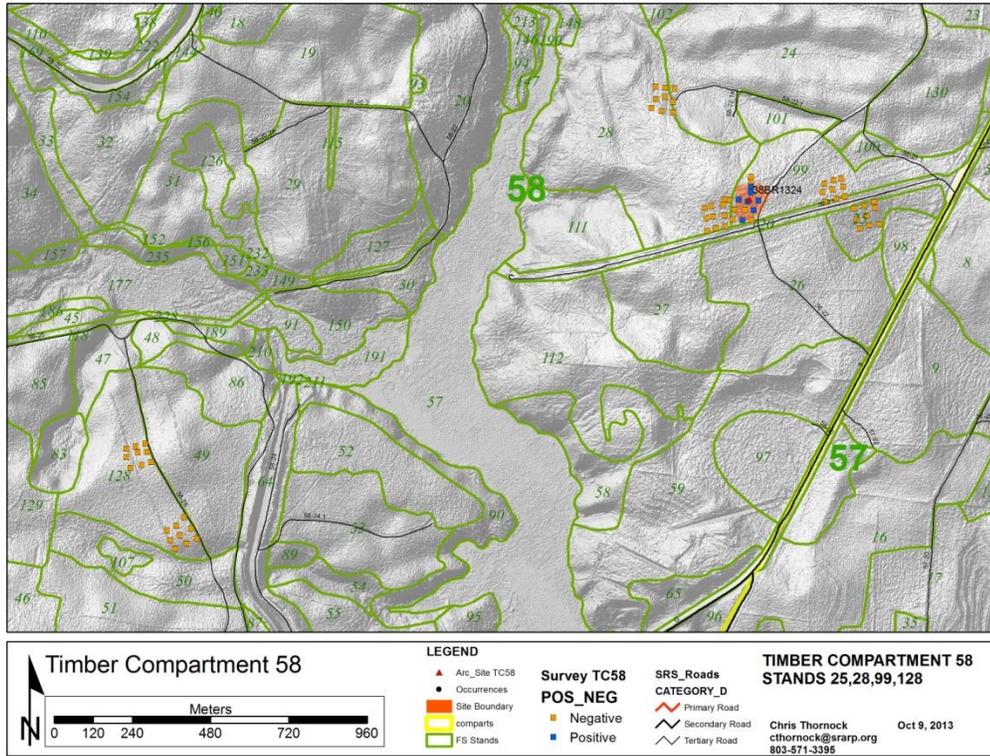


Figure I-17. Timber Compartment 58 survey area.

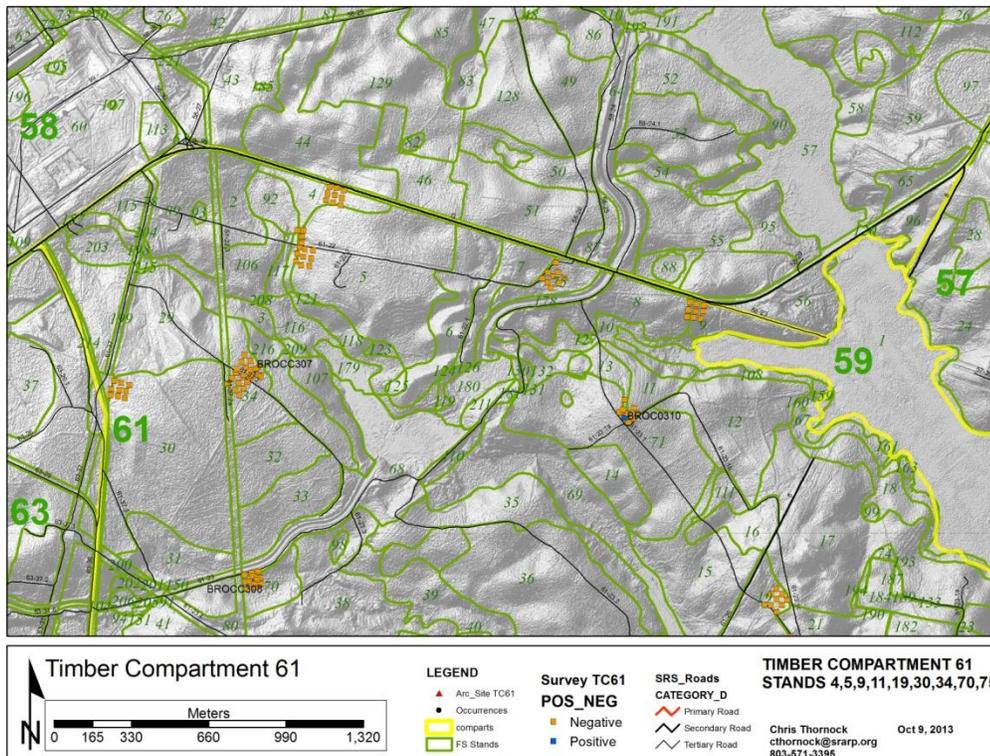


Figure I-18. Timber Compartment 61 survey area.

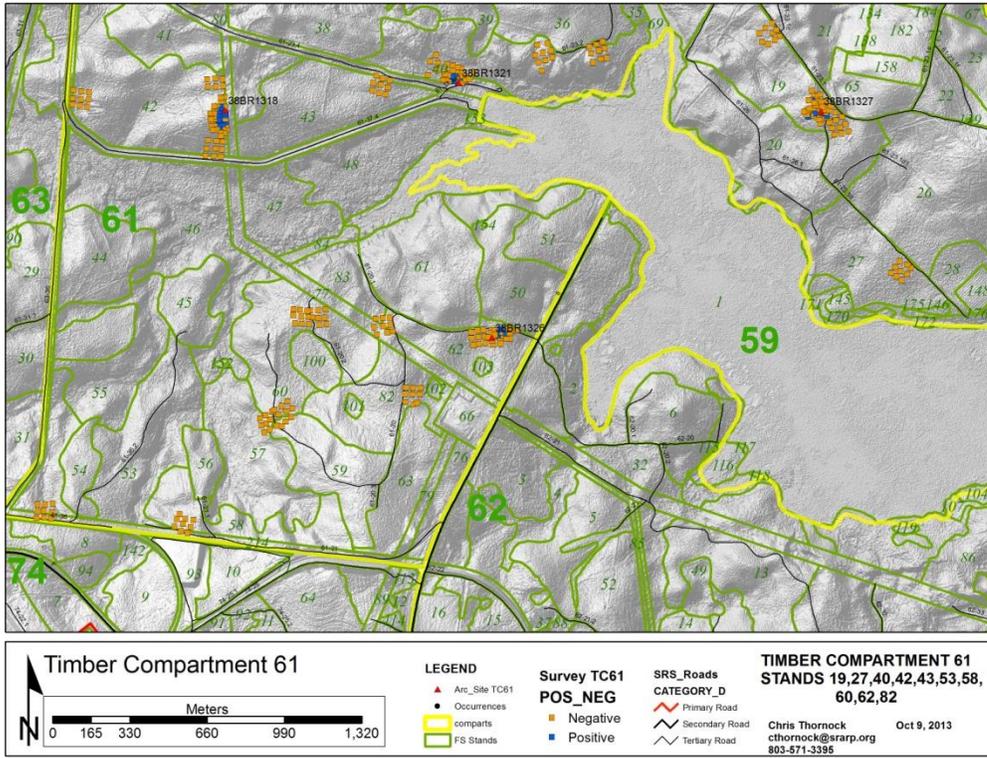


Figure I-19. Timber Compartment 61 survey area continued.

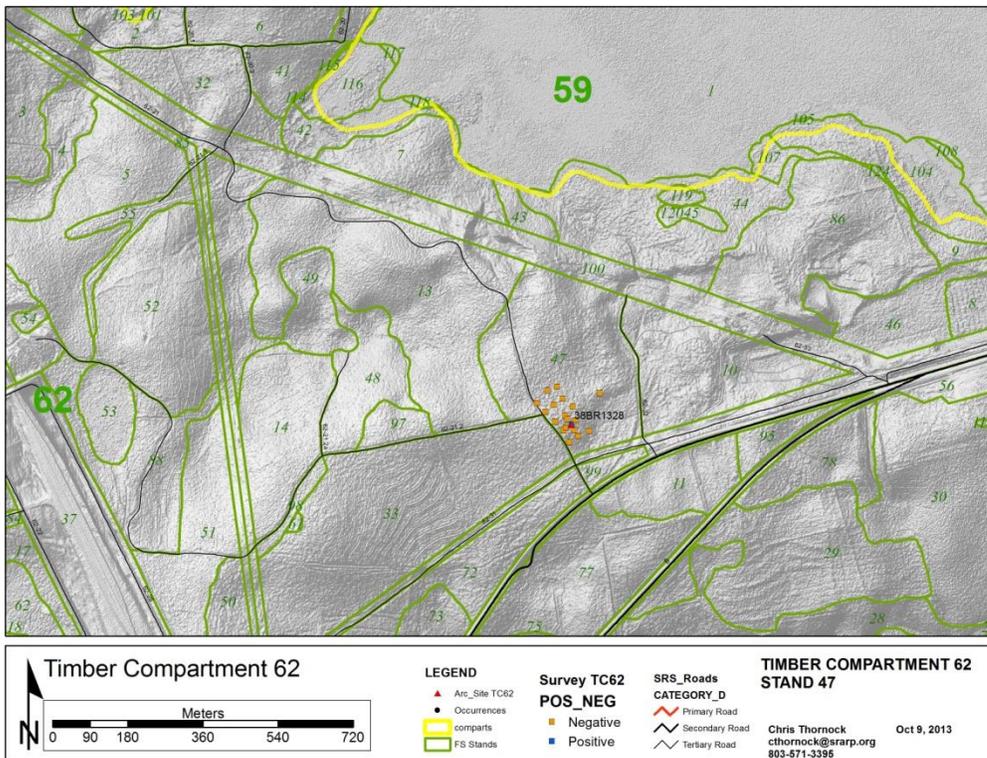


Figure I-20. Timber Compartment 62 survey area.

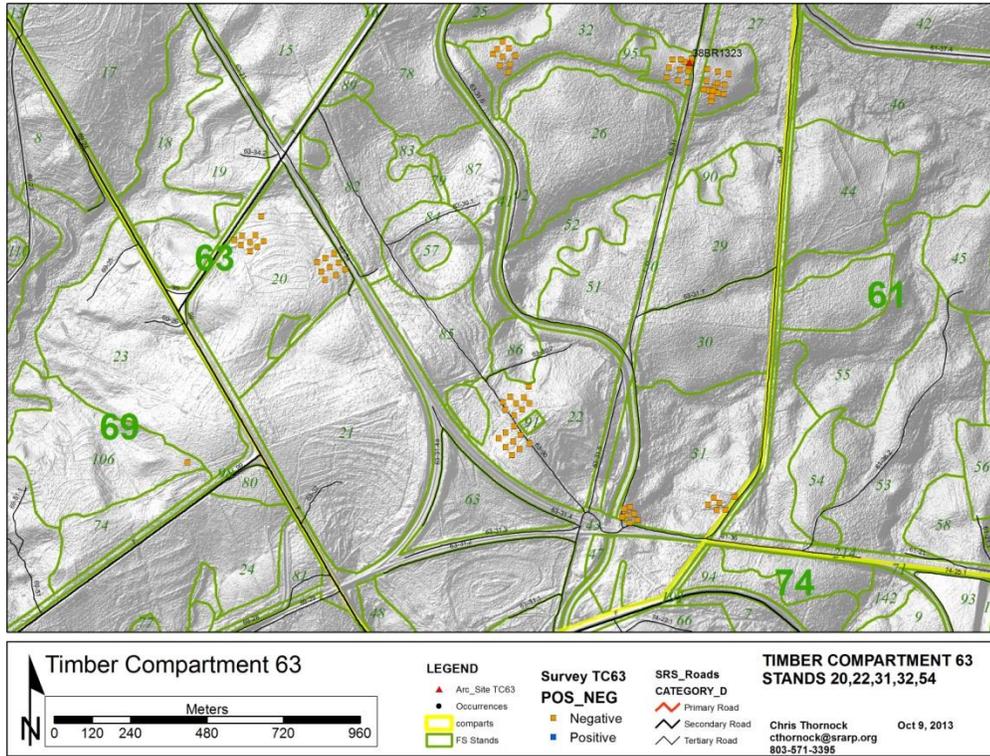


Figure I-21. Timber Compartment 63 survey area.

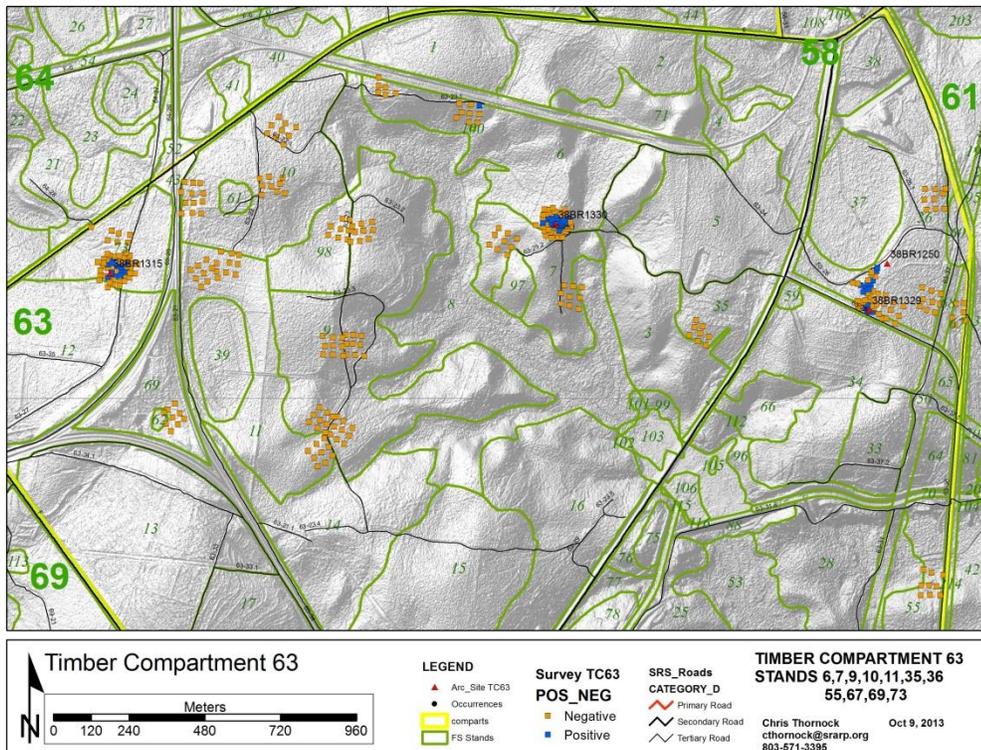


Figure I-22. Timber Compartment 63 survey area continued.

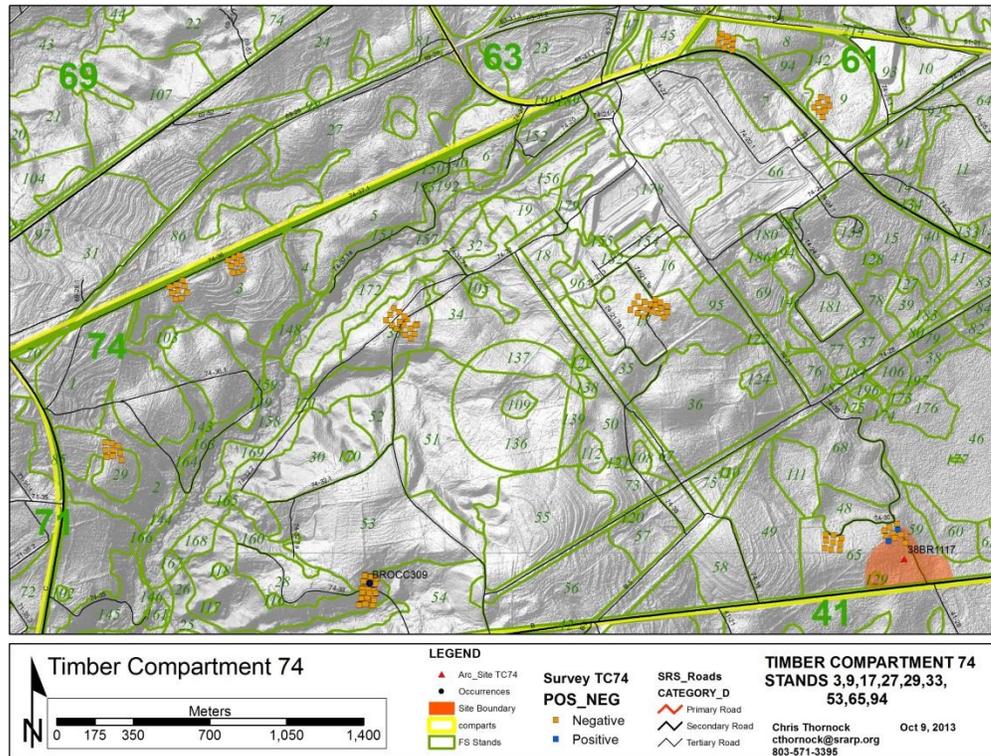


Figure I-23. Timber Compartment 74 survey area.

Timber Compartment 75

Archaeological survey in Compartment 75 involved subsurface inspection of 9 proposed Log Decks totaling 1 acre each in Stands 6, 14, 20, 21, 23, 24, and 33 (Figure I-24). Review of the SRARP database showed one previously recorded site (38BR686) in the project area. Fieldwork consisted of 160 STPs (7 positive) excavated on a 30-m grid at each Log Deck location. These efforts resulted in the relocation of site 38BR686, the discovery and delineation of 2 new sites (38BR1310, 38BR1311), as well as the recovery of 1 isolated find (BR-OCC-305). All sites will be avoided completely by any timbering activities. The artifact occurrence has no research potential to advance our understanding of the history of the region. Thus, there will be no adverse effects to any historic properties as a result of the proposed USFS-SR management action for Compartment 75.

Survey Results

To summarize, Table I-7 lists the results of FY13 compliance survey. Altogether, 24 new sites were recorded and delineated, and 11 previously recorded sites were revisited. Of the total sites investigated during FY13, 12 are considered eligible, and 10 are considered not eligible for inclusion in the NRHP. The remaining 13 sites have been assigned an unevaluated status (requires testing for eligibility determination), and each will be avoided by DOE contractors. In the event that any of these sites are threatened,

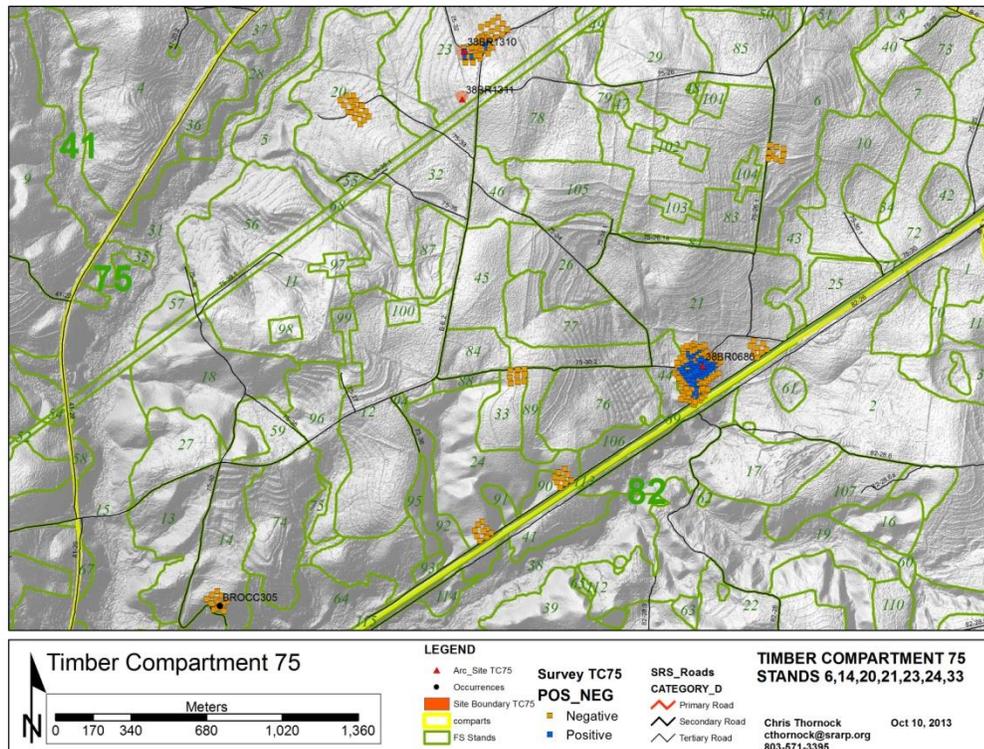


Figure I-24. Timber Compartment 75 survey area.

further testing will be conducted to make a determination of eligibility. Eleven isolated artifact occurrences were also recorded during FY13. Isolated finds are considered to hold low research potential. As such, there will be no adverse effects to these ephemeral resources through DOE related activities. Summary data for new and existing sites are provided in Table I-1 and Table I-2. Evaluations of these sites are provided in Table I-3. Finally, a tabulation of isolated artifact occurrences by project type is provided in Table I-4.

The SRARP surveyed 216 acres in FY13 for 10 Site Use Permits and 17 Timber Compartment Prescriptions. Of the total area surveyed, 41 acres (19%) involved Site Use Permit projects, and 216 acres (81%) involved Timber Compartment Stands slated for harvesting or Log Deck use. Altogether, 2,646 STPs were excavated during FY13 archaeological surveys with a total of 531 STPs producing artifacts.

In conclusion, Section 110 of the Regulatory process requires an inventory of all cultural resources on public lands. As of this report, the SRARP has surveyed approximately 67,148 acres (34.7%) out of a total of 193,276 (97.4%) of SRS acreage suitable for survey (i.e., excluding SRS wetlands and developed areas). In total, the SRS comprises 198,344 acres or 310 sq. mi. These efforts have resulted in the inventory of 1,930 sites (939 prehistoric, 499 historic, and 492 with both prehistoric/historic components) recorded to date.

Table I-7. Summary of FY13 Survey Results.

Site Use Application Surveys	10
Timber Compartment Surveys	17
Total STPs Excavated	2,646
Total Positive STPs Excavated	531
Total Area Surveyed (acres)	216
New Sites	24
Site Revisits	11
Isolated Artifact Occurrences	11

CURATION COMPLIANCE ACTIVITIES

Tammy F. Herron

As a result of the primary analysis of artifacts recovered through daily compliance activities, 7,902 artifacts have been curated over the course of the past fiscal year. Throughout the year, researchers also conducted secondary analysis on artifacts recovered as a result of the Graniteville Archaeology Project and the Carolina Bay Volunteer Research Program.

After working with a trial version of FileMaker Pro 12 during the latter part of FY12, staff members decided to order the software in an attempt to revive the Master Baseline Database (MBD). This crucial database houses many of the site forms and artifact summary sheets by provenience and level for the archaeological sites surveyed on the SRS. As a result of problems associated with the former database created by ESRI, Chris Gillam and Tammy Herron researched the feasibility of employing the use of FileMaker Pro 12 to house the MBD. During FY12, Gillam successfully updated the software for the original MBD that is still being stored on a Power Macintosh 5260/100 via FileMaker 2.1, as well as the Site Form Database that is stored on a Dell 370 Workstation via FileMaker Pro 5.0v3. Prior to his departure from the program, Brian Milner entered data from a number of the site forms and reported no problems with the new software. Staff members are looking forward to being able to utilize the database to a much greater potential than in recent years to further their individual research interests.

THE SRARP ARCHAEOLOGICAL GEOGRAPHIC INFORMATION SYSTEM

J. Christopher Gillam

In FY13, the SRARP archaeological Geographic Information System (GIS) involved transitioning to ArcGIS 10.1 and continued work on the curation and site form databases in FileMaker 12 format. The archaeological point and polygon layers were updated, and errors from previous records were corrected. The site-wide survey coverage and associated database were updated by the SRARP staff. The SRARP staff continues updating the curation and site file databases as new data are collected from the field. The staff also continues to research new data products for future use by the SRARP.

ARCHAEOLOGICAL CURATION FACILITY

Tammy F. Herron

As of mid-August 2013, 742 banker boxes, 6 large plastic storage containers, 4 large flats, 3 oversized artifacts, and 2 map cabinets have been transferred to the Archaeological Curation Facility (ACF) located in Building 315-M. Curatorial Assistant Maggie Needham has re-inventoried 261 boxes this year, placed inventory sheets inside each box, and sealed each box with strapping tape as a further security precaution. The primary goal in transferring the collection to the ACF is to satisfy the requirements set forth in 36CFR79 stating that all federally-owned archaeological collections and associated documents should be housed in a facility that has sufficient space for extant

collections and meets stated requirements for security, environmental controls, and fire suppression. While the ACF in Building 315-M is a vast improvement over the storage conditions in Building 760-11G, a number of issues pertaining to building maintenance have presented problems throughout the course of the year. These issues will be addressed in the following section: DOE Compliance Shortfalls and Future Requirements.

BUILDING 760-11G AND THE CENTRAL CURATION FACILITY

Tammy F. Herron

Regarding Building 760-11G that houses the primary offices of the SRARP and the Central Curation Facility (CCF), the lack of dedicated layout space has hampered secondary analysis of the collections for a number of years. With the removal of the majority of the old metal shelving bays and the transfer of a sizeable part of the artifact collection to the ACF, staff members were able to convert the eastern side of the CCF in Building 760-11G into lab/layout space. Adequate layout space is necessary in order to efficiently accomplish two of the primary missions of the organization: compliance and research. Researchers on staff eagerly awaited the chance to settle into their new layout space. The western side of the CCF still houses boxes of artifacts awaiting transfer to the ACF, aerial photographs, and curation supplies, as well as the photograph archives.

The rear entrance of the building flooded several times again this year due to an ineffective drainage system behind the building. Aside from flowing into the back foyer, water managed to seep into the main hallway, the CCF, and the shop. SRARP staff members monitored the drainage ditch behind the building throughout the year and tried to keep it cleaned out; however, the heavy rains throughout the spring and early summer proved to be too much for the shallow channel (Figure I-25 and Figure I-26). Two recent attempts have been made to rectify the problem. In June, Dan Strawbridge of the USFS removed a portion of the cement sidewalk and scraped some of the soil away from the back stoop (Figure I-27 and Figure I-28). In August, workers with the DOE removed the drain pipe, covered over the area where the pipe had been, and excavated portions of the drainage ditch along the length of the building (Figure I-29). Time and the elements will tell if these efforts will prevent future flooding episodes.

SAFETY COMPLIANCE

George L. Wingard

During FY13, the SRARP continued compliance with federal and state regulations governing human health and safety. As Director of Safety, George Wingard shared with the staff a variety of topics pertaining to their health and safety at meetings held throughout the year. The topics included:

2012	September – Safe Driving	2013	January – assorted topics
	October – Colds and Flu		May – Handling the Heat
	November – Holiday Safety		July – Outdoor Safety



Figure I-25. View from back foyer of Building 760-11G during flooding episode.



Figure I-26. Flooding behind Building 760-11G with clogged drainage pipe.



Figure I-27. View of work conducted by Dan Strawbridge on June 12, 2013 in an attempt to alleviate flooding at the back of the building.



Figure I-28. View from back foyer following first rainfall after work conducted on June 12, 2013.



Figure I-29. View along the back of Building 760-11G following work conducted by DOE workers in an attempt to alleviate flooding.

DOE COMPLIANCE SHORTFALLS AND FUTURE REQUIREMENTS

Tammy F. Herron

While we are appreciative of the improvements that were made at the 315-M Curation Facility this year, we are also concerned about some of the issues that continue to present problems at the new facility. Maintenance related issues include the following:

- The building contains two Munters DryCool® dehumidification systems; however, only one unit functions properly. If this unit should fail, the backup unit would be useless. The backup unit should be repaired in order to maintain control of the humidity in the curation storage areas should the working unit fail. One of the crucial elements in the curation of artifacts and associated documentation (i.e., paper records, photographs, drawings, etc.) is the control of the relative humidity in the curation environment. According to the National Park Service *Museum Handbook*, Part 1 (1998), “Ideally, fluctuations should not exceed $\pm 5\%$ from a set point, each month... It is important to understand that these variations in RH and temperature should be slow and gradual variations (over weeks and months), not brief and variable.”

- Each of the three skylights in the Archaeological Curation Facility (ACF) continued to leak, as well as others throughout the remainder of the building. As a result, the edges of the skylights were re-caulked, and the skylights were sealed and painted over. Given that the seal has already failed on skylights in other areas of the building, this issue will continue to be monitored, especially during times of inclement weather, as boxes of artifacts are stored directly underneath two of the skylights.
- Additional leaks were discovered; however, repairmen cannot pinpoint the source of the leaks. The situation will continue to be monitored.
- The Lektriever movable shelving system has not been repaired. This unit still has a lockout tag on it stating not to use the system because the automatic stop safety feature is not functioning. If restored to working order, this system will provide storage space for 270 boxes of artifacts (Note: Each box is a 10" x 15" x 12" record storage carton). If the necessary funds cannot be acquired to repair the system, then the Lektriever is useless and will need to be dismantled and removed in order to make room for additional shelving units. Based on the current configuration of the room, the storage of 2,340 boxes is possible; however, if the Lektriever system is not repaired, then the current metal shelving bays will only support the storage of 2,070 boxes. DOE's archaeological collection is currently housed in approximately 1400 boxes (Note: This total does not include the storage of the associated documentation, photographs, negatives, slides, etc. that accompany the collection.)

Improvements made at the 315-M Curation Facility during the course of FY13 include:

- Additional repairs to the wiring associated with the HVAC system. Based on comments from the workers, the wiring for this system was not installed properly. Problems with the fire suppression system have also been attributed to the improper installation of wiring for the HVAC system. In fact recently, some of the wires had to be moved away from components of the fire suppression system. The HVAC system has required numerous repairs since it was installed in 2010, and the situation will continue to be monitored.
- Gaps and holes along the exterior walls of the building were repaired; however, rodents and insects continue to plague the building.
- A broken valve for the automatic sprinkler system was replaced.
- Damaged insulation and duct work were repaired.

The goal of the new 315-M Curation Facility is to bring DOE into compliance with 36CFR79, as well as to relieve the overcrowded state of the collections presently stored at Building 760-11G. We are grateful for the DOE's efforts to make this facility a reality and will continue to focus our attention towards transferring the archaeological artifact collection to the new and much improved curation facility during the course of FY14. I would also like to commend Building 315-M's Facility Administrator, Mr. Bryan Florence, for his willingness to answer numerous questions throughout the year and for providing quick responses to problems associated with the building.

PART II. RESEARCH

RESEARCH ABSTRACTS

Sifting the Sands of Time: Geoarchaeology, Culture Chronology, and Climate Change at Squires' Ridge, Northeastern North Carolina

I. Randolph Daniel, Jr., Christopher R. Moore, and E. Christopher Canytor

Paper presented at the Annual Meeting of the North Carolina Archaeological Council
UNC-Chapel Hill, NC

Since 2000, East Carolina University has conducted archaeological research in the Tar River Valley in the northern Coastal Plain of North Carolina designed to address poorly understood aspects of the regions culture-history. In particular, survey and excavation along a portion of the Tar River have focused on problems related to Coastal Plain chronology, typology, and geoarchaeology. Here, we provide an overview of testing done at one site—Squires' Ridge—that contains stratified Woodland and Archaic period remains in a one meter deposit of largely aeolian sandy soils. We present the results of our understanding of site formation and stratigraphy, including reporting a series of chronometric dates from the Archaic component. In addition, we present the results of site shovel testing which define site boundaries covering 2.85 ha and document the presence of broad-scale intrasite spatial patterning. Finally, we suggest that the formation of sand ridges along the Tar River may reflect millennial-scale climatic cyclicity representing regional manifestations of climate change during the early to mid-Holocene. If true, then the sand ridges along the Tar River could represent proxies of climate change, while the archaeology contained within them likely represents human adaptations to such change.

Modeling Paleolithic Landscapes of Northern Mongolia

J. Christopher Gillam, Sergei A. Gladyshev, Andrei V. Tabarev, B. Gunchinsuren, and John W. Olsen

Invited paper presented in the symposium “Before Beringia: Archaeological Evidence and Late Pleistocene Population Dynamics in Central and Northeast Asia” at the 78th Annual Meeting of the Society for American Archaeology, Honolulu, HI

In the past decade, numerous sites (n=36) dating to the Pleistocene and early Holocene have been discovered along the Ikh-Tulberiin-Gol, Kharganyn-Gol, and Altatyn-Gol rivers of the greater Selenge-Gol River Basin, northern Mongolia. Since 2011, a GIS database has been developed to explore the nature of the region's Paleolithic landscapes. Initial results indicate a settlement preference for south- and east-facing slopes with good viewsheds of surrounding terrain. Analysis of local topography identified the location of a significant saddle in the mountainous terrain separating the Ikh-Tulberiin from the Kharganyn and Altatyn rivers. The saddle, still in use by local herders, has archaeological evidence of continued use from at least the early Upper Paleolithic (ca. 40,000 cal. B.P.)

to modern times. The Saddle Site also lies nearly due east and within the viewshed of a previously recorded middle Upper Paleolithic large flake cache (n=57 artifacts; ca. 25,000-15,000 cal. B.P.) that is unique to the region, bringing into focus the locational meaning of this significant cultural feature.

Archaic Tool Caching in the North Carolina Sandhills

Joseph M. Herbert, Daryl Armour, and Christopher R. Moore

Paper presented at the 3rd Annual Reconstructive/Experimental Archaeology Conference,
The Schiele Museum, Gastonia, NC

A striking example of an Archaic stone tool cache has recently been excavated at Fort Bragg. The Wilmore cache consists of 30 pounds of mostly unretouched rhyolite flake blanks transported many miles from a Slate Belt quarry source and carefully buried near a seep spring in the Sandhills. Never harvested, this cache represents a time capsule containing information about one aspect of prehistoric hunting organization, and the logistical staging of lithic resource acquisition, transport, and utilization. This paper describes the cache and outlines an experiment designed to reconstruct the cached flake blanks in an afternoon session at this conference.

Archaic Caches in the Carolina Sandhills

Joseph M. Herbert, Jay W. Gray, Christopher R. Moore, and Daryl W. Armour

Paper presented at the 69th Annual Meeting of the Southeastern Archaeological Conference, Baton Rouge, Louisiana and the Annual Meeting of the North Carolina Archaeological Council UNC-Chapel Hill, NC

Two striking examples of Archaic cache sites have recently been excavated at Fort Bragg. The Wilmore Cache consists of 30 pounds of rhyolite flake blanks, transported many miles from the Slate Belt, carefully buried near a seep spring in the Sandhills, but never harvested. Blackjack is a single-component Early Archaic site that documents transport of 60 pounds of rhyolite from the Slate Belt to the Sandhills, where it was cached and harvested to make projectile points and other tools. Wilmore and Blackjack provide unprecedented snapshots of Archaic hunting organization, and the logistical staging of lithic resource acquisition, transport, and utilization.

Sacred Landscapes of the Southern Brazilian Highlands: Understanding the Grammar of the Southern Proto-Jê Mound and Enclosure Complexes

José Iriarte, Silvia Moehlecke Copé, Michael Fradley, Jami Lockhart,
and J. Christopher Gillam

Journal of Anthropological Archaeology 32:74-96

Fieldwork involving survey, detailed topographic mapping, and excavations in Pinhal da Serra, Rio Grande do Sul, Brazil, has revealed settlement patterns and symbolic

landscapes of the prehistoric southern proto-Jê, reflected in the location and orientation of pit-house habitations and hilltop funerary/ceremonial mound and enclosure complexes. The construction of highly-structured built environments, revolving around mortuary complexes, exhibit recurring themes in the design of earthworks and nearby habitations forming the greater symbolic landscape. Compared to fundamental spatial features of the ethnohistoric and ethnographic records describing Kaingang social organization and mortuary rituals, the southern proto-Jê demonstrate historical continuity in the organization of space in cardinal directions (E-W), topography (low and high places), and in circular/concentric spatiality. We suggest that small paired complexes are associated with this cult of ancestry and represent a duality of ranked opposition that is materialized in proto-Jê moiety cemeteries, where important persona were buried by local groups.

The Sacred Geography of the Pot

Adam King and Johann Sawyer

Paper presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA

Twenty years ago Tim Pauketat and Tom Emerson argued that Ramey Incised pots were cosmological models whose use in public ritual reinforced Cahokian ideologies of power. That argument was built upon Bob Hall's important work on Native belief and symbolism. We continue this line of reasoning using recent interpretations formulated with Bob's help in the Texas State Mississippian Iconography Workshop. Using iconographic evidence, we argue that Mississippian ceramic pots, whether used in domestic or ritual contexts, carried earth and centering symbolism. We evaluate this idea by examining pots and other media with this symbolic content across the Mid-South and Georgia

Microbotanical Analysis of Carolina Bay Sand Rims: Reconstructing Holocene Vegetation and Paleoenvironment through Phytolith Analysis

Calla McNamee, Christopher R. Moore, Mark J. Brooks, Andrew H. Ivester, and James K. Feathers

Paper presented at the 78th Annual Meeting of the Society for American Archaeology, Honolulu, HI

Carolina bays are shallow, upland ponds that have provided important wetland resources to prehistoric populations dating back to the Paleoindian period. Sites are located on the bay rims (water-lain and eolian shoreline deposits), generally characterized by visually undifferentiated sand rich sediments. Recent geoarchaeological research by Moore and others that incorporates OSL and ¹⁴C dating, as well as microsampling at 2.5 cm intervals, provides chronologic and stratigraphic control at three Carolina Bay sites (Flamingo Bay, Johns Bay, and Frierson Bay) found on the South Carolina Coastal Plain. This has enabled interpretation of Holocene paleoenvironment based on physical and chemical data. Due to acidic conditions and coarse sediment texture, sparse paleobotanical data have been recovered from these sites. Silica phytoliths, however, with their resistance to chemical and physical degradation, provide a reliable microbotanical

proxy for paleoenvironmental change in these settings. This study presents the results from a phytolith analysis of ten samples collected from the Flamingo Bay site (38AK469). The phytolith results are integrated with the geoarchaeological results to examine changes in Holocene vegetation and climate. By investigating the types of vegetation near the site, this phytolith analysis sheds light on prehistoric resource availability in Carolina bay environments.

Diachronic and Geospatial Trends in South Carolina Prehistory: Evaluating the Social Scale of Hunter-Gatherers using the Statewide Collector Survey

Christopher R. Moore and Tommy Charles

Paper presented at the 39th Annual Meeting of the Archaeological Society of South Carolina in Columbia, SC

Beginning in 2012, a reanalysis of the South Carolina Collector Survey was begun in an effort to evaluate diachronic and geospatial trends in hafted bifaces and lithic raw material use. Although earlier studies have utilized these data, to our knowledge, this is the first time that hafted biface types have been compiled and illustrated geospatially for all counties from Early Archaic through Mississippian time periods (~92,000 points). Research applications for these data include evaluating extant settlement models for the Early Archaic and will facilitate modeling the social scale, including mobility patterns and social organization, of hunter-gatherers in South Carolina.

Recovery and Luminescence Dating of a Buried Cache from Frierson Bay, Barnwell County, SC: Implications for Middle Archaic Provisioning and Social Interaction in the Inter-riverine Coastal Plain

Christopher R. Moore, Mark J. Brooks, James K. Feathers, and Tommy Charles

Paper presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA

The recovery of a cache of bifacial cores and tools from a Carolina bay sand rim offers the rare opportunity to examine technological and social organization of Middle Archaic foragers in the inter-riverine Upper Coastal Plain of South Carolina. Analysis of raw material composition, technological attributes of the cache artifacts, results of luminescence dating, and an examination of regional-scale projectile point data document changing strategies for procurement and provisioning of tool stone for Middle Archaic inhabitants. Together, these data suggest a regionally circumscribed Middle Archaic macroband focused on Coastal Plain Chert along the Savannah River in Allendale County.

Carolina Bay Formation and Evolution: Kaczorowski was Right!

Christopher R. Moore, Mark J. Brooks, Andrew H. Ivester, Terry A. Ferguson,
and James K. Feathers

Paper presented at the 2012 Annual Meeting of the Geological Society of America, Charlotte, NC

Carolina bays are oriented, shallow upland ponds occurring on the Atlantic Coastal Plain from New Jersey to North Florida. Historically, beginning with the advent of aerial photography in the late 1930s, Carolina bays have received continual attention from those

speculating on a catastrophic emplacement through cometary, meteoric, or airburst impacts. Recently, it has even been speculated that bays formed from steam outgassing within superheated distal ejecta from an impact over the Great Lakes region. In this scenario, Quaternary-aged cover sands along the eastern seaboard, including “enigmatic” sand ridge scarps (e.g., Goldsboro Scarp), and Carolina bays are purported to be causally linked to a catastrophic impact producing a rain of ejecta. Carolina bay shape, orientation, and sand rims are all used as evidence for an alignment with an impact crater not observed and not known to exist. Other researchers have posited that bays are linked with the purported Younger Dryas comet impact/airburst at ca. 12.9 ka, whereby bay formation was through aerial air-bursts or through a rain of distal impact ejecta to form oblique craters.

While these nonconventional claims persist, we believe that Carolina bay origin and evolution are much better explained through more mundane (Occam’s razor), uniformitarian processes. The evidence gathered from Carolina bays in South Carolina and beyond clearly demonstrate bay genesis as oriented lakes and formation through lacustrine processes of wind on shallow ponded water. Ray Kaczorowski's wind table modeling in 1977 revealed quite clearly how unidirectional winds on ponded water produce subaqueous circulation cells that shape and orient the bays, while constructing their sand rims as high-energy shoreline features.

More recent work, including ground penetrating radar, granulometry, optically stimulated luminescence, radiocarbon dating, and evidence from examination of LiDAR data, reveals that bays reflect long-term, pervasive, and evolving environmental and climatological factors over millennia, not sudden or catastrophic events. The fact that practically all bays in a particular geographic locale have nearly identical patterns of orientation, rim formation, and shape also suggests uniform processes working over long periods of time. It also indicates that shallow, Quaternary-aged cover sands in the Coastal Plain of much of eastern North America are susceptible to, and reflective of, broad regional patterns in climate, weather, and hydrology.

Those touting a catastrophist origin for bays often confuse original depression formation and bay formation. Bays are evolving features and erase and rework their original basin over many millennia in the same way that a meandering river migrates through and erases evidence of former channels. Evidence of multiple sand rims and bay migration demonstrate this most clearly. Thus, a catastrophic origin is neither supported by geological data, nor needed to explain features we attribute to Carolina bays; Carolina bay are neither enigmatic, nor mysterious, but rather are relatively well understood oriented lakes. While many nuances of bay formation through lacustrine shore processes remain to be resolved, the fundamental concepts are well understood and have been for some time. Kaczorowski was right!

Geoarchaeological Investigations of Carolina Bay Sand Rims in the Central Savannah River Area, South Carolina: Differentiating the Undifferentiated

Christopher R. Moore, Mark J. Brooks, Andrew H. Ivester, Terry A. Ferguson,
and James K. Feathers

Poster presented at the 2012 Annual Meeting of the Geological Society of America, Charlotte, NC

This research focuses on understanding site formation processes, particularly as they relate to archaeological site burial and preservation within shallow Carolina bay sand rims in the Central Savannah River Area of South Carolina. Specifically, we are interested in identifying natural and cultural site-formation processes at three bays: Flamingo Bay (38AK469); Johns Bay (38AL246); and Frierson Bay (38BR1319 and 1320) in Aiken, Allendale, and Barnwell counties, respectively. The most intensive investigations have been conducted at Flamingo Bay.

The comparative analysis of datasets from multiple sand rims has enabled the study of paleoenvironmental processes affecting rim accretion, erosion, pedology, and artifact taphonomy. A primary objective has been the delineation of a detailed geochronology of landform development based on OSL and radiocarbon dating, as well as temporally diagnostic artifacts. Another objective has been the comparative analysis of high resolution sequences of sediment samples employing a range of geoarchaeological techniques including: granulometry, soil chemistry, biogenic silica, environmental magnetism (magnetic susceptibility), sediment bulk density, loss on ignition (LOI), field water content, and sediment micromorphology. Ground Penetrating Radar (GPR) surveys were conducted to broadly delineate bay rim stratigraphy and geomorphology.

Thus far, 28 chronometric dates have been obtained for bay sand rims, including 13 single-grain luminescence (OSL) age estimates and 15 AMS radiocarbon dates on charred hickory nut. OSL and ^{14}C age estimates indicate that bay sand rims have actively accreted sands episodically throughout much of the Holocene. A basal sand rim OSL age from Johns Bay indicates formation of this sand rim in the late Pleistocene during Marine Oxygen Isotope Stage (MIS) 3. Earlier basal OSL dating at Flamingo Bay produced MIS 5 age-estimates. Evidence for bay migration and multiple rim formation is also indicated.

This research has broad relevance to understanding site formation processes at other, typically shallow, sandy and “stratigraphically undifferentiated” Coastal Plain archaeological sites. Many such sites are often written off by archaeologists as lacking integrity, or by geologists as “undifferentiated Quaternary alluvium.”

Geoarchaeological Investigations of Carolina Bay Sand Rims in the Central Savannah River Area, South Carolina: Differentiating the Undifferentiated

Christopher R. Moore, Mark J. Brooks, Andrew H. Ivester, Terry A. Ferguson,
and James K. Feathers

Poster presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA

This research focuses on understanding site formation processes within shallow Carolina bay sand rims in the Central Savannah River Area of South Carolina. A primary tool has been the development of a detailed geochronology of bay sand rims based on OSL and ^{14}C dating, as well as temporally diagnostic artifacts, coupled with the analysis of high resolution sequences of sediment samples for granulometry, soil chemistry, biogenic silica, and environmental magnetism. This research has broad relevance to understanding

site formation processes at other, typically shallow, sandy and “stratigraphically undifferentiated” Coastal Plain archaeological sites.

Geochemical Sourcing of Stone Quarries and Artifacts in North and South Carolina using Neodymium Isotopes and Rare Earth Elements

Christopher R. Moore, Drew S. Coleman, and Mark J. Brooks

Poster presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA

The Savannah River Archaeological Research Program has recently undertaken research to identify the locations of metavolcanic quarries in the South Carolina Slate Belt and characterize these sources using a combination of Neodymium isotope geochemistry and rare earth elements (REEs). The purpose of this study is to determine the geological provenance and chemical signature of stone quarries for sourcing prehistoric artifacts. This research will complement earlier work on stone quarries in the North Carolina Slate Belt by Steponaitis et al. (2006) (<http://rla.unc.edu/Publications/pdf/ResRep25/>) and will enhance our understanding of hunter-gatherer settlement systems and mobility in the South Carolina Piedmont and beyond.

Design Connections in Early and Late Swift Creek

Keith Stephenson, Frankie Snow, and Karen Smith

Poster presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA

Elaborate complicated stamped designs preserved in pottery remain the hallmark of Swift Creek material culture. Because of individual idiosyncrasies in execution, these designs can be used as a signature for tracing interaction among sites across the greater Swift Creek world and beyond. The Hartford site in central Georgia has an Early Swift Creek component, which is ceremonial, and a Late Swift Creek component that is solely domestic. Analysis of designs for each component charts connections to other sites throughout the region. Variation in the connectedness within each component may signify variation in social context and use.

The Hollywood Site (9R11) and the Foundations of Mississippian in the Middle Savannah River Valley

Keith Stephenson, Adam King, Chris Thornock, and Alex Corsi

Paper presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA

The beginnings of Mississippian came later in the Middle Savannah River Valley than in other regions. The combination of corn, platform mounds, and complicated stamped pottery does not occur until after A.D. 1250. Our recent re-examination of materials from Hollywood’s Mound B shows that this is precisely the time that materials from Etowah and the Mississippi Valley were buried in the mound. The arrangement of those goods

and their apparent combination with local mortuary practices leads us to argue that the creation of Mound B was a dedicatory event melding local or non-local and ultimately creating a unique expression of Mississippian.

*Preston Holder's WPA Excavation of the Truncated Mound at the Evelyn Site
in Glynn County*

Keith Stephenson, Karen Smith, and Kevin Kiernan

Paper presented at the Spring Meeting of the Society for Georgia Archaeology, Macon, GA, and the Annual Meeting of the SOGART Coastal Plain Conference, Douglas, GA

The Evelyn Plantation site, near Darien, was first investigated by Preston Holder and a small Depression-era workforce in 1937. The site consisted of at least five conical sand mounds and a low-lying, rectangular, flat-topped mound labeled Mound B. In the late-18th century, William Bartram described this mound as a "tetragon terrace" of European construction (i.e., a fort). Holder's excavations revealed that Mound B was actually prehistoric in origin. Truncated, pyramidal mounds were constructed during the Woodland period but are more commonly associated with the Mississippian period. The dissimilarity between flat-topped mounds of these periods, as characterized archaeologically, involved the use of their platform summits which served different purposes and activities. Our discussion entails a determination of whether Mound B is affiliated with either the Woodland Swift Creek or the Mississippian Savannah-period occupation at Evelyn Plantation.

The Hollywood Mound Site: A Middle Mississippian Community on the Savannah River

Christopher Thornock

Paper presented at the 39th Annual Meeting of the Archaeological Society of South Carolina in Columbia, SC

The Hollywood Mound site was a Mississippian community situated on the banks of the Savannah River around A.D. 1300. Limited excavations were conducted at the site in 1891 and again in 1965 focusing on the two known mounds. Although relatively little archaeological work has been conducted at the site, its importance to Mississippian archaeology was recognized early on. This paper discusses the archaeological history of the site and the artifacts recovered from it, as well as recent ground penetrating radar discoveries and plans for future work.

The Etowah Archeo-Geophysical Survey

Chester P. Walker, Adam King, and Kent Reilly

Paper presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA

Over a four-year period a research collective known as The Etowah Archaeo-Geophysical Survey conducted large-scale geophysical surveys at the Etowah site near

Cartersville, Georgia. The results of those surveys revealed unappreciated architectural diversity, exposed unique features in need of additional exploration, and allowed us to recognize and map out temporally sensitive architectural forms. In this paper, we summarize our surveys and present interpretations of the data produced.

*Cottages for the Proletariat: Life and Labor on Blue Row in the Graniteville
Textile Mill Village, 1850-1875*

George Wingard and Keith Stephenson

Paper presented in a session titled "Welcome to the Machine: Industrial Sites and Communities" at the 46th Annual Conference on Historical and Underwater Archaeology, Leicester, UK

In 1845, industrialist William Gregg incorporated the Graniteville Manufacturing Company. Located in Edgefield District's Horse Creek Valley, Gregg's model community centered on a textile mill built of local blue granite. The mill grounds contained extensive lawn gardens, trimmed gravel sidewalks, and spouting water fountains. The community included a hotel, an academy, two churches, stores, boarding-houses, and cottages. All buildings were constructed from local pine in the Gothic Revival style. Twenty-three operatives' cottages still stand along a street known as Blue Row, as the structures originally were painted with a blue wash to match the color of the mill. As few documents remain detailing the early decades of Blue Row inhabitants, recent excavations have been undertaken in the yards of workers' cottages. Our objective is to gain an understanding of the early home/yard landscape. The recovered artifacts will illustrate the welfare of the house's inhabitants during the third quarter of the 19th century.

RESEARCH NOTES

New Directions in Testing and Modeling the Early Archaic Landscape of the Central Savannah River

J. Christopher Gillam

Early hunter-gatherers of the Southeast were dynamic and complex, not static or simplistic, and had an active role in shaping the environment—i.e., their cultural landscape—around them (Sauer 1925). Early hunter-gatherers did live off the land, but were probably more akin to incipient horticulturists and foresters by selectively modifying the local environment to encourage growth of certain edible plants, favored by people or the animals that they hunted. As archaeologists, our understanding of how people organized themselves and impacted their environment is critical to understanding how these cultures developed, survived, and changed over time. Indeed, each cultural landscape is as unique and dynamic as the culture that lived upon it—precisely because it was created, maintained, inherited, modified, depleted, and eventually abandoned, or even destroyed, by its own populous.

Reduced to its most common factors, measurable features of the hunter-gatherer landscape include archaeological components, or artifacts, and elements of the natural environment, or environmental variables, which were exploited by early cultures. A landscape approach toward understanding prehistoric hunter-gatherers should therefore incorporate a component-level analysis of the distribution of archaeological remains and should examine those components in relation to key environmental variables assumed to be significant to hunter-gatherer populations.

The study that follows has four goals toward gaining a better understanding of prehistoric hunter-gatherer landscapes. The first is to highlight a statistical method for identifying significant differences in the environmental setting of component-level archaeological datasets. The second goal is to provide a statistically valid method of aggregating the often sparse component-level datasets that represent the hunter-gatherer archaeological record. Third, this study will test two alternative hypothetical models of Early Archaic settlement in the Central Savannah River Valley. Finally, an empirical model is developed, based upon the observed archaeological record of the Early Archaic hunter-gatherer landscape for the SRS locality of South Carolina that may be applied to the greater extent of the southern Coastal Plain's Oak-Pine Savannah.

Background

As the earliest cultural period of the modern Holocene environment (ca. 8,000-11,000 years B.P.), Early Archaic life-ways have inspired a wide body of research. Common stone artifacts of the period include Dalton, Hardaway, Taylor, and Kirk points, as well as formal cutting and scraping tools, including Edgefield scrapers, end scrapers, side scrapers, backed knives, and blades (Figure II-1). Throughout the Southeast, models

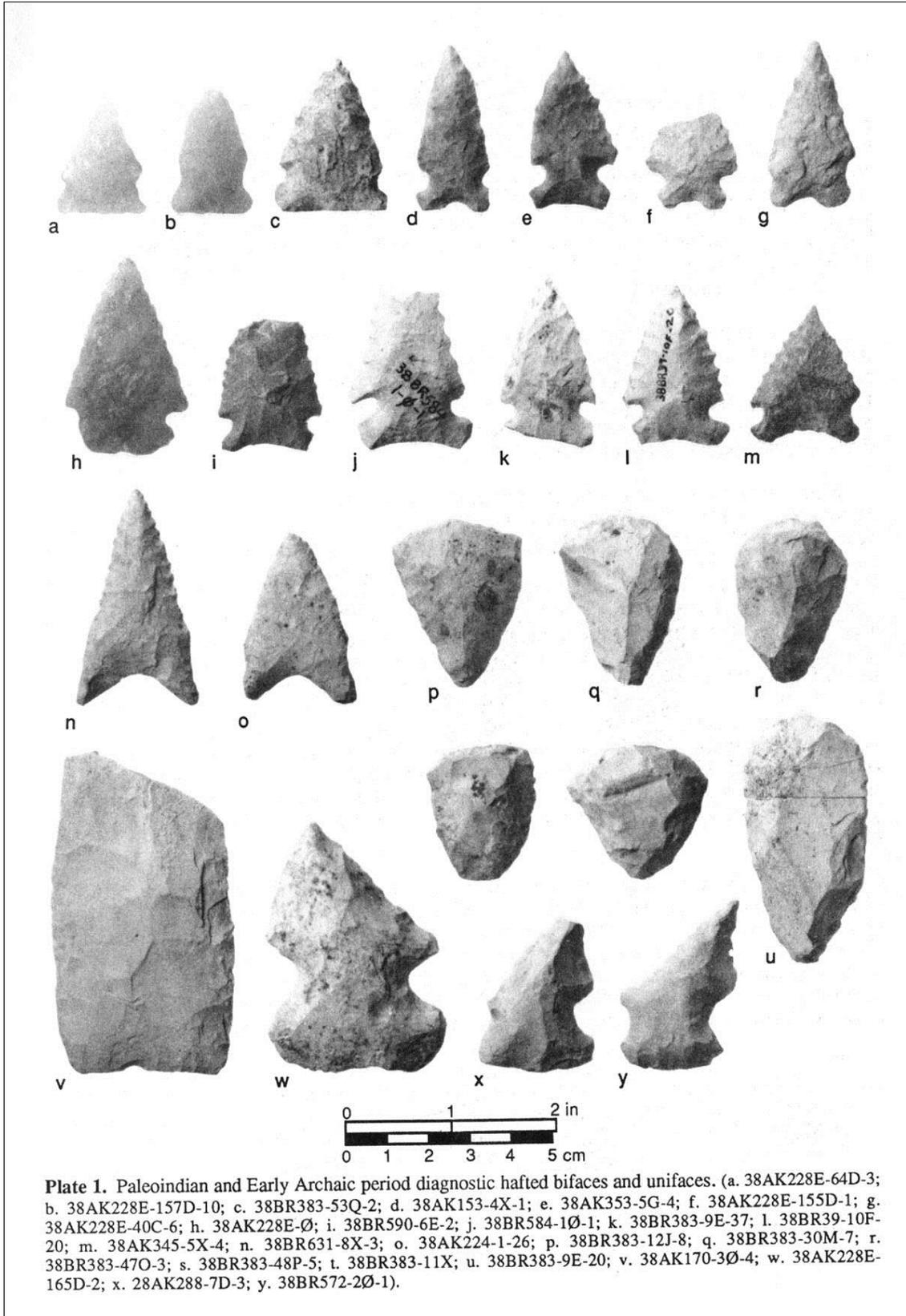


Figure II-1. Typical Early Archaic artifacts (adapted from Sassaman et al. 1990).

of Early Archaic settlement have been proposed with limited statistical testing of their environmental setting (e.g., Anderson and Hanson 1988; Daniel 2001). Thus, the validity of such hypothetical models is called into question and requires empirical testing. By examining the environmental setting of artifact occurrences, we can determine the level of organization present and better define the character of the cultural landscape.

The SRS study area is located on the eastern side of the central Savannah River and overlaps portions of Aiken, Barnwell, and Allendale counties in the Inner Coastal Plain of South Carolina (Figure II-2). This location consists of several tributary streams of the Savannah River, including Upper Three Runs Creek, Fourmile Branch, Pen Branch, Steel Creek, and Lower Three Runs Creek. The uplands have gently rolling, sandy hills overlooking streams and Carolina Bay wetlands on the flat pine savannahs of the upland terraces. There are five major landforms that include the Savannah River floodplain, three levels of ancient terraces overlooking the floodplain (T1a, T1b, and T2), and the Aiken Plateau in the uplands. Near the mouth of Lower Three Runs in Allendale County are outcrops of Coastal Plain Chert that were used for stone tools throughout prehistory.

There are two prior models of Early Archaic settlement related to the study area. The first and most often cited is the Anderson-Hanson (1988) “biocultural” or “band-macroband” model that is itself based upon Binford’s (1980) hypotheses of forager and collector strategies amongst band-level hunter-gatherers (Anderson and Hanson 1988). Binford proposed two complementary adaptations as a theoretical framework for understanding hunter-gatherer settlement systems: foragers and collectors. Foragers are people that carry out daily food gathering and do not practice long-term food storage. In homogeneous or consistent environments, he proposes that foraging group size would vary greatly and groups would move frequently over short distances across the land. In heterogeneous or patchy environments, he suggests that foraging group size would be low and there would be fewer group moves, but over a wider area. Foragers would produce two archaeological site types: residential base camps (habitation sites) and locations where daily hunting and gathering activities took place (extraction sites).

Binford suggested that collectors practiced a “logistic” strategy of hunting and gathering that targeted specific plants, animals, and other resources in task groups (Binford 1980). Such settlement systems would be more complex than that of foragers, representing an adaptation to resources that are widely dispersed on the land. Collector sites would be more varied as well, with differing archaeological remains due to the differences in hunting and gathering tasks carried out at any given location. He proposed five potential site types for collectors including: base camps (habitation sites), locations (extraction sites), field camps (temporary habitation sites), stations (hunting stands), and caches (temporary storage sites).

The Anderson-Hanson (1988) model proposes a mixed forager-collector strategy for band-level groups that seasonally moved within discreet river basins in the vicinity of the Savannah River. For the Central Savannah River, they hypothesized a winter habitation featuring base camps along the lower terraces of the Savannah River, with

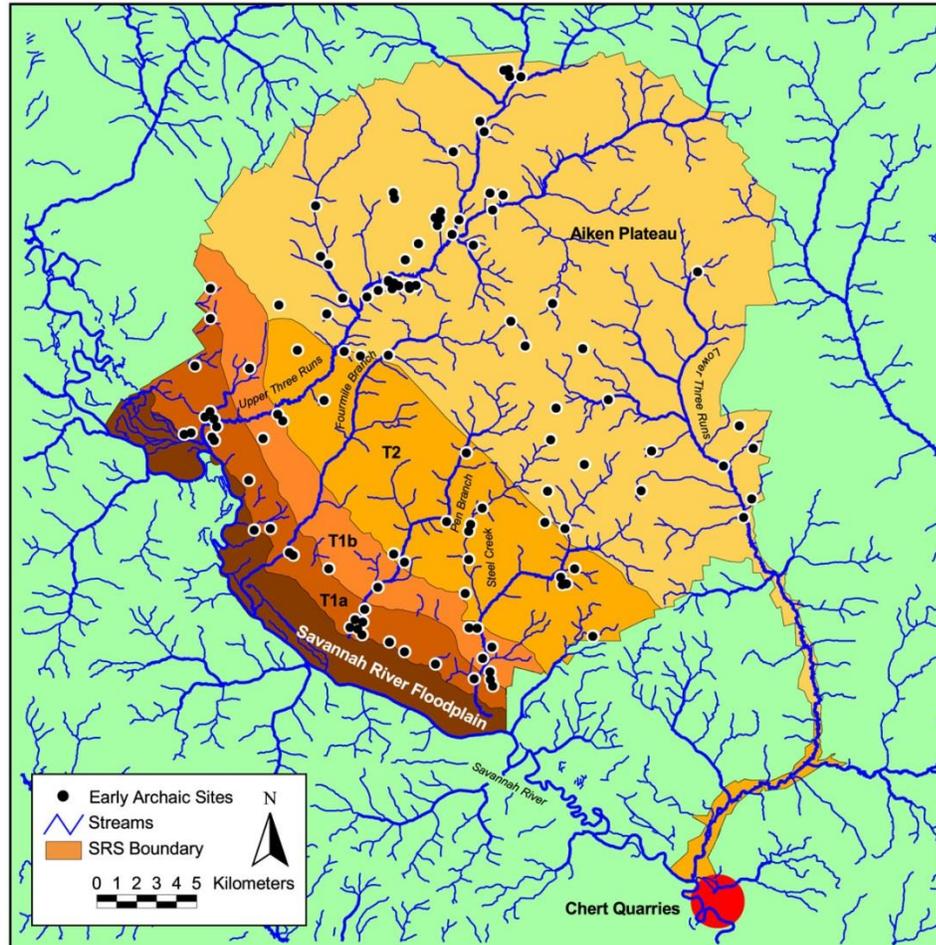


Figure II–2. Early Archaic sites (n=114) of the Savannah River Site (SRS) locality on the Central Savannah River.

temporary extraction camps along tributary streams in upland areas. Hanson elaborated on this model for the SRS location, specifically (Hanson 1988). This local model consists of a primary foraging zone with base camps in the Savannah River floodplain and adjacent terraces (T1a, T1b) and a corresponding logistic zone with extraction camps for collecting resources in the uplands of the Aiken Plateau (Figure II–3).

An alternative to the Anderson-Hanson model of Early Archaic settlement along the Savannah River has been offered by Daniel (2001). Daniel’s model is lithic centric, or focused on the stone outcrops used for making ancient tools, and builds upon prior work by Goodyear (1989) and Sassaman (1996) on the archaeological distribution of Coastal Plain Chert, as well as his own research on the distribution of Uwharrie Rhyolite stone tools in North Carolina (Daniel 1998). In contrast to the Anderson-Hanson model, this lithic centric model suggests a more generalized foraging adaptation with early hunter-gatherer groups ranging widely, moving between as well as within major river systems, and having seasonal movements centered upon high quality stone sources, such as the chert outcrops in Allendale County.

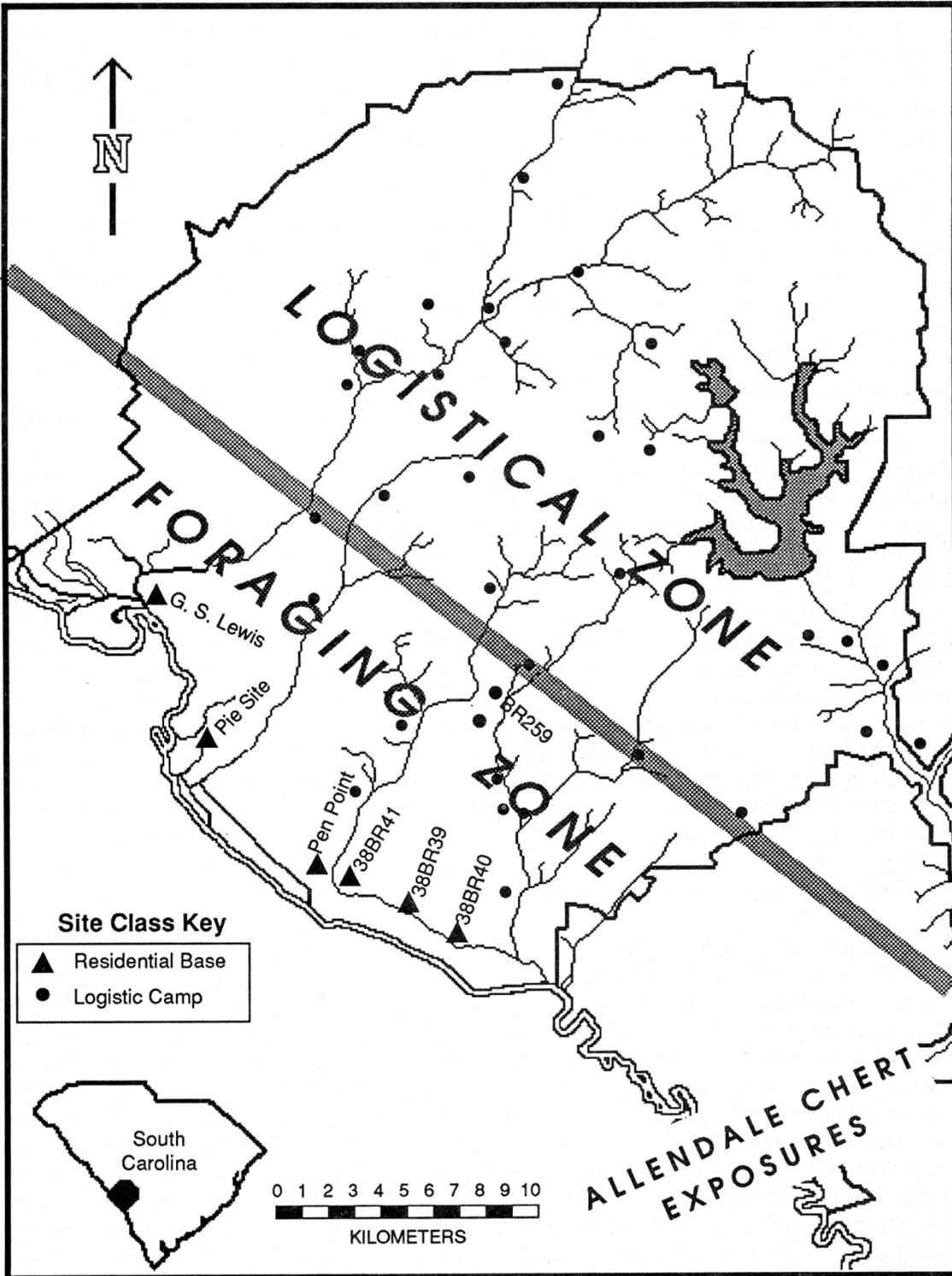


Figure II-3. The Hanson (1988) model of Early Archaic settlement on the SRS (adapted from Sassaman et al. 1990:390).

With two viable and competing models in hand, there is a definite need for a comprehensive re-examination of Early Archaic site distributions for the SRS location. Two decades of data collection and research have occurred at the SRS since the development of the Anderson-Hanson model, and a decade has now passed since the alternative model proposed by Daniel. There is now a sufficient archaeological sample to explore fundamental tenets presented by each of these prior works. I hope to illustrate that while both models have merit, a new perspective is called for, and I present a new empirically-based landscape model of Early Archaic settlement for the Central Savannah River.

Methods

Differences in the environmental setting of archaeological components can inform us of the organization structure and cultural landscape of the society that left them behind. As locations of past human activity or residence where discarded or abandoned items are later found as artifacts, archaeological sites yield information on behavior, lifestyle, and environmental setting. Although environment is certainly not the only factor influencing artifact distributions, utilitarian objects do tend to be discarded near their location of use. Prehistoric stone tools were readily abandoned when the working edges became too heavily worn to be re-sharpened. Thus, the environmental setting of the artifact's location can yield valuable insight into past human activity.

There are 114 archaeological sites dating to the Early Archaic Period, separated into six samples for the analyses that follow. The samples include five component-level and one combined dataset. The component or artifact-level samples consist of sites containing Dalton points (n=9 sites), Taylor side-notched points (n=23 sites), Edgefield scrapers (n=7 sites), Kirk corner-notched points (n=57 sites), and formal unifaces (scrapers, blades, and knives; n=58 sites), respectively. The combined dataset contains all 114 Early Archaic sites used in the study (Figure II-2). Elements of the environment (n=10 variables) representing the hunter-gatherer cultural landscape explored in this research include: land elevation, percent-slope of land, slope-direction (aspect) of land, tributary streams, navigable streams, the Savannah River, upland Carolina Bay wetlands, upland trails, major landforms, and chert stone quarries.

The sites are initially broken down into their five individual archaeological components, or unique artifact types, and statistically compared with the environmental variables using the analysis of variance technique (ANOVA) for comparing sample means (Earickson and Harlin 1994). Results of the ANOVA tests establish whether or not these components represent a single statistical population. That is, are the distributions of the various artifact types across the land the same or different when compared to the environment? If similar, the archaeological components can be combined into a single dataset for further statistical analyses and model development. Otherwise, separate analyses and models will need to be developed for the individual components.

These results will also suggest whether a generalized foraging adaptation or a mixed forager-collector strategy is represented. If the individual archaeological

components have a similar distribution on the land, a generalized foraging adaptation will be indicated. Conversely, if there are differences in the environmental setting of the archaeological components, it will reflect a collector strategy targeting different resources on the land.

Secondary analyses on the Early Archaic data consisting of Chi-Square (X²) tests comparing the observed versus expected frequencies of sites on (a) major landforms, (b) 250-meter distance buffers from streams, and (c) within slope-direction (aspect) categories, will establish the character of the Early Archaic cultural landscape for new model development. Likewise, statistical t-Tests for paired sample means explores whether navigable streams and potential upland trails are equally suitable passageways to-and-from Early Archaic sites (Earickson and Harlin 1994).

Results

The Early Archaic sites were initially broken down into their five individual archaeological components, and the means of their environmental variables were calculated and statistically compared using ANOVA. The eight environmental variables examined included: elevation, percentage slope, tributary stream distance, navigable stream distance, Savannah River floodplain distance, Carolina Bay distance, upland trails distance, and chert quarry distance. Results of the ANOVA tests establish that these components represent a single statistical population, as no significant variations in the sample means were found. That is, the distributions of the various artifact types across the land are the same relative to the environment. The archaeological components can therefore be combined into a single dataset for further statistical analyses and model development. These results also suggest that a generalized foraging adaptation is represented at the SRS location. The individual archaeological components have a similar distribution on the land overall, indicating a generalized adaptation instead of a collector strategy that would have targeted different resources on the land.

Analyses of the combined Early Archaic data using the Chi-Square (X²) statistic had similar results. Comparing the observed versus expected frequencies of sites on (a) major landforms, (b) 250-meter distance buffers from streams, and (c) within slope-direction (aspect) categories revealed few significant patterns other than the presence of significantly more Early Archaic sites on the lowest terrace (T1a) immediately above the Savannah River floodplain (Table II-1). Surprisingly, no other landforms had significantly more, or fewer, sites than expected by chance alone. For stream distance, significantly more sites than expected by chance alone occurred within 250-m of streams and proportionally fewer sites occurred than expected beyond 250-m; only the 750 to 1000-m buffer had significantly fewer sites than expected by chance alone (Table II-2).

Slope direction (aspect) is commonly used as an indicator of seasonal occupation. In particular, warmer south-facing slopes should be preferred for the winter habitation model proposed by Anderson and Hanson (1988). However, no statistically significant associations with slope direction were found in the analysis, suggesting habitation could

Table II-1. Chi-Square (X²) statistic comparing the observed versus expected frequencies of Early Archaic sites on major landforms of the SRS.

Landform	Observed	Expected	Coverage	X ²	Significance
S.					
R.					
Floodplain	1	6	0.055	4.3930	-
T1a	26	7	0.064	47.5577	MORE*
T1b	12	8	0.071	1.8486	-
T2	19	21	0.185	0.2003	-
A. Plateau	56	71	0.625	3.2676	-
Total	114	114	1	57.2673	YES**

*where $X^2 \geq 6.635$, $df = 1$, and 0.01 Probability.

**where $X^2 \geq 13.277$, $df = 4$, and 0.01 Probability.

Table II-2. Chi-Square (X²) statistic comparing the observed versus expected frequencies of Early Archaic sites within 250-meter distance buffers from streams and Carolina Bays.

Distance (m)	Observed	Expected	Coverage	X ²	Significance
250	65	42	0.3656	13.043	MORE*
500	25	30	0.2664	0.950	-
750	16	20	0.1772	0.873	-
1000	2	11	0.0965	7.366	FEWER*
1250	3	5	0.0478	1.102	-
1500	2	3	0.0256	0.287	-
1750	0	1	0.0127	1.443	-
2000	1	1	0.0058	0.174	-
2250	0	0	0.0021	0.244	-
2500	0	0	0.0003	0.033	-
Total	114	114	1	25.513	YES**

*where $X^2 \geq 6.635$, $df = 1$, and 0.01 Probability.

**where $X^2 \geq 21.666$, $df = 9$, and 0.01 Probability.

have been any time throughout the year. Finally, the statistical t-Test for paired sample means revealed no significant difference for distance from sites to navigable streams and upland trails. Therefore, it is interpreted that navigable streams and upland trails were equally suitable passageways to-and-from Early Archaic sites.

Modeling the Hunter-Gatherer Cultural Landscape

Given the results of the analyses, how well do the two existing models of Early Archaic settlement measure up? For the Anderson and Hanson (1988) model, the analyses confirmed that the lower terrace (T1a) along the Savannah River is indeed a significant landform throughout the period; however, this does not mean that those sites

represent winter base camps. More likely, the sites along the lower terrace edge represent repeated occupations over many generations of land use, spanning three millennia in time. The higher densities of artifacts discovered at sites located on the lower terrace do not necessarily correlate to extended periods of habitation. For winter camps, one would expect there to be more sites on south-facing slopes than expected by chance alone, but this is not the case. Site distributions are in no way related to direction of slope, suggesting that solar potential, or sun exposure, was of little concern to settlement.

Likewise, comparison of the environmental setting of the archaeological components revealed no significant differences in their distribution. This demonstrates a generalized foraging strategy with temporary habitations located in a variety of settings, having similar archaeological remains. Although the environmental analyses do not support all hypotheses presented by Anderson and Hanson, their emphasis on a “biocultural” setting for their hypothetical model remains a strong contribution and is the inspiration for modeling the cultural landscape in this study.

Daniel’s (1998, 2001) generalized forager-lithic centric model fares better when compared to the results of the analyses. First, the analyses support the hypothesis of a generalized forager adaptation. There is no indication of a collector-like strategy targeting specific resources. The diverse stone toolkits of the Early Archaic sites are similarly distributed throughout the cultural landscape with no significant variation in the distribution of individual components that might otherwise reflect collector behavior.

Likewise, a comparison of site distributions to navigable streams and potential upland trails revealed no significant difference in the proximity of sites to streams or trails. This supports the hypothesis that early cultures moved between as well as within river systems. It is probable that bands of people moved regularly between river systems in the Coastal Plain of South Carolina, as well as into the nearby Piedmont.

The evaluation of lithic centrism at this local scale of analysis is inconclusive. The statistical comparison of the archaeological components did not reveal any significant difference in their distribution relative to the chert quarries of Allendale County. Prior regional-scale analyses of Early Archaic and Paleoindian site distributions, however, support the significance of such stone resources to early settlement systems (Goodyear 1989; Sassaman 1996; Gillam 1999). The degree of “tethering” to quarries is probably dependent upon how geographically widespread or restricted the outcrops of chip-able stone were for a given region. For the South Carolina Coastal Plain, Allendale County contains the best stone of the entire region, and it should be expected that seasonal rounds would radiate a manageable distance from this vital resource of the Early Archaic toolkit. Alternative sources were certainly available, such as sandstone and quartzite, but the Coastal Plain archaeological record contains fewer artifacts from these materials.

It is clear from the analyses that the existing hypothetical model for the SRS location needs revision. Using the results of the statistical analyses, it is possible to develop a new model of the Early Archaic cultural landscape (Figure II-4). Unlike the Hanson (1988) model, the new model represents the hunter-gatherer cultural landscape as

three foraging zones ranked by their relative importance, as reflected in the environmental setting of the Early Archaic archaeological record. Similar in concept to Sassaman's combined prehistoric site location model for the SRS (Sassaman et al. 1990), the new model specifically represents the cultural landscape of the Early Archaic Period.

The primary foraging and habitation zone of the model falls within the Savannah River floodplain and the lower terrace (T1a) above it, and then extends into the Aiken Plateau for all areas within 250-m of tributary streams and upland Carolina Bays. This zone contained the greatest diversity of plants and animals and likely witnessed the greatest cultural modification and maintenance by early hunter-gatherers.

The secondary foraging zone is represented by all areas falling between 250-m to 750-m of tributary streams. Although less plant and animal diversity is expected for this relatively flat, dry terrain, it also may have experienced significant modification by early hunter-gatherers. Open canopies could be maintained by regular burning or tree girdling, the removal of bark to kill unwanted trees, and would result in a higher frequency of low shrubs, grasses, and herbs. Grasses and shrubs would have provided more grazing opportunities for large herbivores, such as white-tailed deer and woodland bison, as well as small game, such as rabbits.

The upland or tertiary foraging zone represents minimal use areas falling at distances greater than 750-m from streams and more than 250-m from upland Carolina Bays. This tertiary zone may have been primarily used for upland trail networks and tracking large game above the dissected streams and swampy bottomlands. This zone probably experienced the least cultural modification, other than burning, and witnessed minimal use for foraging, with more favorable environs located closer to stream and bay edges.

What about site types? The analyses and model suggest a reasonably continuous cultural landscape along a relatively homogeneous wetland edge environment bordering waterways and upland Carolina Bays, which was actively maintained by the people of the region (Figure II-4). Following Binford's theoretical framework for foraging cultures, there should only be a few site types for the ancient foragers of the South Carolina Coastal Plain (Binford 1980).

The Early Archaic archaeological record of the SRS indicates at least four site types for the period: lowland multiple-use sites, upland multiple-use sites, temporary habitations (most recorded sites), and hunting-gathering locations (most stone flakescatters or occurrences). Lowland multi-use sites are located on the lower terrace of the Savannah River and are the sites previously hypothesized to be winter base camps, such as the G. S. Lewis site (Hanson 1988; Sassaman et al. 2002). Located near river and stream confluences and immediately above their floodplains, these sites would have provided easy access to resources throughout the year and also had proximity to freshwater fish and spawning saltwater anadromous fish, such as shad and striped bass that enter the rivers en masse each spring. A surplus availability of fish in the spring

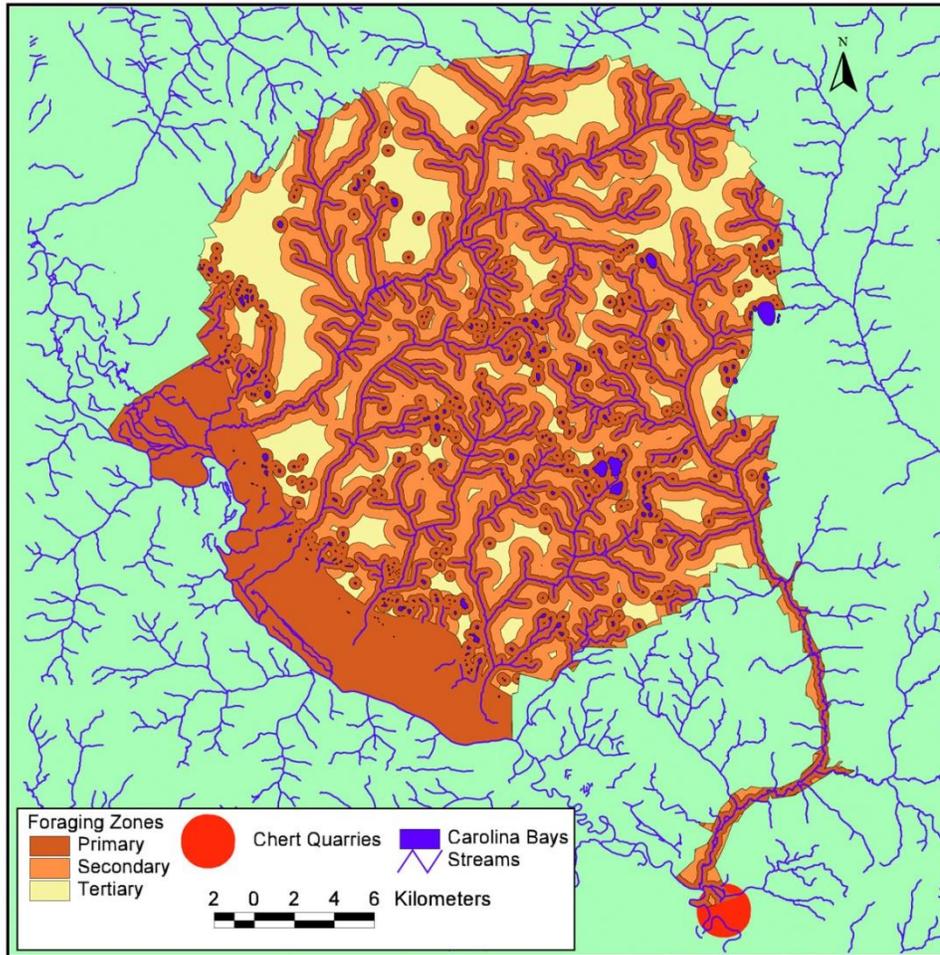


Figure II–4. The Early Archaic Cultural Landscape of the Savannah River Site (SRS) locality.

may have allowed otherwise dispersed groups of people to come together, enabling ritual activities such as marriage ceremonies to be carried out. These sites may reflect their use as periodic meeting sites by their unusually high densities of artifacts, presence of unusual artifacts such as ground stone tools, and/or tools made from distant stone sources. Likewise, the circular habitation layout found at the G. S. Lewis-East site suggests its plan had symbolic meaning and was a temporary occupation of multiple households (Sassaman et al. 2002), just what one would expect for a ritual gathering. The high density of artifacts at these sites also reflects that they had multiple uses during the year and served as temporary habitation sites and hunting-gathering locations, as well as intermittent meeting places.

Upland multiple-use sites are typically located on the top of upland terraces between adjacent stream basins and on the rims of upland Carolina Bays, such as Flamingo Bay (see Brooks et al. 2010). The density and diversity of stone tools and presence of tools made from distant stone sources suggest these sites were also episodic meeting places (Sassaman et al. 1990; Moore and Irwin 2002). Given the discard of

otherwise retained stone tools, these locations may have been sites of ritual behavior, such as the rites-of-passage of young hunters. It is inferred here that these locations were gathering points for hunting large migratory animals that used the uplands as a passageway above the hilly, dissected streams. Carolina Bays would have been convenient watering holes for white-tailed deer and other fauna, and natural habitats for migratory waterfowl in winter. These sites had multiple uses across the seasons and probably also served as temporary habitation and hunting-gathering sites along upland trails that were traversed by humans between adjacent river and stream basins (Moore et al. 2004).

Most of the Early Archaic archaeological sites on the SRS represent temporary habitation sites. These sites were located along terrace edges where natural resources were most abundant and cultural modification of the environment was the most productive. Most of these sites have a relatively low artifact density, reflecting their temporary use during prehistory. Many productive activities, such as burning to clear vegetation, nut gathering, and soil disturbance, have no archaeological remains for us to find and such activities are inferred from the ethnographic and anthropological records of other hunter-gatherer cultures.

Sites that are single-event hunting and gathering locations, or occurrences, are poorly documented. This is primarily due to the difficulty in finding archaeological remains at such sites. Occasionally, flakes of stone will be found at a game butchering site where a stone tool was re-sharpened, but this is an exception. Most plant gathering, game trapping, and game surveillance activities leave no archaeological remains for us to find. The empirical model, based upon habitation sites, gives us our only clue as to where on the landscape these otherwise invisible sites are most likely to occur.

The empirically-based model of the Early Archaic cultural landscape for the SRS location may be applied to the broader region of the interior Coastal Plain. This is possible because of the similarities in the region's environment and topography. As such, the model can also serve as a predictive model of Early Archaic site locations. Predictive models are a useful research tool and are also used to minimize the cost of fieldwork in Cultural Resource Management (CRM) and research-oriented fieldwork by reducing the amount of land requiring archaeological survey to discover sites.

Conclusion

There is no ecological reason that cultural habitation on these temperate lands should be dictated by the seasons alone or restricted to select valley corridors, nor dictated by stone raw material renewal that could be accomplished anytime during the year, but rather were more closely related to cyclical ecological patterns of relative abundance at annual and greater time scales within the region. The Coastal Plain is a diverse environment throughout the year, and habitation choice was probably related to what sub-region had the greatest resources at a given time, a pattern cross-cutting individual river basins rather than operating within them. Hickory and oak stands in the region today demonstrate that nut mast can vary greatly from year-to-year and place-to-

place, even over short distances. The same holds true for other plants, as well as for animal density typically correlated to these factors.

White-tailed deer were probably the most common target of large-game hunting in the Southeast during the early Holocene. Archaeological evidence suggests that bluff edges and ridge noses overlooking streams were primary game surveillance and hunting locations in the Coastal Plain (Steen et al. 1995; Cabak et al. 1998). Evidence of cross-river movements are prevalent in the archaeological record, typically documented through lithic type sourcing (Daniel 1998, 2001), and bear witness to the flexibility and mobility of early cultures on the landscape. Seasonality is of course a factor in land-use practices, but only one-of-many related to the time of occupation for a given location on the cultural landscape.

Fishing undoubtedly provided a reliable source of proteins and fats throughout the year. Spawning in the spring may have been so productive that otherwise dispersed groups of people gathered together temporarily to fish along the fall line shoals and on other Coastal Plain rivers, their tributary streams, and the Atlantic coastal estuaries. This would have given them the opportunity to hold group rituals, such as rites-of-passage, marriage ceremonies, and the like.

Springtime seasonal gatherings are an alternative explanation for the higher artifact densities on sites along the lower terrace of the Savannah River, where wealth may have been expressed by the casual use and discard of otherwise kept and coveted stone tools. With an abundance of freshwater and anadromous fish, springtime may have been the only season that such excessive behavior could be justified since there were many warm, productive months ahead and an early peak in protein-rich riverine and estuarine resources. Evidence of similar behavior is known from coastal shell mounds and middens of later Archaic cultures, after the modern Atlantic shoreline developed, and is likely for earlier periods; however, the evidence from coastal estuaries used by the Early Archaic and Paleoindian peoples is now submerged some 20- to 50-miles out to sea from the modern coastline (Gillam et al. 2005).

Ethnographic records and anthropological research often document the ways in which hunter-gatherers modify their local environment (Bird-David 1990). The use of fire, tree-girdling, soil disturbance, and nurturing of edible plants from small herbs to large nut-bearing trees, are all well documented amongst native peoples worldwide. We are only beginning to understand how these processes impacted the environment at regional and greater geographic scales of analysis—an appropriate topic for future research on the dynamic cultures of the Southeast's distant past.

Beech Island Agricultural Museum Exhibit Update

Tammy F. Herron

In 2005, the Beech Island Historical Society (BIHS) was awarded a \$200,000 Rural Business Enterprise Grant from the United States Department of Agriculture (USDA) through the USDA's Rural Development Program. These funds were used to renovate a historic brick barn dating to the 1800s that is situated directly behind the

BIHS. As renovations were being made to the barn, members were set to the task of finding funding to create exhibits for the new Beech Island Agricultural Museum that will be housed in this historic structure. Much of the research conducted by the staff of the SRARP is applicable to Beech Island. A number of archaeological excavations have also been conducted by SRARP staff in Beech Island and the surrounding area. This work will be featured in the museum's exhibits.

To date, murals for three of the four major sections in the museum have been installed, as well as a number of the text panels. Due to a lack of funding, the remainder of the text panels cannot be printed at this time. Cut-out figures have also been installed in the foreground fronting the murals. Installation of the ground treatments around the figures remains to be installed during the coming year. Visitors have enjoyed browsing the LCDR Warren W. Broome USN Gift Shop that was completed in FY12 and viewing the progress made thus far (Figure II-5).



Figure II-5. Jake Brown installing exhibits in the Beech Island Agricultural Museum.

Geoarchaeological and Paleoenvironmental Research in FY13

Christopher R. Moore, Mark J. Brooks, Larry R. Kimball, Margaret Newman, and
Brian P. Kooyman

Carolina Bay Research

Excavations at site 38AK469 (Flamingo Bay) continued during FY13 with two separate field seasons in the fall of 2012 and spring 2013. The principal focus this year

was twofold: 1) the excavation of a separate block 30 m north of the main excavation block to investigate an area where a large unifacial scraper was recovered in a shovel test (see Figure II-2a in SRARP 2012:74) and 2) the collection of Paleoindian and Early Archaic artifacts (without touching) for purposes of immunological (protein residue) analysis. Additional microwear analysis was also performed on tools submitted for immunological study.

Excavation units of the new block (Block B) at Flamingo Bay produced additional unifacial scrapers (including one very large side scraper), a medial section of a likely Paleoindian or Early Archaic projectile point, a large bifacial knife, and a small double end-scraper made out of exotic vitric tuff. Recent excavations in Block A (original block) produced several more tools, including several small bifacial microliths and additional gastroliths.

A sample of 35 Paleoindian and Early Archaic lithic artifacts was analyzed in this study by Larry Kimball (Department of Anthropology, Appalachian State University) for microtraces due to use and hafting as tools (Figure II-6). This includes: 2 Clovis fluted points, 1 drill on a fluted point, 3 Taylor side-notched points, 2 distal projectile point fragments, 1 bifacial knife, 11 end scrapers, 6 side scrapers, 2 graters, 1 spokeshave, 3 blades, and 3 utilized flakes. The analyzed tools are of Coastal Plain (Allendale) Chert (n=32), except for one Clovis point and one end scraper—both of vitric tuff—and one quartz Taylor point. The cherts are medium-grained and variously weathered. The latter results in limitations on the creation and preservation of microwear polishes, as well as the degree of certainty of the interpreted functions. In some cases, it was only possible to comment on the action, following the “low-power” method as described by Tringham et al. (1974) and Odell (1977,1995), rather than the fuller description of tool functions possible on fine-grained flint tools (cf. Keeley 1980; Anderson-Gerfaud 1981; Plisson 1985; Yerkes 1987; Kimball 1989). An Olympus BH metallurgical binocular microscope with incident-light (halogen lamp) with 5x, 10x, 20x objectives and 10x oculars (thus providing 50, 100, and 200 power magnifications) was used in the analysis. The identification of microtraces was made by reference to a collection of over 300 experiments conducted by Larry Kimball. The majority of these experiments and the observed microtraces due to use, projection, hafting, accidental breakage, trampling, and chemical alteration are documented in detail by the author elsewhere (e.g., Kimball 1989, 1994).

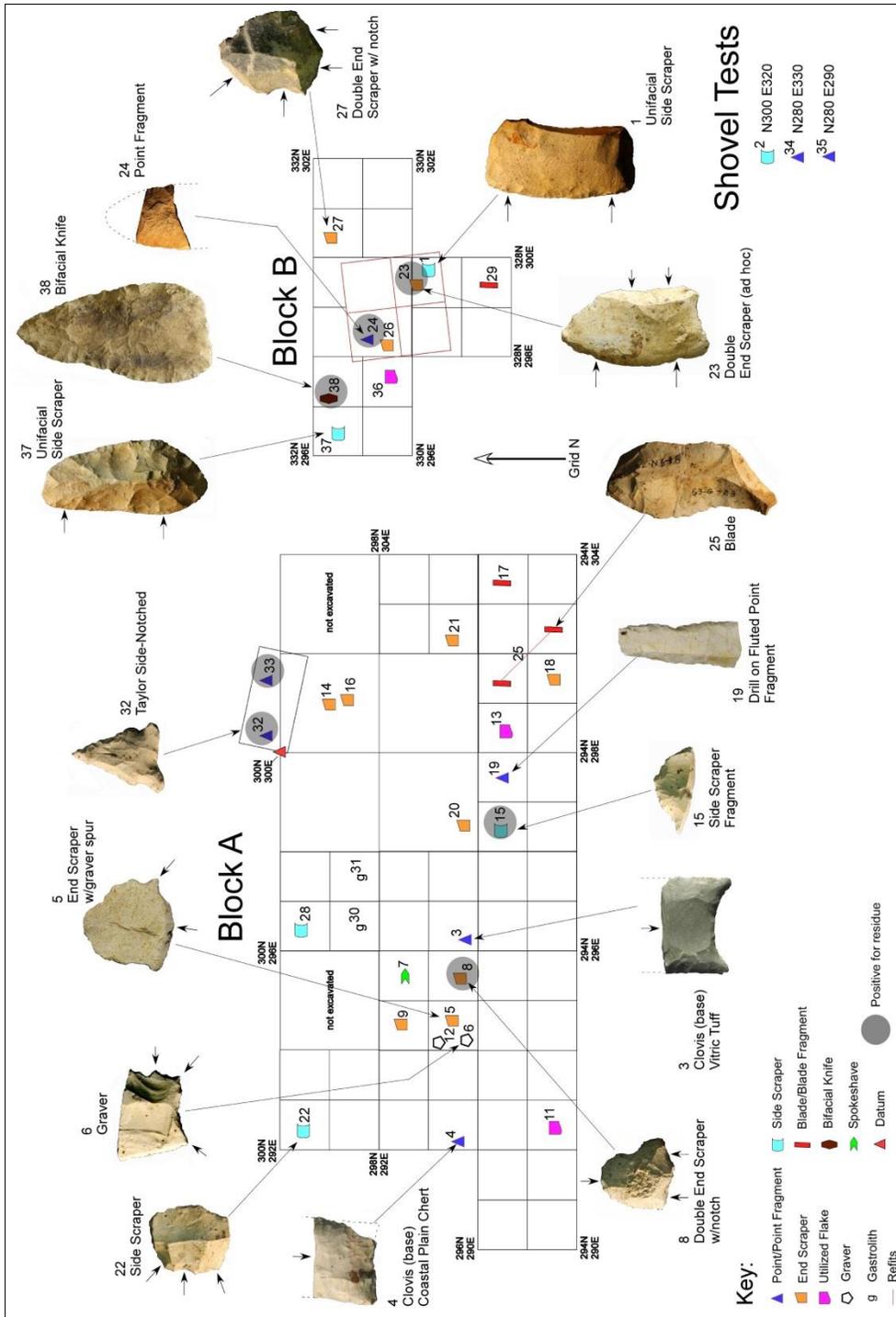
In the past 25 years, various analytical methods have been used in the analysis of residues retained on archaeological materials. A sample of 25 tools and 2 gastroliths was submitted from Flamingo Bay for immunological or protein residue analysis to Dr. Margaret Newman. Eleven of these tools were recently excavated without touching or washing in order to avoid any possibility of contamination (Figure II-7). The immunological technique used in this analysis is cross-over immunoelectrophoresis (CIEP) (Newman 1990). This test has been used extensively in the field of forensic science for over fifty years. Studies have shown that residues can adhere to tool surfaces or within stone microfractures during their original use and can survive for long periods of time (Sensabaugh et al. 1971a, 1971b). The principle of CIEP is that all animals

produce antibodies (immunoglobulins) that recognize and bind with foreign proteins (antigens) as part of the body's defense system. The ability of these proteins to precipitate antigens from solution is one of their best known properties (Johnstone and Thorpe 1982), and it is this ability that is tested in CIEP. Anti-sera used in this analysis include those for deer, bear, chicken, bovine, dog, elephant, rabbit, cat, duck, and turkey. Each anti-sera has been shown to be species specific; however, all anti-sera recognize epitopes from closely related species (e.g., a positive response to chicken anti-sera indicates related birds in the order Galliformes, such as grouse or quail).

The results of this work are significant for multiple reasons. Methodologically, this is the first study to document the presence of identifiable animal protein residues on weathered Coastal Plain (Allendale) Chert artifacts (Figure II-8). These results are spatially consistent with bird residues identified in portions of the site with associated gastroliths or gizzard stones from birds (Block A) and residues of medium to large ungulates (deer and bison) associated with a separate excavation block (Block B). In Block B, the presence of large unifacial scrapers indicate the likelihood of heavy butchery/animal processing activities. The identification of bison residue (*B. bison* or *B. Antiquus*) on a large bifacial knife is one of the first of its kind reported in the Southeast (see McAvoy and McAvoy 1997, 2003 for others) (Figure II-9). This identification carries more weight given that several of the tools with identifiable residues (including bison) were collected without contact with human skin and were unwashed. Soil samples collected in direct contact with residue tools produced negative results, indicating no evidence of soil contamination.

Of equal significance, use-wear microtraces on these tools have been identified—also a first for Allendale Chert—that provide direct information concerning the use of these tools in various activities. These results indicate that often excessively weathered Paleoindian and Early Archaic tools made on Allendale Chert may yet retain evidence of identifiable microtraces. This was true even though in some cases, it was only possible to comment on the action, following the “low-power” method as described by Tringham et al. (1974) and Odell (1977, 1995), rather than the fuller description of tool functions possible on fine-grained flint tools (cf. Keeley 1980; Anderson-Gerfaud 1981; Plisson 1985; Yerkes 1987; Kimball 1989). The contemporary traceological approach, following the French sense of the original term used by Semenov (1964), employs both low and high-power methods. This is the approach used herein because of the medium-grain texture of the lithic raw materials used by the inhabitants of Flamingo Bay.

With respect to use-wear, 29 of the 35 artifacts exhibited microwear traces due to use. At the most general level, the inferred actions are: projection assumed for both Clovis points, 3 Taylor points, and the 2 point fragments; butchery (n=2); hide-working (n=18); scraping – material indeterminate (n=2); bone working (n=4); wood working (n=1); whittling (n=1); used, but indeterminate contact material (n=1); and the remaining 6 artifacts are indeterminate (i.e., unanalyzable). At a more specific level of tool use, the 18 hide-working tools can be inferred to have been used in fresh hide scraping (n=10), fresh hide cleaning (n=1), dry hide scraping (n=5), hide scraping – condition indeterminate



Planview of excavation blocks (Block A and B) at Flamingo Bay (38AK469) showing select Paleoindian and Early Archaic artifacts submitted for immunological testing and microwear analysis.

Figure II-6



Figure II-7. SRARP field crew member, Lizzie Gillispie, holding a large bifacial knife (Prov. 74, Level E) recovered from Flamingo Bay (38AK469) without touching for purposes of immunological protein residue analysis.

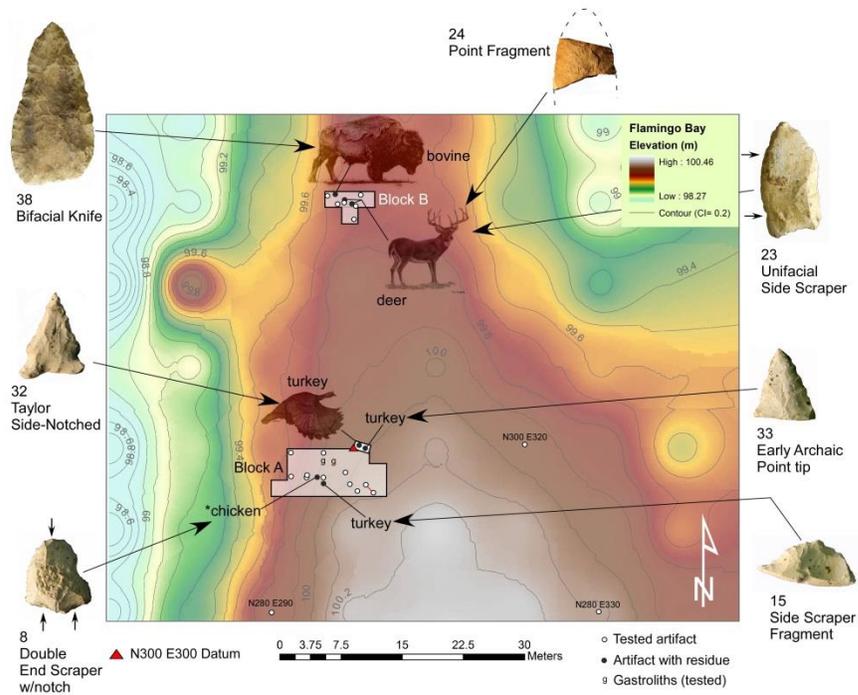


Figure II-8. Planview of Blocks A and B at Flamingo Bay (38AK469) showing the locations of artifacts and results of the immunological analysis.

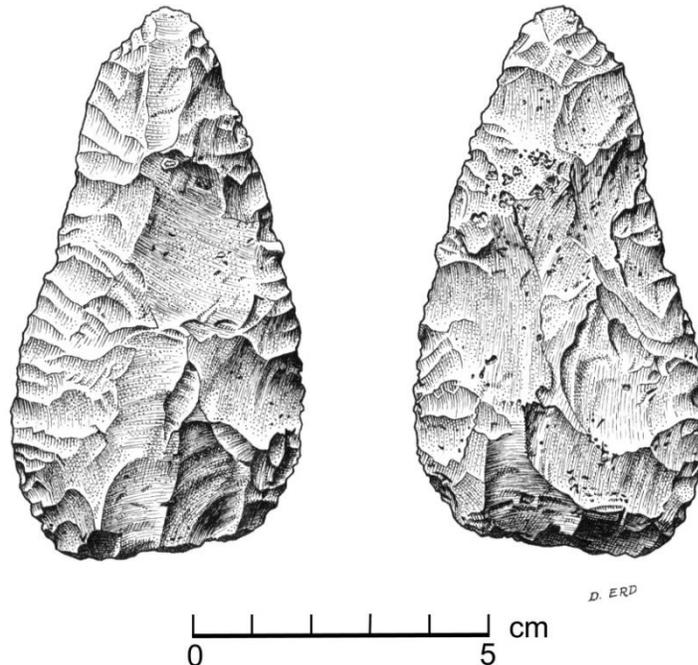


Figure II-9. Drawing of large bifacial knife from 38AK469 (Prov. 74, Level E) identified as positive for bison (i.e., bovine) residue (Drawing by Darby Erd).

(n=2), and scraping – contact material indeterminate (n=2). Bone working can be broken down as: graving (n=1); boring (n=1); pointing (n=2); and sawing/cutting (n=2). Hafting traces were observed on 17 (58.6 %) of the 29 used tools with the proximal portion present.

Of particular note, three fluted projectile points in fragmented condition were analyzed for microtraces due to use or hafting. Two have been intentionally modified (see #3 and #4 in Figure II-6) by snap fracture or bipolarization to provide steep angled working edges without additional retouch for hide-working—i.e., end scrapers on fluted points (see Kimball 1994:163). The third fluted point fragment (#19) has been retouched very steeply to create a drill for bone boring. Unfortunately, the large bifacial knife identified with bison residue (#38) could not be examined for microtraces due to weathering, but it is clearly a finished tool commonly found in Clovis (e.g., McAvoy and McAvoy 1997, 2003) and Early Archaic assemblages and was most likely used in heavy butchery activities. The presence of bison residue on the tool is consistent with this interpretation. The three large side scrapers (e.g., #1 and #37 in Figure II-6) were hafted and used to scrape hide in a relatively fresh condition—probably in very intense defleshing. Such defleshing tools are documented in the ethnoarchaeological and traceological research (e.g., Beyriès and Rots 2008) with contemporary stone tool-users in Siberia, Ethiopia, and British Columbia. These side scrapers were probably used like a draw-knife, at least in terms of the relation of the working edge and haft (both parallel to the long axis) to the hide (perpendicular). By contrast, two smaller side scrapers (see #22 in Figure II-6) were used in bone working—to plane and point and to saw or cut, respectively. The proximal end of side scraper #15 (see Figure II-6) (positive for turkey residue) appears to have been backed to facilitate hafting before use to cut or saw bone.

Two double end scrapers (#8 and #23 in Figure II–6) were identified with microtraces and residues indicative of fresh and dry hide scraping and residues of chicken (grouse or quail?) and deer, respectively. Finally, one heavily reworked Taylor Point (#32 in Figure II–6) and likely Early Archaic point fragment (#33 in Figure II–1) (both positive for turkey residue), have microtraces consistent with wood whittling and butchery respectively. This demonstrates the multifunctional use of formal bifaces with whittling microtraces and turkey residue on the same tool. Documentation of preserved microtraces and identifiable residues on Allendale Chert has the potential to transform our understanding of human/animal relationships and behavioral strategies among early hunter-gatherers in the Central Savannah River Area. This study highlights the importance of an inter-disciplinary approach in Paleoindian and Archaic research and the need for more residue and use-wear studies in the Southeast.

Immunological Testing of Paleoindian and Early Archaic artifacts from Fort Bragg, North Carolina

Recent research on Fort Bragg by Christopher Moore (SRARP) and Jeff Irwin (Naval Facilities Engineering Command) is suggestive of long distance interriverine settlement by Early Archaic hunter-gatherers moving between sources of toolstone in the North Carolina Piedmont and food resources in the lower Coastal Plain. In an upcoming paper in *Southeastern Archaeology*, we speculate that the distribution of diagnostic hafted bifaces and formal unifaces along the drainage divide of Fort Bragg is consistent with staging and ambush of migratory ungulates (e.g., bison and elk) grazing on a patchy mosaic of grassland within the Sandhills ecotone. As a follow-up to this research, immunological analysis was performed on 11 Early Archaic points and 1 Paleoindian (Clovis) point from Fort Bragg (Figure II–10 and Figure II–11). With permission of the Fort Bragg Cultural Resources Management Program (CRMP), these artifacts were sent to Dr. Margaret Newman at the University of Calgary. The results of her immunological analysis will be published in early 2014 and will complement the Sandhills settlement model proposed for North Carolina.

Phytolith Analysis of Sediments from Three Carolina Bays in the CSRA

In FY13, sediment samples from Flamingo Bay (38AK469), Johns Bay (38AL246), and Frierson Bay (38BR1319) were submitted to Calla McNamee of C and H Geoarchaeological Consulting for plant phytolith analysis. Phytolith analysis has been used successfully for interpreting and reconstructing subsistence practices (Bozarth 1992), as well as paleoenvironmental conditions preserved within archaeological sediments. At Flamingo Bay (38AK469), 10 sediment samples were submitted from a continuous sediment column between ca. 20 and 80 centimeters below surface (cmbs). These samples bracket archaeostratigraphic data and are well-constrained chronologically by previous radiocarbon and OSL dating at Flamingo Bay (see Research Notes SRARP 2011:67-73). For purposes of comparison, two sediment samples were also submitted from Johns Bay and Frierson Bay respectively. Based on the archaeology for each site, as well as OSL age estimates, sediment samples from these sites likely correspond to Late Pleistocene and Middle Holocene for Johns Bay and Late Pleistocene and Early Holocene

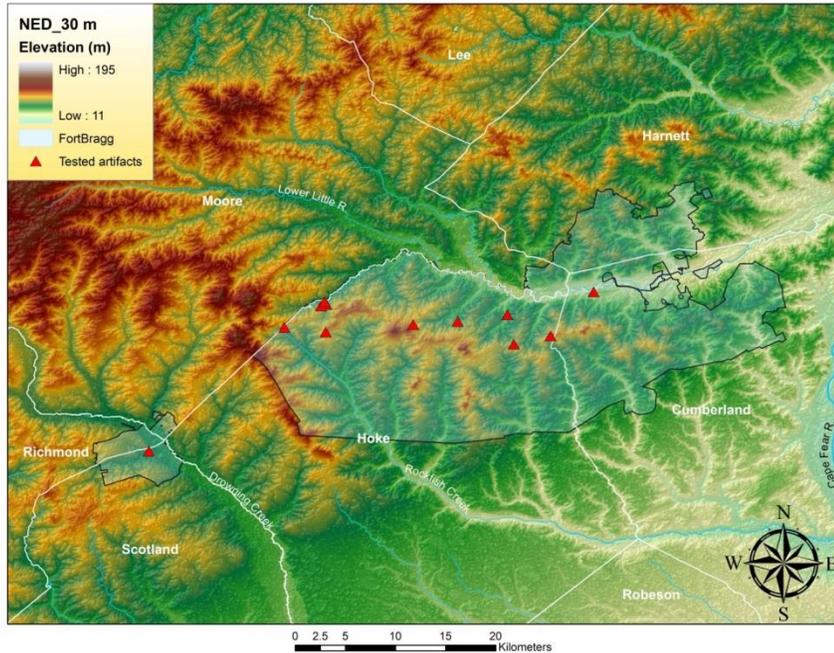


Figure II–10. Digital elevation map (DEM) showing the locations of Early Archaic and Paleoindian hafted bifaces tested for blood protein residue on Fort Bragg, North Carolina.

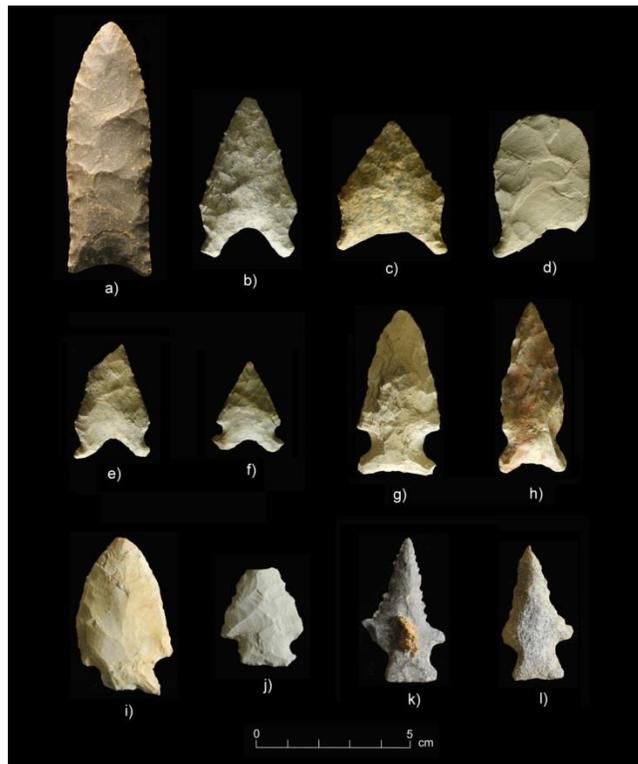


Figure II–11. Paleoindian and Early Archaic hafted bifaces from Fort Bragg submitted for immunological analysis: a) Clovis, b-d) Hardaway Dalton, e-f) Hardaway Side-Notched, g) Big Sandy, h) Rowan, i-j) Kirk Corner-Notched, k-l) Kirk Stemmed/Serrated.

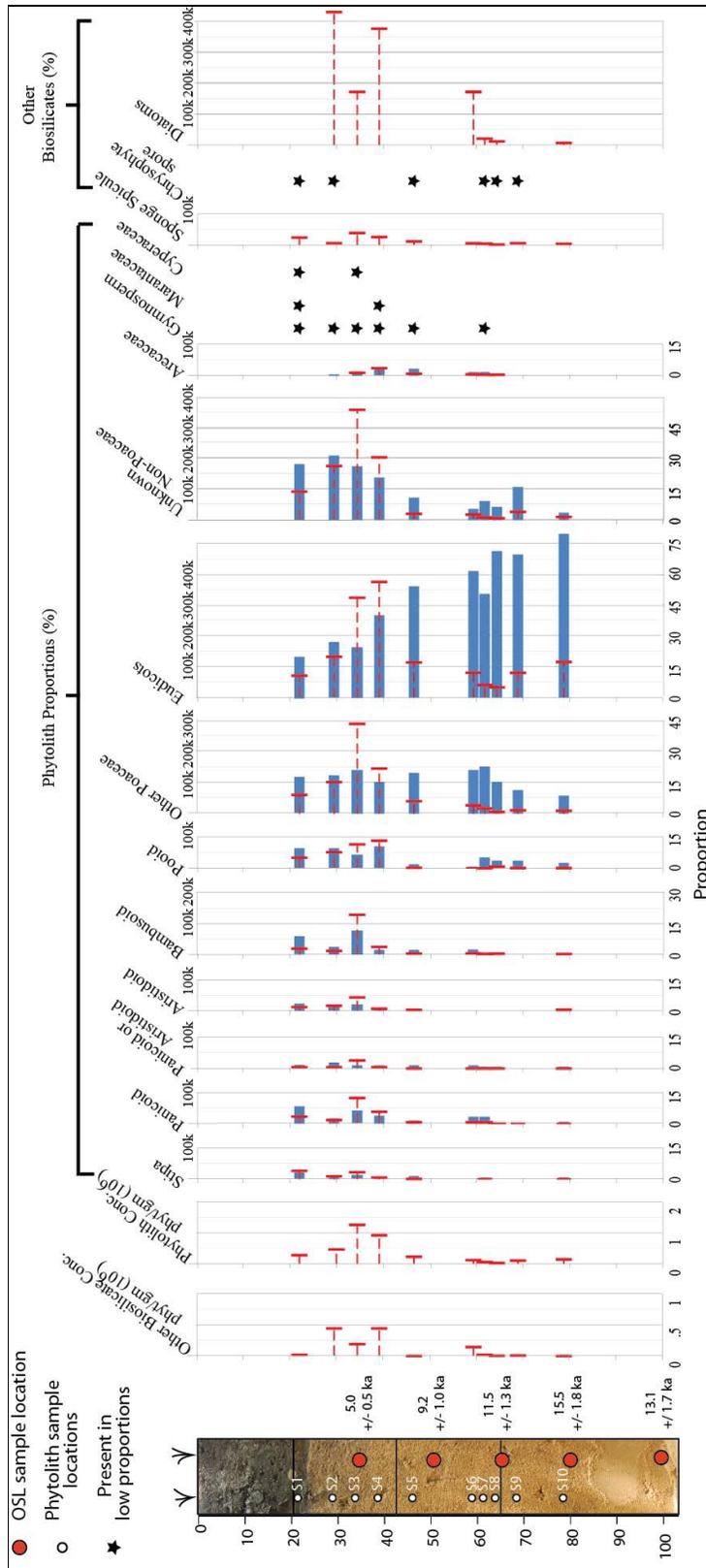
for Frierson Bay. Results of this research indicate consistent and interpretable phytolith assemblages by depth from all three bays that likely reflect the influence of hydrological and climatological shifts since the Late Pleistocene (Figure II-12). These data reveal important information about depositional history and vegetational composition for Carolina bays in the CSRA. A complete report of these findings will be published as part of a larger Carolina bay site formation monograph by the SRARP in the near future.

Statewide Collector Survey Projectile Point Study

Work continued in FY13 on data from the Statewide Collector Survey. The focus of this work has been the production of a GIS database of nearly 92,000 temporally diagnostic hafted bifaces identified from local collections by Tommy Charles (and others) over a period of some 30 years (Figure II-13). Preliminary results of this work were presented in FY13 at the Archaeological Society of South Carolina (ASSC) annual conference in Columbia (see Research Abstracts section) and included statewide distribution maps for projectile points (lumped by cultural period) and raw material type. The results indicate robust patterns of land use, including diachronic and geospatial trends (e.g., Figure II-14). Research applications for these data include evaluating extant settlement models and land use for the Early Archaic and will facilitate modeling the social scale, including mobility patterns and social organization, of hunter-gatherers in South Carolina. Publication of this work is forthcoming and will provide a valuable baseline for future studies.

Geological Investigations at Herndon Bay, Robeson County, NC

In December of 2012, additional geological fieldwork was conducted at Herndon Bay in North Carolina for purposes of collecting a series of geologic cores useful for geomorphic characterization of the landform (Figure II-15). With the assistance of Dr. David Mallinson (Department of Geosciences, East Carolina University), a series of cores were collected from several bay sand rims with the use of a truck-mounted Geoprobe®. Coring locations corresponded to the locations where previous basal samples were collected for subsequent OSL dating by Jim Feathers (Luminescence Dating Laboratory, University of Washington) (see Figure II-10, SRARP 2012). Additional GPR data were also collected along transects that cross-cut multiple bay sand rims and Geoprobe core/OSL sample locations. A total of six cores was collected from four locations at Herndon Bay (including one bay rim not sampled for OSL). Geoprobe cores were subsequently analyzed at East Carolina University to determine basic lithologies, grain-size statistics of lithologic units (i.e., lithofaces), and magnetic susceptibility. These data will be combined with processed GPR data and luminescence age estimates from basal samples to reconstruct landform geomorphology of the bay and provide a geochronology for bay rim development. Preliminary evidence suggests substantial periods of bay migration, including scouring of the underlying mud facies. This migration is punctuated by periods of high-energy shoreline processes leading to the development of a regressive sequence of bay sand rims with basal muddy sands incorporated into the earliest sand rims. Results of this research will be presented at the Southeastern Geological Society of America Conference in 2014.



Phytolith results for Flamingo Bay (38AK469). Samples are labeled down profile S1 through S10. Proportions are presented as blue bars with values along the base of the graph. Concentrations are presented as red lines with values along the top of the graph (McNamee 2013).

Figure II-12

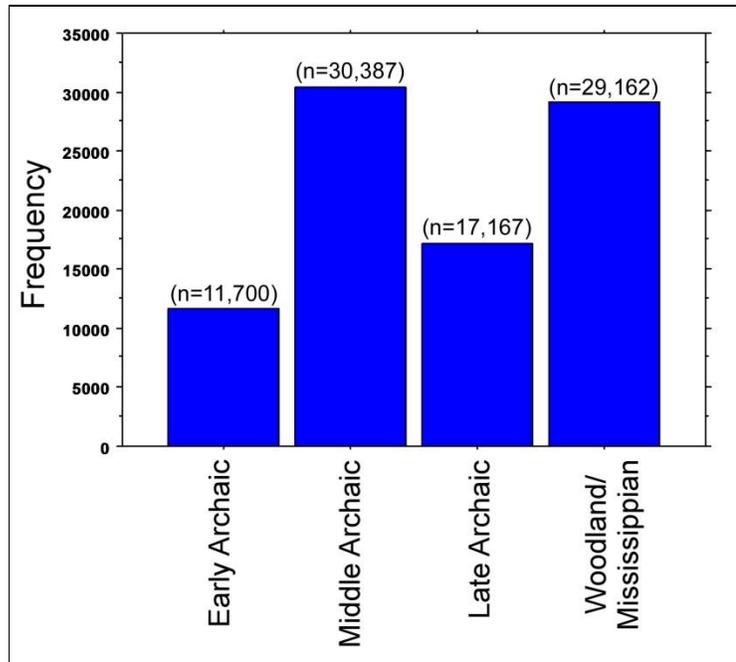


Figure II-13. Bar chart showing counts for diagnostic hafted bifaces by cultural period for South Carolina derived from the Statewide Collector Survey (n=88,416).

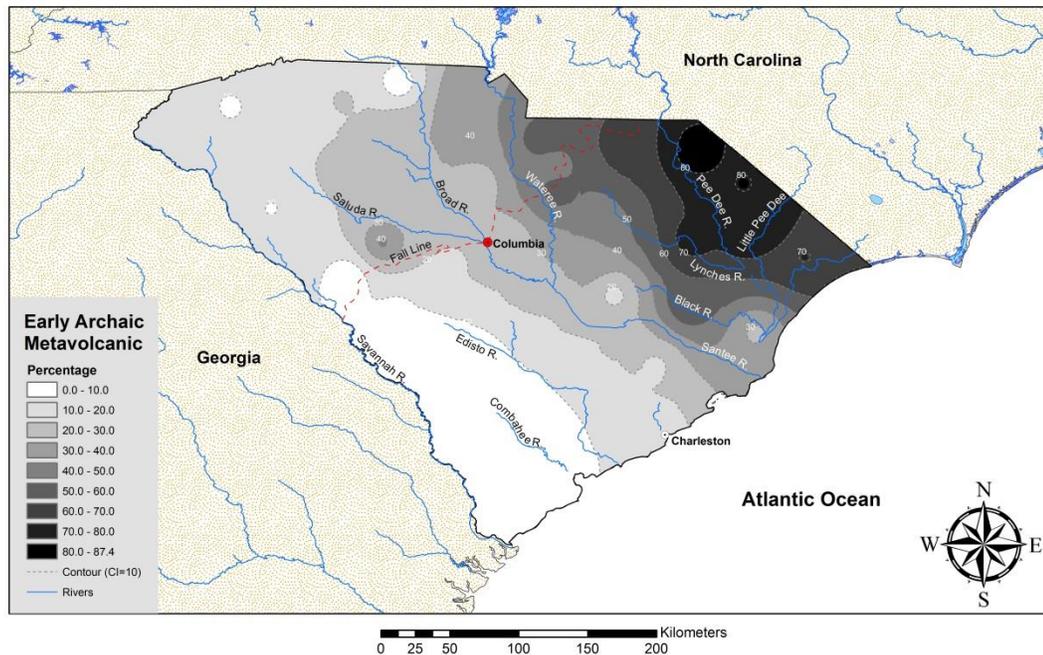


Figure II-14. Contour density distribution map for Early Archaic points made from metavolcanic stone based on synthesized data from the Statewide Collector Survey database.

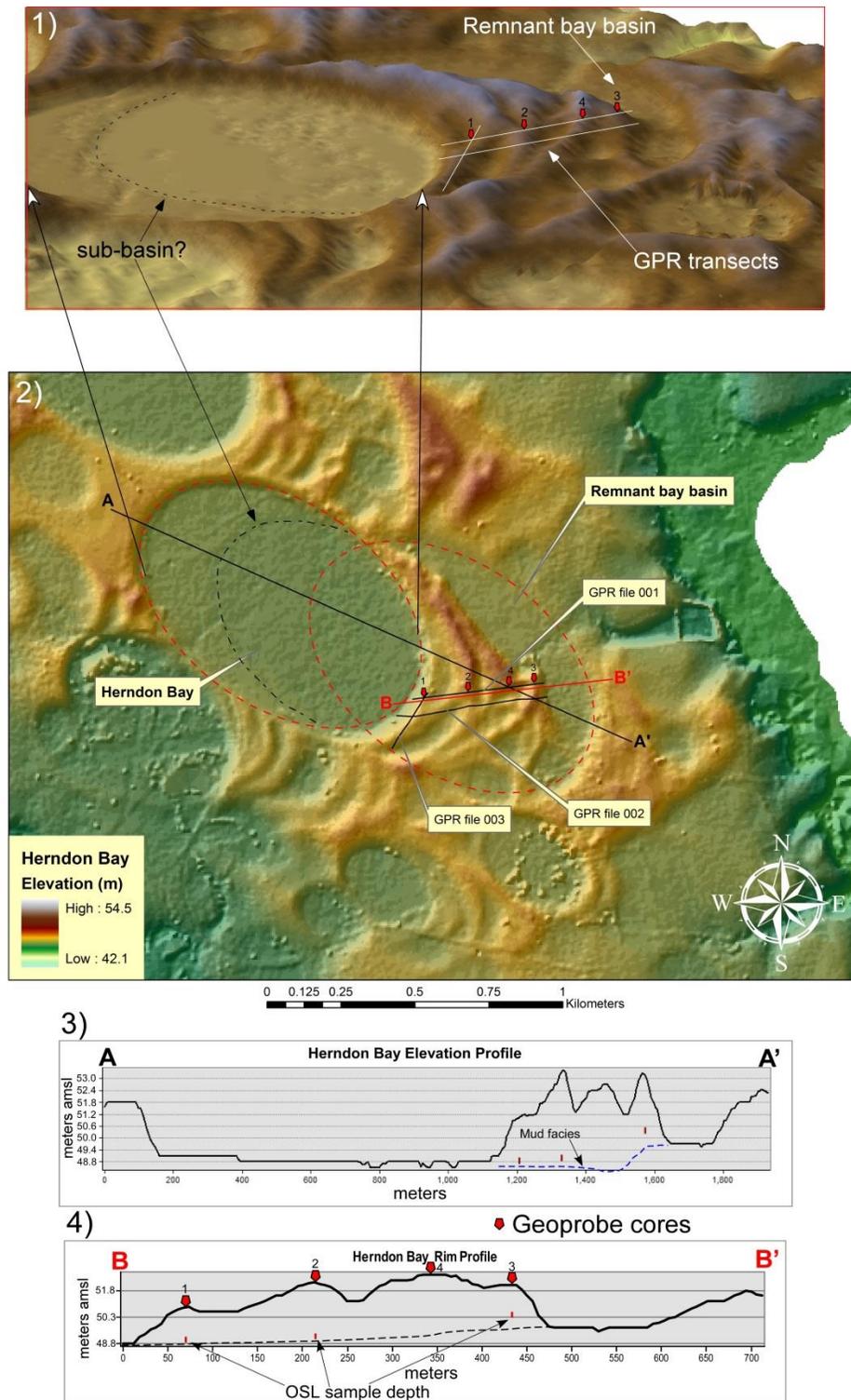


Figure II-15. LiDAR imagery and elevation profiles for Herndon Bay in Robeson County, NC. 1) 3D LiDAR view, 2) LiDAR planview showing elevation, GPR transects, and Geoprobe core locations, 3), and 4) elevation profiles showing Geoprobe® core and OSL sample locations.

Conducting Ground Penetrating Radar at Graniteville Cemetery

Maggie M. Needham

During the months of June and July of this year my colleagues and I conducted a Ground Penetrating Radar survey on the historic grounds at the Graniteville Cemetery in Graniteville, South Carolina. The SRARP, through the Graniteville Archaeology Project, was approached by the Horse Creek Valley Historical Society and the Graniteville Cemetery Association to determine the location of unmarked graves in the oldest section of the Graniteville Cemetery. We conducted remote sensing on a portion of the Graniteville Cemetery dating to the mid-nineteenth century to determine the location of unmarked graves. Through the course of our investigation we found several anomalies that appear to be unmarked graves and also recorded the location of a four graves that are not accurately marked (Figure II-16). We are scheduled to present our findings at the monthly meeting of the Horse Creek Valley Historical Society in January 2014.

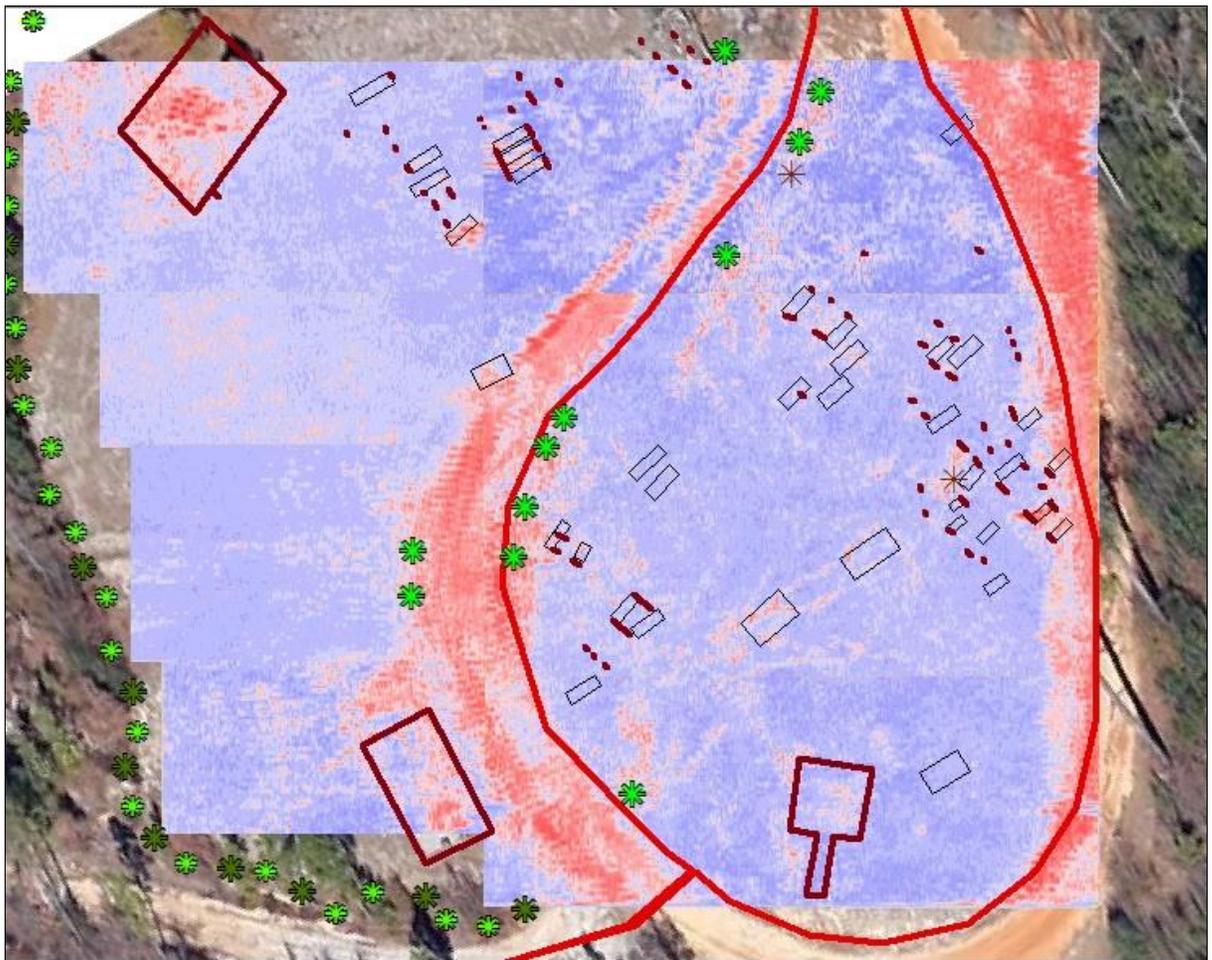


Figure II-16. GPR Planview at 40 cmbs.

The Archaeological Stoneware Project: To Be Alkaline or Not To Be Alkaline

Maggie M. Needham and George L. Wingard

The Archaeological Stoneware Project began in early 2013 to identify and categorize all stoneware artifacts recovered from archaeological excavations on the SRS (Figure II–17). The investigators hope that a systematic attribute analysis on these stoneware sherds will aid in the future identification of stoneware pottery manufactured by folk and industrial potteries, alike, from the Southeast. The first phase of this project included the investigation of artifacts recovered from Bush Hill (38AK660). Bush Hill is located near Upper Three Runs Creek, a tributary of the Savannah River, in Aiken County, South Carolina, on the SRS and was once the location of a small-scale antebellum plantation. At present, the investigators have begun unraveling the processes of identifying locally produced stoneware and categorizing its attributes, such as glaze texture or color and to a lesser degree vessel paste or paste hardness. Once this portion of the project is complete, we intend to perform a similar analysis on the stoneware recovered across the entire DOE site at the SRS.



Figure II–17. Slip-glazed vessel.

Ground Penetrating Radar Work at Pottersville, South Carolina

Christopher L. Thornock

Archaeological excavations at the Pottersville site in recent years have focused on the 105 ft. dragon kiln used in the production of Edgefield pottery. In order to place the kiln in spatial and cultural context, the focus of Dr. Chris Fennell's 2013 University of Illinois Summer Field School shifted south of the kiln in the hopes of exploring additional architectural features at the site. The SRARP, as part of its community outreach effort and ongoing research on the subject of Edgefield pottery, volunteered its geophysical expertise. The goal of the 2013 geophysical survey of Pottersville was to locate the pug mill (a mule-powered mill for mixing clay), along with any other associated buildings.

On May 30 and 31, 2013, Chris Thornock, with the aid of Buddy Wingard, Maggie Needham, Keith Stephenson, Brian Milner, and the students and volunteers of Dr. Chris Fennell's 2013 Summer Field School at Pottersville, conducted a Ground Penetrating Radar (GPR) survey of six 20 x 20 m grids. Five of the grids were located south of the kiln at the base of the hill, and one was situated at the top of the hill, east of the kiln chimney. This short report will present the anomalies identified during the survey that were reported to Dr. Fennell as areas of interest and possible excavation.

Anomaly 1 (Figure II-18) is the largest anomaly identified, measuring 16 m in diameter, and appears to show a circular, doughnut-like, depression in the ground surface that was subsequently filled in. Figure II-19 and Figure II-20 show intersecting vertical and horizontal GPR cross-sections from Grid 5 with the cross-sections intersecting at Anomaly 1. Figure II-21 and Figure II-22 show intersecting vertical and horizontal GPR cross-sections from Grid 4 with the cross-sections intersecting at Anomaly 1. This circular depression is most likely the location of the mule path surrounding the pug mill. Anomaly 2 (Figure II-18) appears to be a rectangular depression, measuring approximately 5 x 14 m, southeast of Anomaly 1. The walls of the depression appear to be much steeper than Anomaly 1, and this can be seen in Figure II-21 and Figure II-22. Anomalies 1 and 2 may be connected on their southern sides and this can be seen in Figure II-23 where Grids 4 and 5 show shallower slices than seen in Figure II-18. Figure II-23 may also show a pathway between Anomalies 2 and 6. Anomaly 2 is most likely a partially subterranean structure that is connected to the pug mill. This structure may have been used as part of the pug mill or possibly as an associated structure such as the turning shed or mule stable. Anomaly 3 (Figure II-18) appears to be a rectangular depression measuring 5 x 2.5 m. It is located southwest of Anomaly 1 and may be associated with both Anomaly 1 and Anomaly 4. Figure II-24 and Figure II-25 show intersecting vertical and horizontal GPR cross-sections from Grid 5 with the cross-sections intersecting at Anomalies 3 and 4. Anomaly 4 (Figure II-18) appears to be a rectangular depression measuring 2 x 2.5 m. It is located southwest of Anomaly 1 and may be associated with both Anomaly 1 and Anomaly 3. Anomaly 5 (Figure II-23) appears to be a shallow square anomaly, about 3 x 3 m, with a soil density different from the area around it.

Anomaly 6 (Figure II–23) appears to be a linear depression located approximately 6 m southeast of, and running parallel to Anomaly 2. Figure II–26 and Figure II–27 show intersecting vertical and horizontal GPR cross-sections from Grid 4 with the cross-sections intersecting at Anomalies 2 and 6. Anomaly 7 (Figure II–18) may be a group of small anomalies organized into a rectangular pattern northeast of Anomaly 1. This may represent footings for a raised floor approximately 5 x 6 m in size. Anomaly 8 (Figure II–18) appears to be an arcing depression that would parallel the curve of Anomaly 1 on the inside of it. Figure II–28 shows Anomalies 1 and 8 in profile.

Argument for a Pug Mill

At 16 m across, the Anomaly 1 circle may seem too big to be a mule track of pug mill, however, when pottery production has been scaled up to the point that the kiln has tripled in size to 105 ft., then perhaps the production of clay for that pottery would need to be scaled up as well. The scaling up of clay production could be accomplished by increasing the number of mules and the length of the arms that they are turning. Additionally, by removing the millworks from the center of the mule track to a structure outside the mule track (connected by a belt or a cross axle), multiple pug mills could be turned by a set of mules without having to halt the turning process to add and remove clay from the mills. A hypothetical model for how this may have worked at Pottersville can be seen in Figure II–29. Additionally, if pug mills need to be loaded from the top and unloaded at the bottom, then this may account for the sunken rectangular nature of the anomalies next to Anomaly 1, enabling access to machinery from multiple elevations. The photograph in Figure II–30 shows brick makers accessing a large pug mill from multiple elevations.

Excavation Results

The field school excavated into Anomalies 1 and 2, and the results indicate that the interpretations presented here are at least partially correct. Anomaly 1 does appear to be a circular depression of compacted soil, which could have been a well-trodden path of a pug mill. Anomaly 2 turned out to be a structure, constructed partially beneath the ground surface, with brick walls (Figure II–31). The purpose of this structure has yet to be determined.

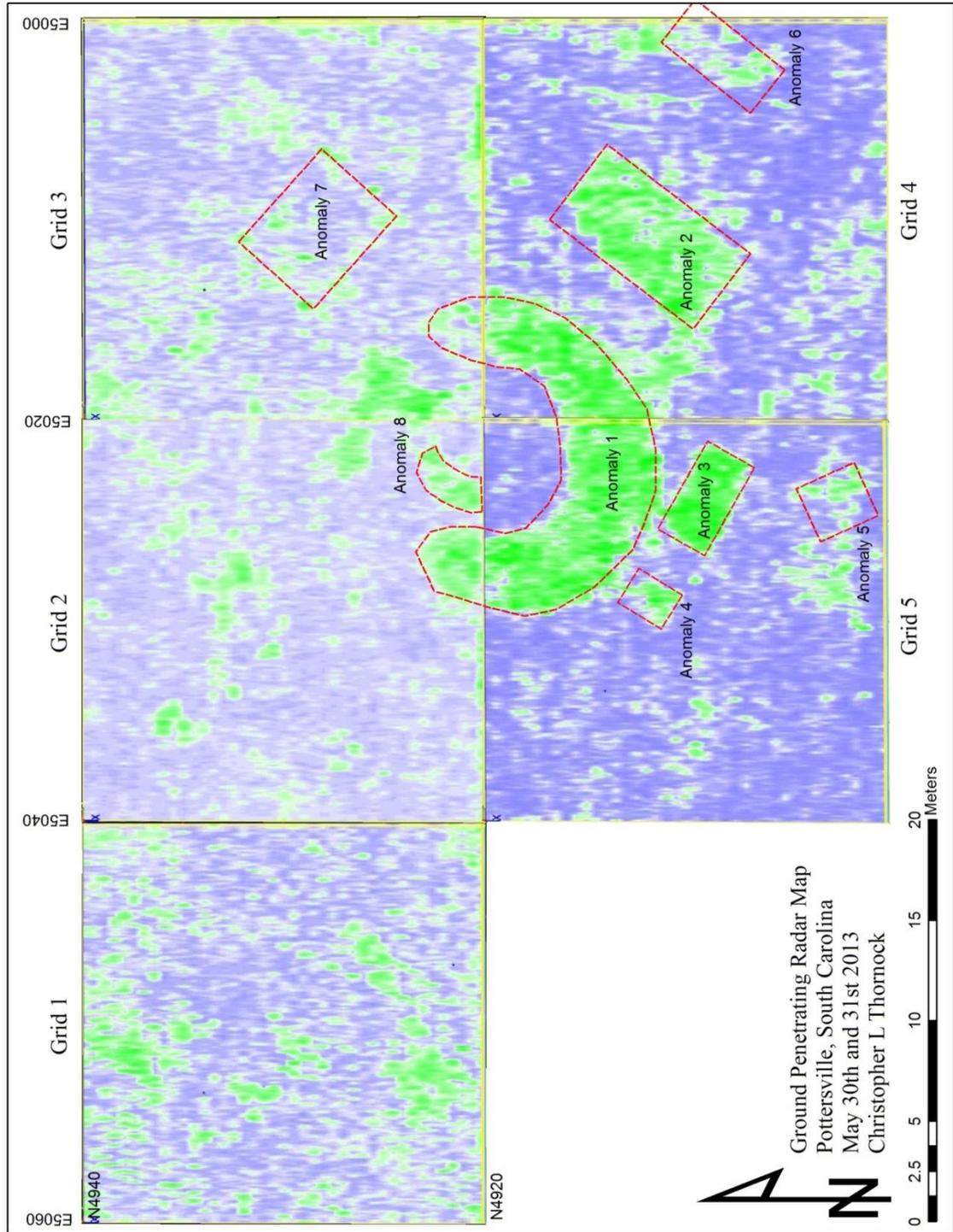


Figure II-18. Map of Identified GPR Anomalies at Pottersville.

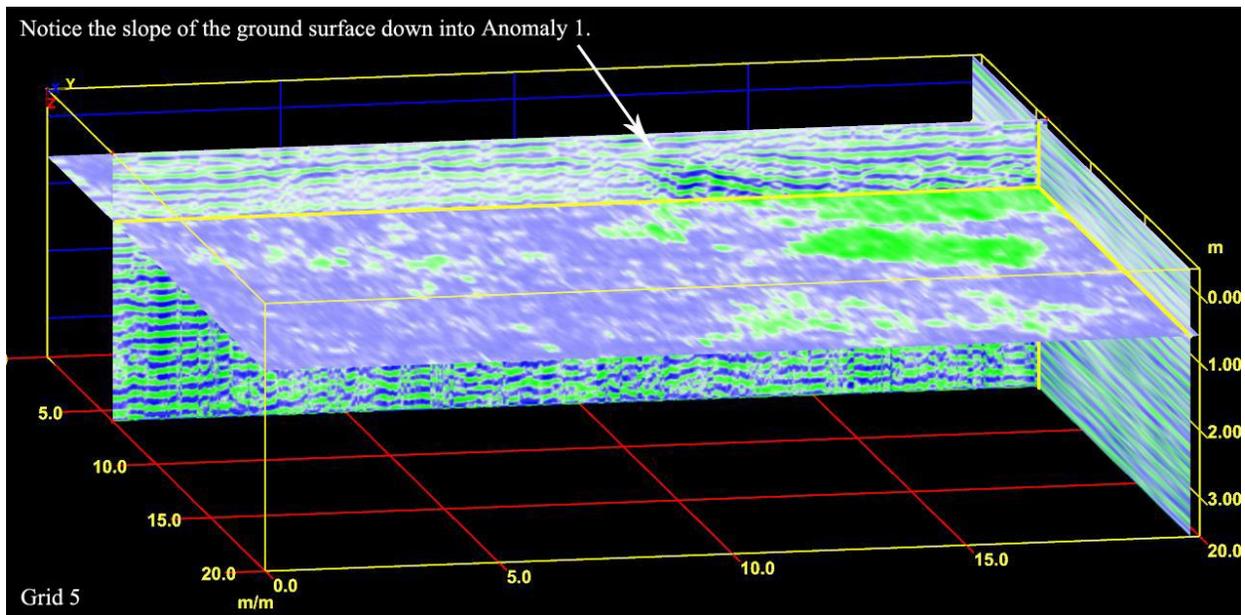


Figure II-19. Vertical and horizontal GPR cross-sections from Grid 5 focused on Anomaly 1.

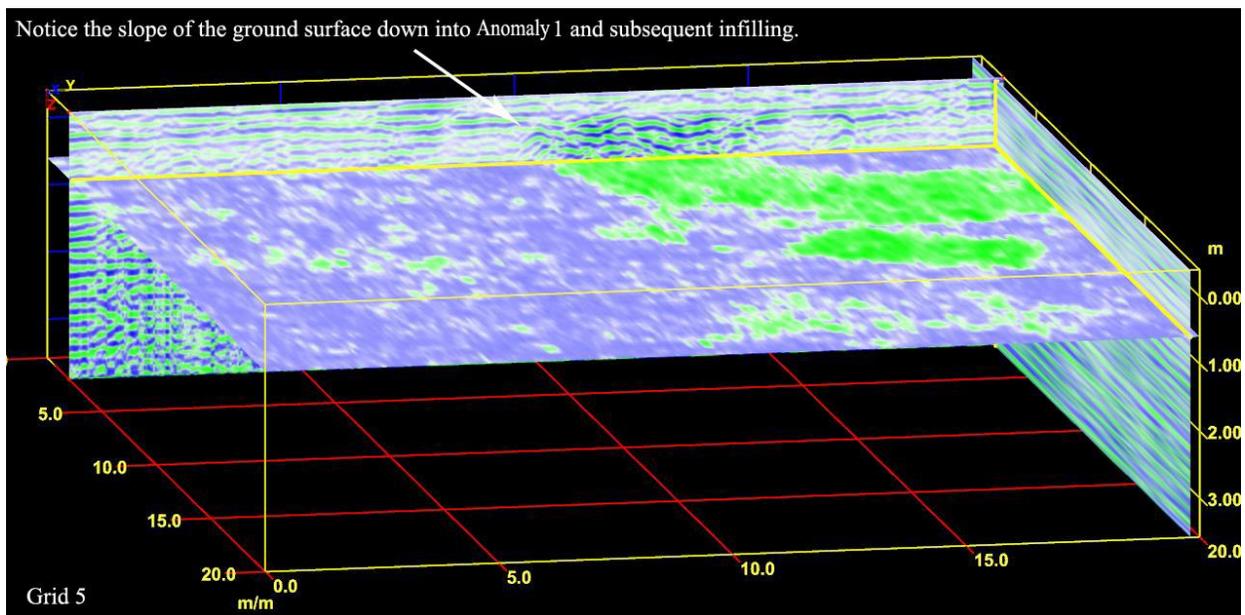


Figure II-20. Vertical and horizontal GPR cross-sections from Grid 5 focused on Anomaly 1.

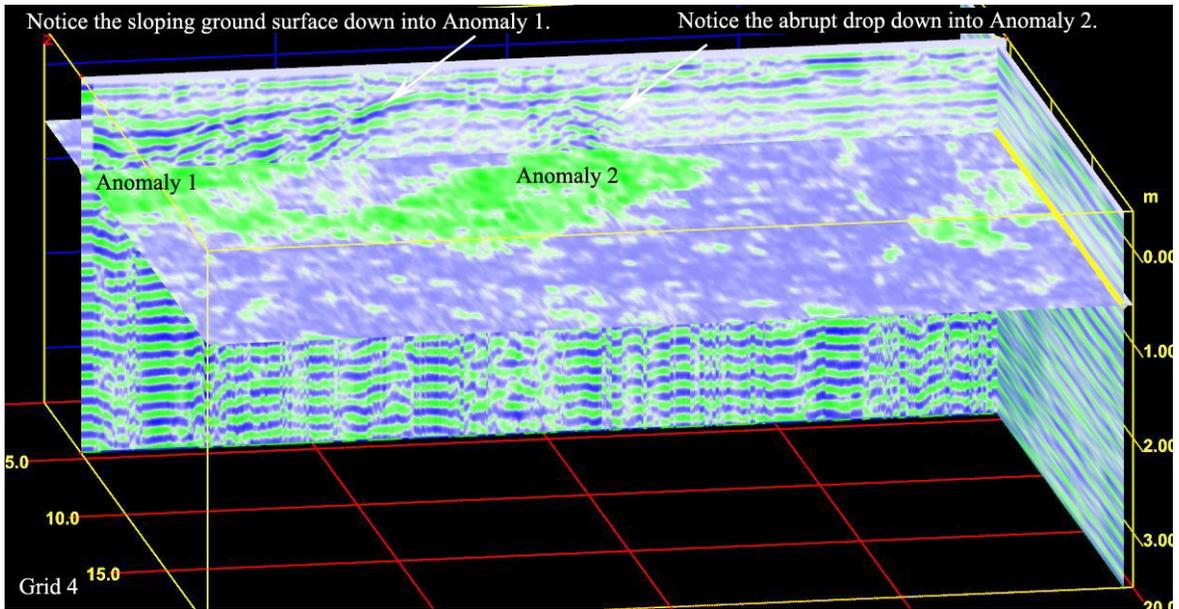


Figure II-21. Vertical and horizontal GPR cross-sections from Grid 4 focused on Anomalies 1 and 2.

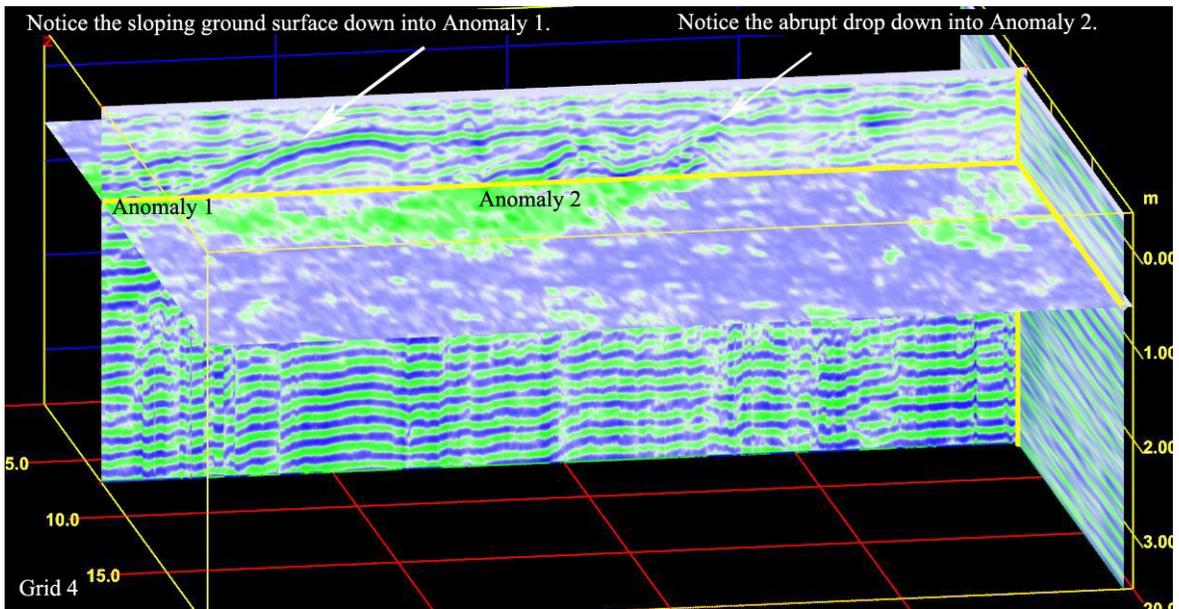


Figure II-22. Vertical and horizontal GPR cross-sections from Grid 4 focused on Anomalies 1 and 2.

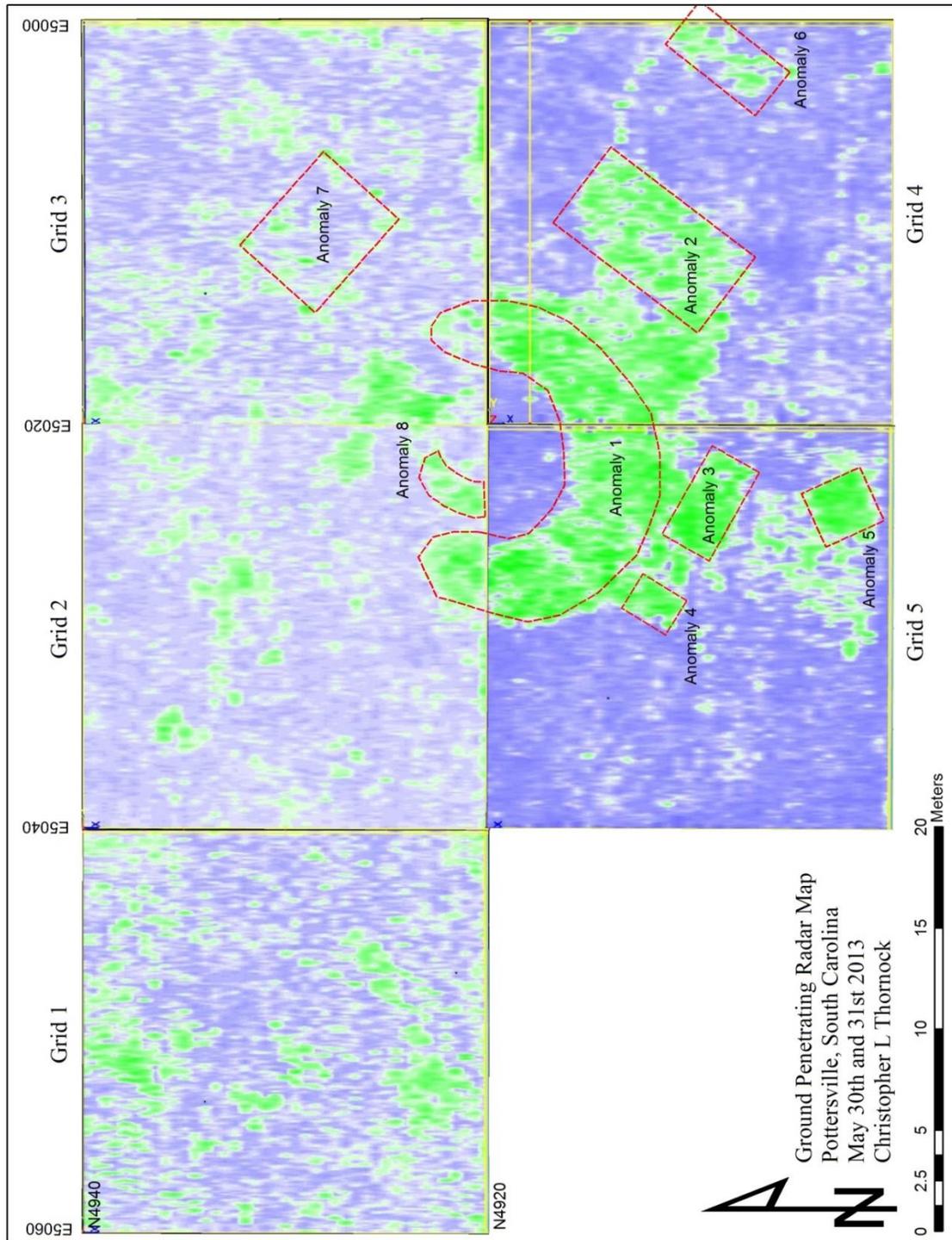


Figure II-23. Map of identified GPR anomalies at Pottersville with Grids 4 and 5 showing shallower slices than shown in Figure II-18.

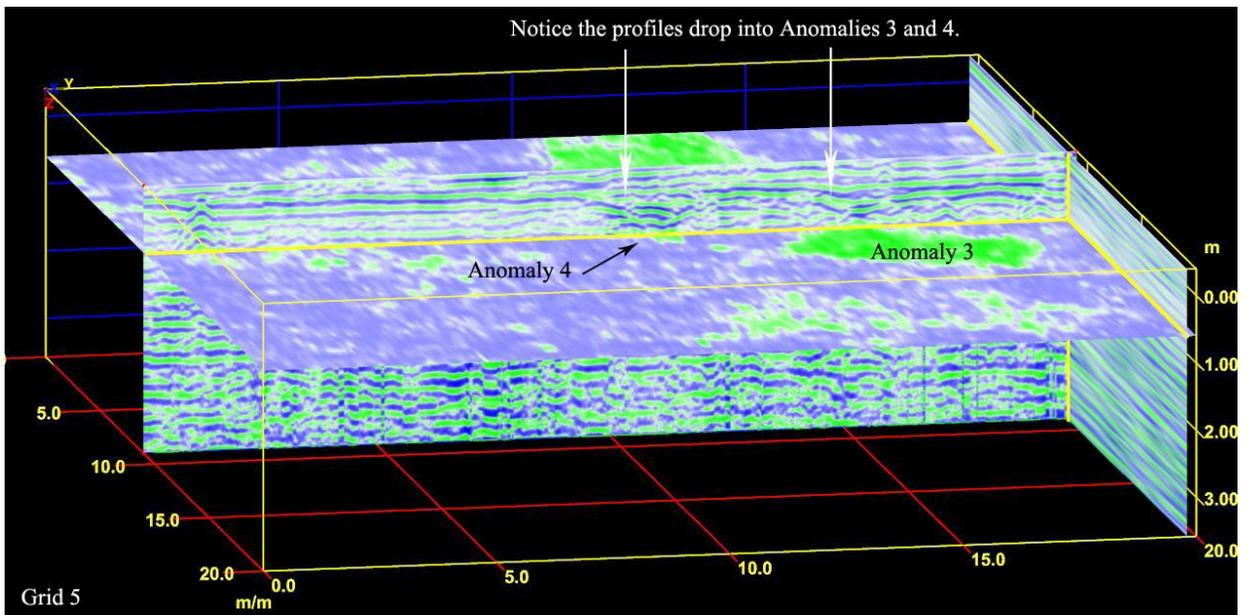


Figure II-24. Vertical and horizontal GPR cross-sections from Grid 5 focused on Anomalies 3 and 4.

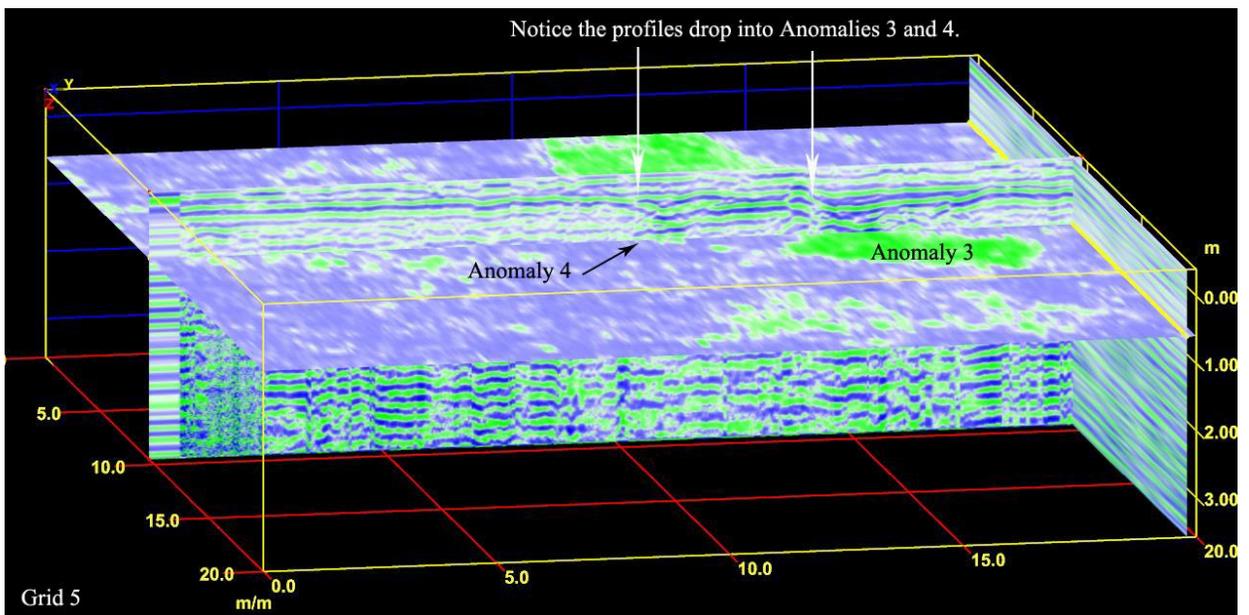


Figure II-25. Vertical and horizontal GPR cross-sections from Grid 5 focused on Anomalies 3 and 4.

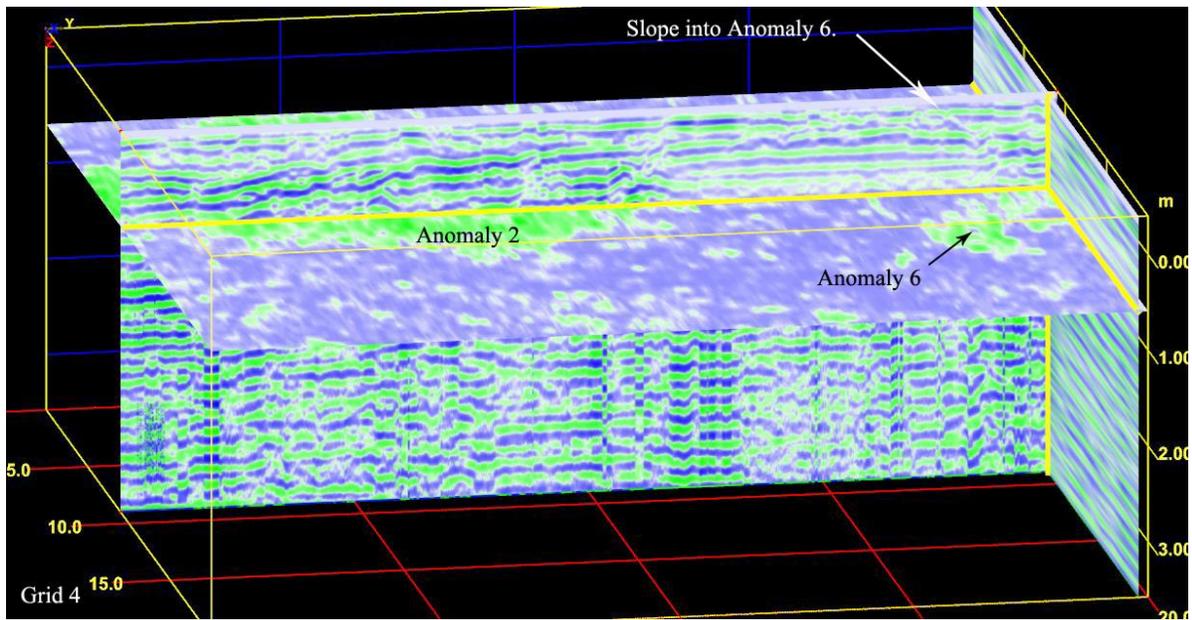


Figure II-26. Vertical and horizontal GPR cross-sections from Grid 4 focused on Anomaly 6.

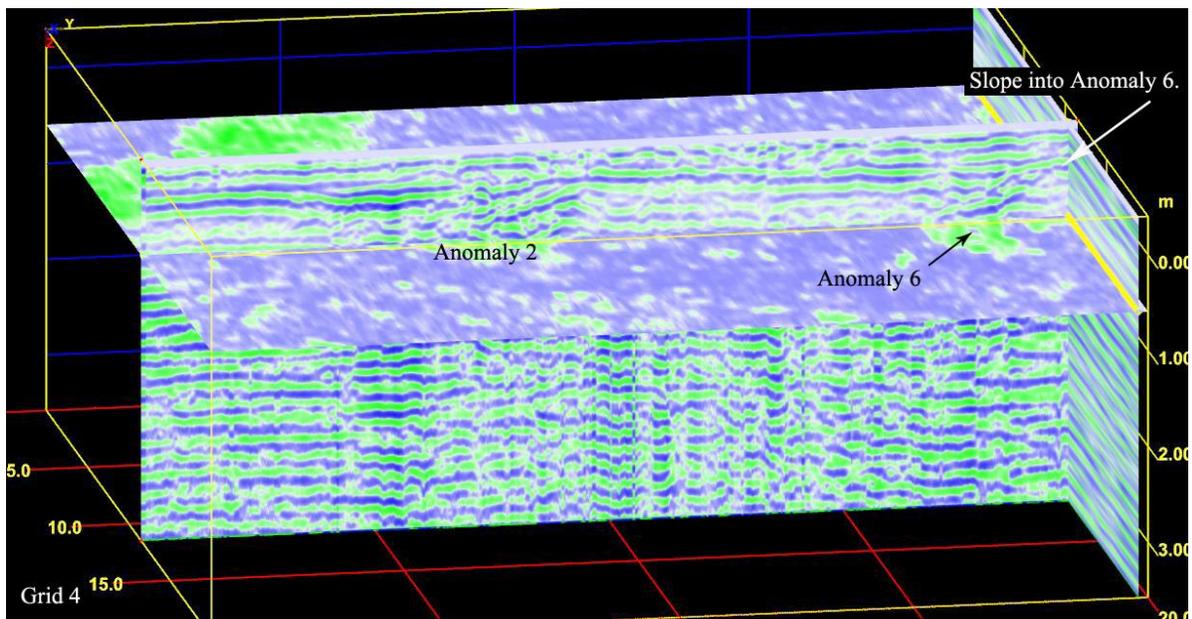


Figure II-27. Vertical and horizontal GPR cross-sections from Grid 4 focused on Anomaly 6.

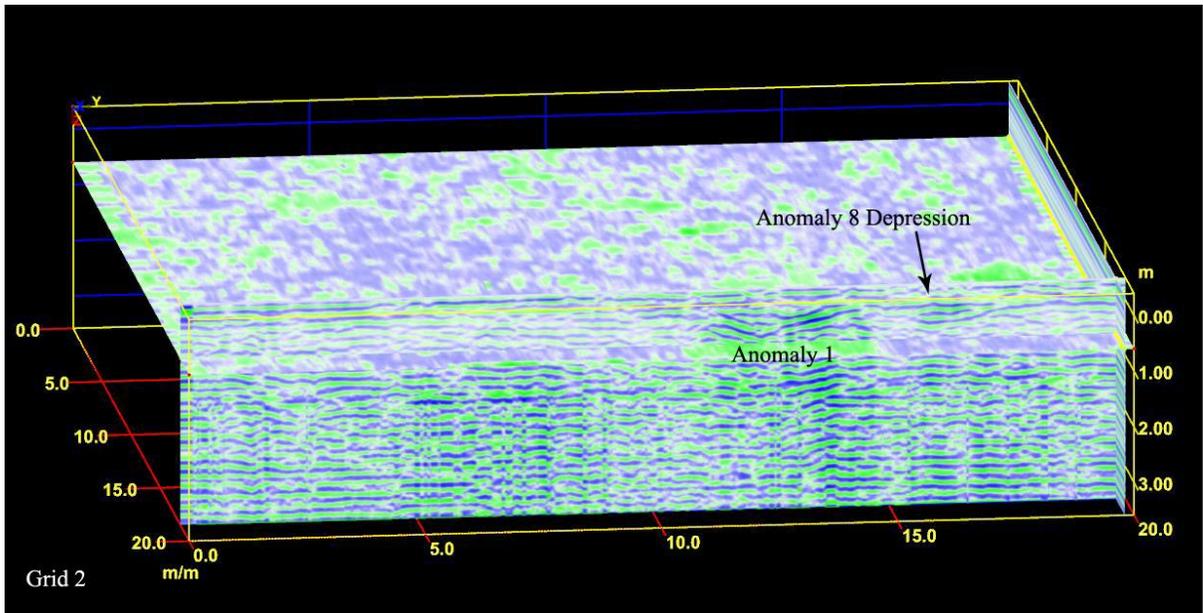


Figure II-28. Vertical and horizontal GPR cross-sections from Grid 2 focused on Anomaly 8.

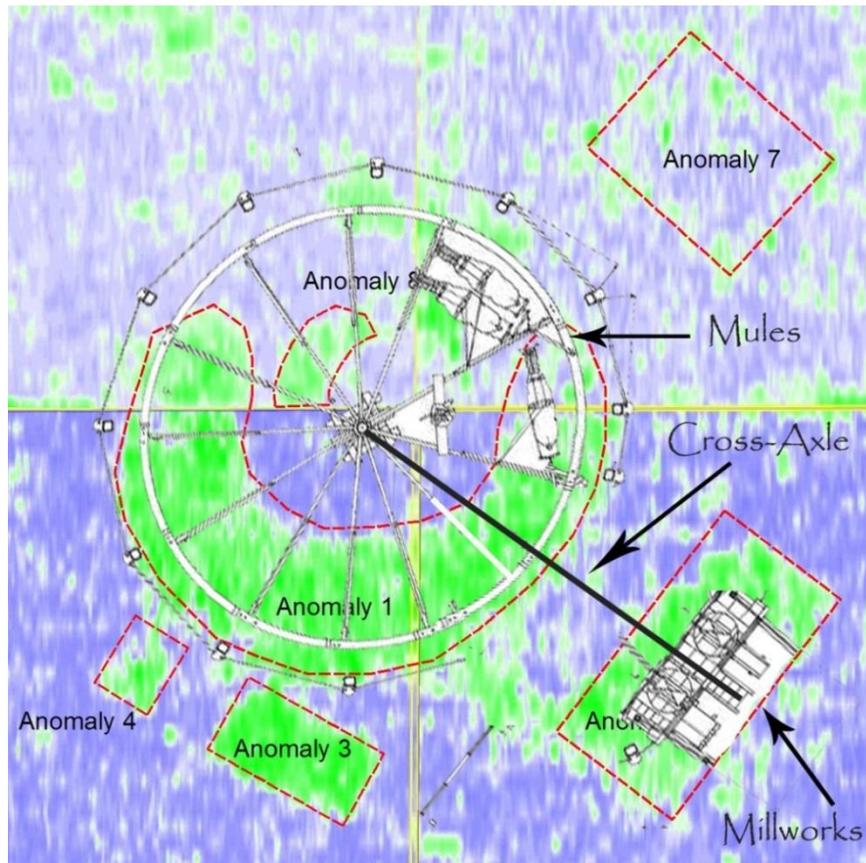


Figure II-29. A conceptual model of how a large-scale pug mill may operate.



Figure II-30. Photo of digging clay for bricks and hauling it to the Pug Mill in the Background. <http://fromefables.wordpress.com/2013/01/10/the-lives-and-loves-of-james-hancock/>



Figure II-31. Excavation of Anomaly 2 (Photo by Chris Fennell).

The Lewis West Site Revisited

Keith Stephenson and Karen Y. Smith

One of the most intensively excavated Woodland period sites in the interior Coastal Plain is the G. S. Lewis West site (Hanson 1988; Sassaman et al 1990). Lewis West is situated at the confluence of Upper Three Runs Creek and the Savannah River. Located on a small terrace adjacent to the floodplain swamp, most of the site lies beneath several feet of recent overburden from the dredging of a nearby canal in the 1950s (Sassaman 2002). As a result, site configuration cannot be precisely determined. Excavations at the site in 1984 and 1989 removed a 154 m² block through a thick midden. Just over 500 cultural features were exposed, including pits, postholes, and human and dog burials. Postmold patterns revealed the presence of several house structures with associated features. Many of the larger features produced numerous sherds with the potential for seriation and carbonized wood material for obtaining radiocarbon dates. Over 50,000 sherds were recovered, and these exhibit a broad range of decorative styles. The most prevalent type present was Deptford Linear Check Stamped (Kenion 1989). An associated minority ware was indicated by red-painted zoned sherds resembling the Deptford-related type known as Brewton Hill Zoned Punctated. Yadkin Triangular bifaces were recovered in association with this ceramic assemblage. Also present in the midden and feature deposits was cord-marked pottery, indicative of Late Woodland occupation. Small triangular arrow points were found in association with this pottery assemblage. Several radiocarbon assays have been obtained, confirming the presence of two distinct occupations: Deptford I/II between 300 B.C. and A.D. 100 and Savannah I from A.D. 900 to 1200.

A recent series of radiocarbon dates from the site has helped to clarify our understanding of the periods of occupation. A total of 21 conventional and AMS dates have been obtained on charcoal samples and sooted sherds from 18 features or excavation unit levels. The results of the calibrated radiometric distribution is shown in Figure II-32. The earliest dates fall within the Late Archaic ranging from about 3000 to 2000 B.C. and Early Woodland ca. 800 to 500 B.C. (Figure II-33). The next period of occupation appears during the Middle Woodland ranging from 400 B.C. to A.D. 300 (Figure II-34). This time frame falls within the Middle Woodland Deptford I and II phases [ca. 600 B.C. to A.D. 500] for the middle Savannah River valley. The final period of occupation indicated by the radiometric data is that of the Late Woodland and Early Mississippi between A.D. 900 and 1200 (Figure II-32). This later date range falls within the Savannah I phase [ca. A.D. 800 to 1200] for the middle Savannah River valley. Thus, it appears that the Lewis West site was first occupied during the Late Archaic, reoccupied during the Middle Woodland, with its final occupation occurring during the Late Woodland/Early Mississippi period. Moreover, intriguing aspects are the gaps in site occupation primarily during the time between 2000 and 400 B.C. and A.D. 300 to 900. With this information in mind, our next research endeavor revolves around how the refined occupation sequence at the Lewis site reflects upon SRS-wide settlement chronology during the Woodland period.

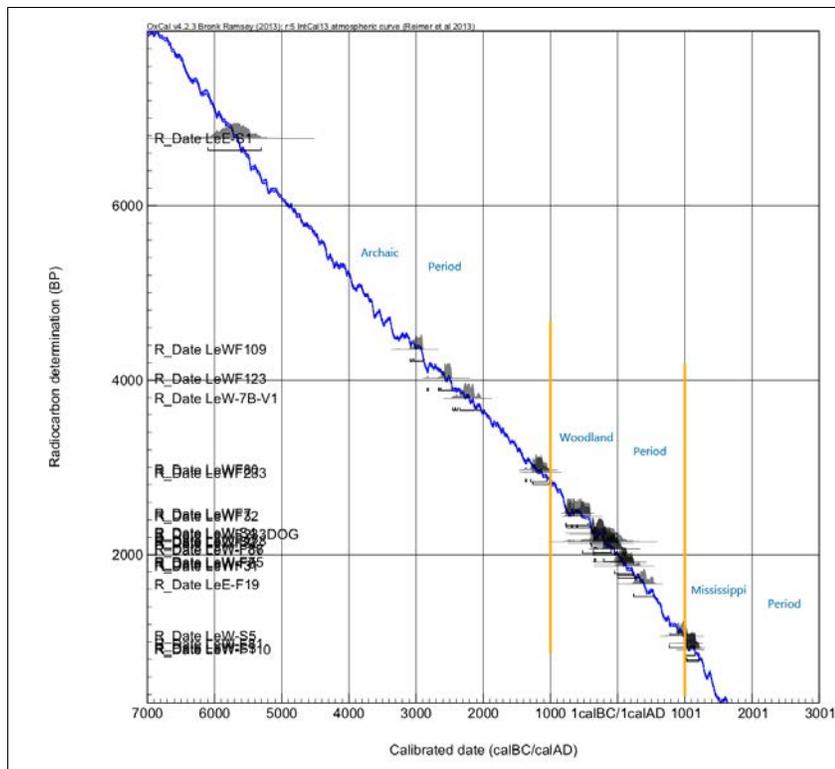


Figure II-32. Total Calibrated Radiometric Dates for Lewis West Site.

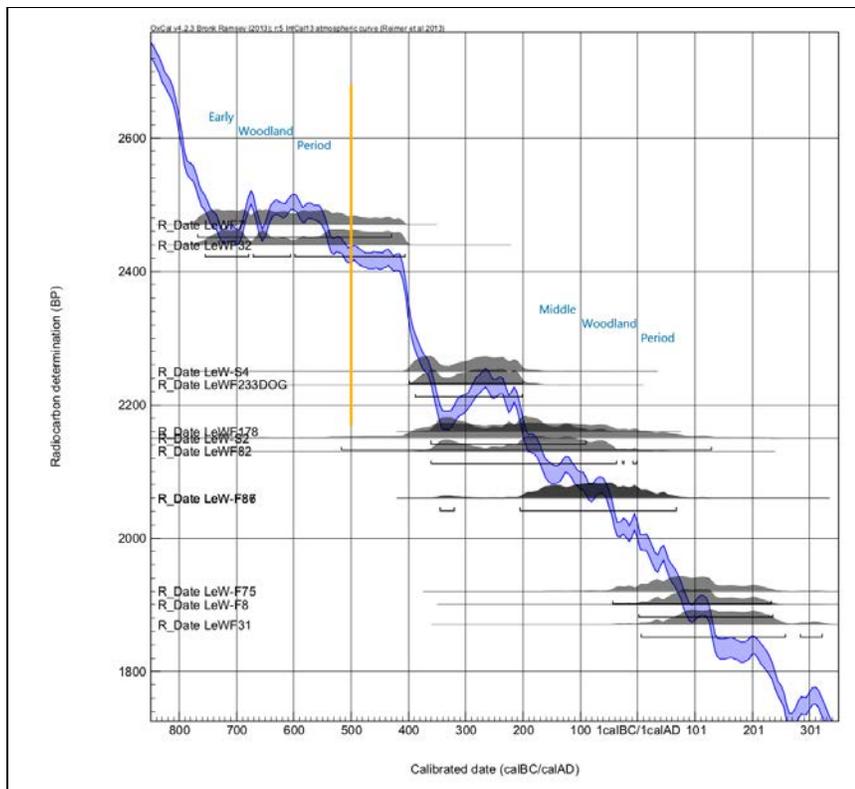


Figure II-33. Woodland Calibrated Radiometric Dates for Lewis West Site.

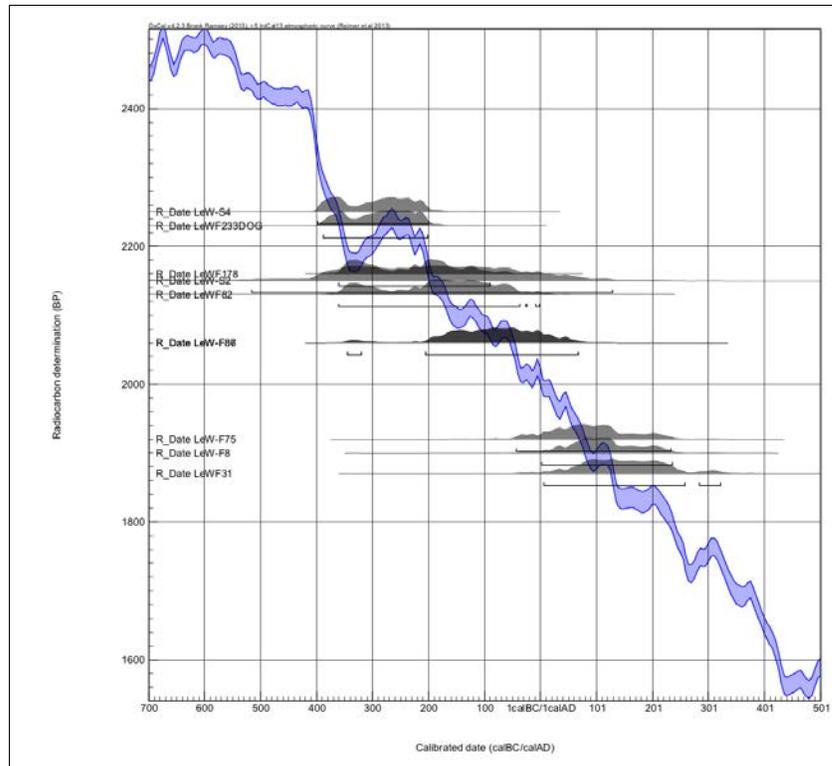


Figure II-34. Middle Woodland Calibrated Radiometric Dates for Lewis West Site.

And finally, archaeobotanical analysis for the site includes six samples from five features totaling 80.25 liters of soil processed through flotation. Overall, the botanical assemblage stands out when compared to other Middle Woodland assemblages analyzed in the state, mostly because all others are from Lower Coastal Plain sites, with the exception of one Middle Woodland assemblage from the Piedmont. Wood charcoal differs most from other Middle Woodland sites, with southern pine dominating and comprising the largest percentage (96%) of total weight of all wood identified, whereas in other parts of the state, hickory and oak are better represented. The nutshell from the Lewis-West site compares more closely with other Middle Woodland sites in that hickory dominates (93%) with some occurrences of acorn and hazelnut. Seed densities appear to be similar to other assemblages as well, indicating a woods/marsh habitat. One maygrass seed, *Phalaris caroliniana*, has been identified. More samples remain to be analyzed, with possibilities for understanding the dynamics of Middle Woodland human-plant interrelationships, especially those concerning mast resources, maygrass, and wood-fuel consumption.

Rural Life on the Aiken Plateau: Investigations at an Early 20th-Century Tenant Farm

Keith Stephenson and George L. Wingard

In the spring of 2006, the SRARP field-crew conducted reconnaissance on SU Log No. 1848 – Installation of Groundwater Monitoring Wells for A/M Area and discovered a stoneware vessel inscribed by the literate, enslaved potter known as Dave (SRARP 2006). Upon reconstruction of the vessel, a calendar date was legibly evident as

April 16, 1862. This Site Use Permit, initiated by Environmental Restoration (ER) on May 2, 2006, proposed the installation of four wells for A/M Area groundwater monitoring. Three of the four proposed monitoring well locations already had existing cement well pads, so no land disturbance was required to add new wells. The fourth well location required archaeological survey as an historic period house site was identified by the presence of an early 20th-century can and bottle dump, as well as an existing rock and timber structure foundation. Fieldwork at the newly recorded site (38AK953) consisted of 25 STPs (10 positive) excavated in a cruciform pattern to determine site boundaries. During the surface survey of a bottle and can dump at the tenant farm site, a large portion of the broken, alkaline-glazed stoneware vessel was recovered. Consultation with ER project personnel resulted in the relocation of the proposed monitoring well away from 38AK953 so that the site will be completely avoided. Despite the historical significance of the stoneware vessel recovered in the midden, site integrity had been compromised due to destruction of the homeplace during early SRS development activities rendering site 38AK953 potentially ineligible for inclusion in the NRHP.

For this reason, following the completion of the Site Use Project, we initiated a research excavation into the household dump to fully recover the remaining sherds of the 19th-century stoneware vessel *in situ* while at the same time gaining a better understanding of its archaeological context. A review of the archaeological literature on tenant farms in the region indicates that few have been subjected to further study beyond intensive shovel test investigations. Most tenant farm studies revolve around the theoretical perspective involving an analysis of the level of consumerism evident from the material remains. We too are following this line of inquiry regarding the recovered stoneware vessel manufactured in the Edgefield District by David Drake, as well as the archaeological data generated from our excavations into the household midden dump at site 38AK953.

At this time, a secondary analysis of specific artifact types is almost finished. As a result, certain trends or patterns are becoming evident from the archaeological data. Exactly 8,035 artifacts were recovered during excavation. As would be expected for a tenant farm, fully 90% are identified as utilitarian and pertain directly to agricultural and other farming activities. The remaining minority types are inventoried as consumer goods, but are also considered utilitarian on the basis of their use or function. Kitchen utensils and tableware form the majority of this category, such as whiteware bowls, cups, plates, water glasses, and cutlery, in addition to tin cans and glass bottles that contained foodstuffs or medicine. Clothing items, particularly buttons, suspender parts, and pieces of leather or rubber from shoes or boots, are present. Items that can be designated as non-utilitarian include children's toys (marbles, jacks, and porcelain doll fragments) and items of personal adornment or jewelry (decorative clothing pins and finger rings). In sum, although consumerism is evident in the material assemblage from site 38AK953, it takes the form of items that are critical to household function and use. Frugality, or more likely the absence of discretionary income, has restricted the acquisition of items for personal enjoyment to a bare minimum. Our research involving the broader study of the household economy of a late 19th to early mid-20th century tenant farm is nearing completion, and a full draft report is expected by the year's end.

Archaeological Research and Public Outreach at Graniteville

George L. Wingard and Keith Stephenson

This past year, we initiated archaeological research in Graniteville primarily focusing on its industrial beginnings during the antebellum period. In 1976, the area that encompassed the original mill town at Graniteville was nominated to the National Register as the Graniteville Historic District (Figure II-35). Our project involves a community-oriented outreach plan designed to include interested citizens in the historic neighborhood. We actively encourage residents to participate directly in the fieldwork and discovery of their own early mill town heritage. The general archaeological objective is to gain a better understanding of the cultural landscape of the mill workers' house-yards by identifying specific locations of outbuildings, wells, and subsistence gardens. Our specific agenda is to illustrate the welfare of the inhabitants of each house during the 19th century on the basis of artifact types recovered from individual household middens.

Surviving archival records from the mill contain little about the everyday lives of the workers. Archaeology as a materialist science is particularly well suited to address the issue regarding the daily life of mill operatives and their families. Since the Graniteville Company maintained continuous textile production from 1848 until 2006, no archaeology has ever been conducted at Graniteville to reveal the contextual record of this mill town until this project. Thus, the material condition of the mill laborers that occupied Graniteville during the 19th century remains undocumented. Our purpose is to recover artifacts and identify cultural features that will chronicle early proletariat existence in one of the Deep South's hallmark working-class communities. Since an obvious gap exists between the destroyed early documentary history and the 19th-century archaeological deposits at Graniteville, our theoretical concern involves the political economy of Graniteville and its influence on working-class domestic life there. In other words, we are not so much focusing on the industrial archaeology of textile manufacture at Graniteville, but rather a social archaeology, to better understand the social relations of production between the capitalist objective at Graniteville and the standard of living of the resident labor force.

William Gregg was meticulous in designing his mill town and personally managed all aspects of its construction. All workers' cottages were built according to identical specifications in dimension and each precisely spaced apart from one another. So we expect—based on this consistency in architecture and arrangement—that the array of outbuildings, privies, wells, gardens, and animal pens will be exactly the same for each house-yard. This landscape patterning should prove evident through cultural feature locations and non-random artifact distributions. While excavation at each individual worker's row house offers the opportunity to study single families over time, testing at multiple house-yards holds the promise of being able to make comparisons among households. In turn, this will allow us to characterize any diversity throughout the entire neighborhood for the latter 19th century.

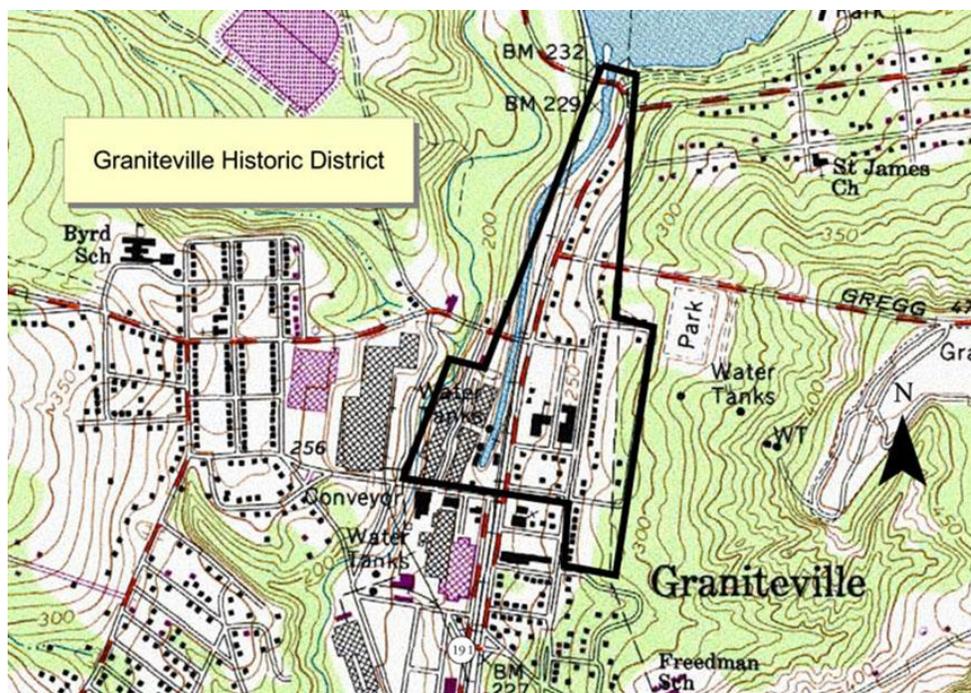


Figure II-35. Topographic map showing the extent of the Graniteville Historic District as listed on the National Register of Historic Places.

To date, we have surveyed 4 house lots, excavating a total of 124 50x50-cm STPs on 5-m grids. Approximately 25 potential cultural features have been encountered, with most being possible post molds. We have tentatively scheduled at least three house lots for further survey during the remainder of this year. Presently, we are engaged in the inventory and classification of recovered items. This information will allow us to generate data analyses of specific artifact patterns for each yard. These archaeological signatures, coupled with the location of recorded cultural features, will be employed to guide further testing and, eventually, the location of large block excavations.

For purposes of our discussion here, we focus on two of the lots surveyed to date and recorded as House Lot Numbers 11 and 15 (Figure II-36). The mill house structures were built in alignment with the plane of the hill-slope, so little if any disturbing activity occurred to the original ground surface. In the 1920s, however, kitchens were added onto the back of the original houses. During this remodeling and upgrading episode, the hill-slope was graded to accommodate the structural addition. This land modification resulted in severe disturbance to any 19th-century archaeological deposits primarily in the midsections of each house lot. For this reason, our work mainly focused on the front and back portions of each lot.

A standard grid was overlaid on each lot with the datum consistently established off the front center pier of each house. All STPs were excavated on a 5-m grid across these yards. Our survey efforts have recovered just over 3,500 artifacts. Interestingly, only about 15% date to the 19th century.

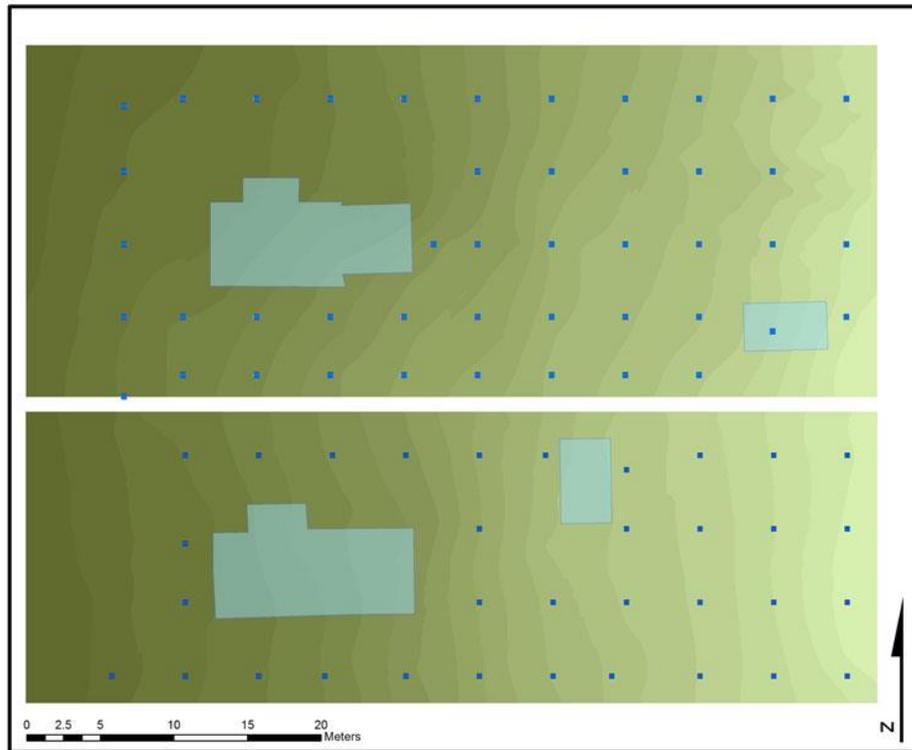


Figure II-36. Blue Row House Lot Nos. 11 (above) & 15 (below) showing STP grid.

Several examples of artifact distributions are shown in Figure II-37 through Figure II-40. These distribution plots indicate that artifacts are present across the yards of worker's houses, with some patterning evident within specific artifact types. In those plots with brick and mortar and flat glass (fragments of window glass), there is evidence of scatters in both the front and backyards. We attribute this to over 160 years of house maintenance and remodeling, especially during the 1920s and 1940s when the Graniteville Company undertook major projects involving remodeling or additions to the houses. Specific mid-19th-century artifact types, such as dark green bottle glass and alkaline-glazed stoneware sherds, appear to conform to a pattern of central backyard distribution, probably a result of the occupant disposal pattern during the 19th century. Through further testing and density plot analysis, we expect to delineate additional patterns of refuse discard.

In general, we note that the bulk of the recovered 19th-century material includes personal items, architectural hardware and tools, food storage and serving-ware containers, and home-heating/cooking fuel resources, such as coal. Especially evident are children's toys, school items (fragments of writing slate and slate pencils), personal adornment items, patent medicine bottles, as well as stoneware and refined earthenware vessels. These objects are associated with a personal use of space in the immediate yard area. Eventually, as we excavate the back portions of each original house-yard (the tract of land across the alley that used to adjoin the backyard), we expect to detect more generalized trash middens, as well as the location of privies, gardens, and animal pens.

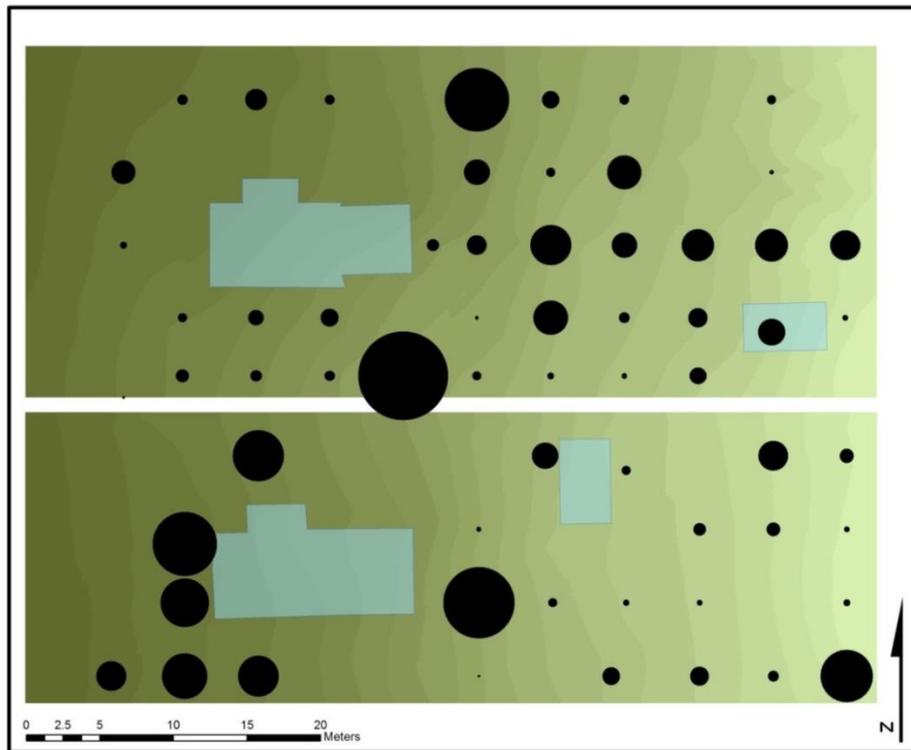


Figure II-37. Blue Row House Lot Nos. 11 (above) & 15 (below) showing Density Plot of Brick and Mortar.

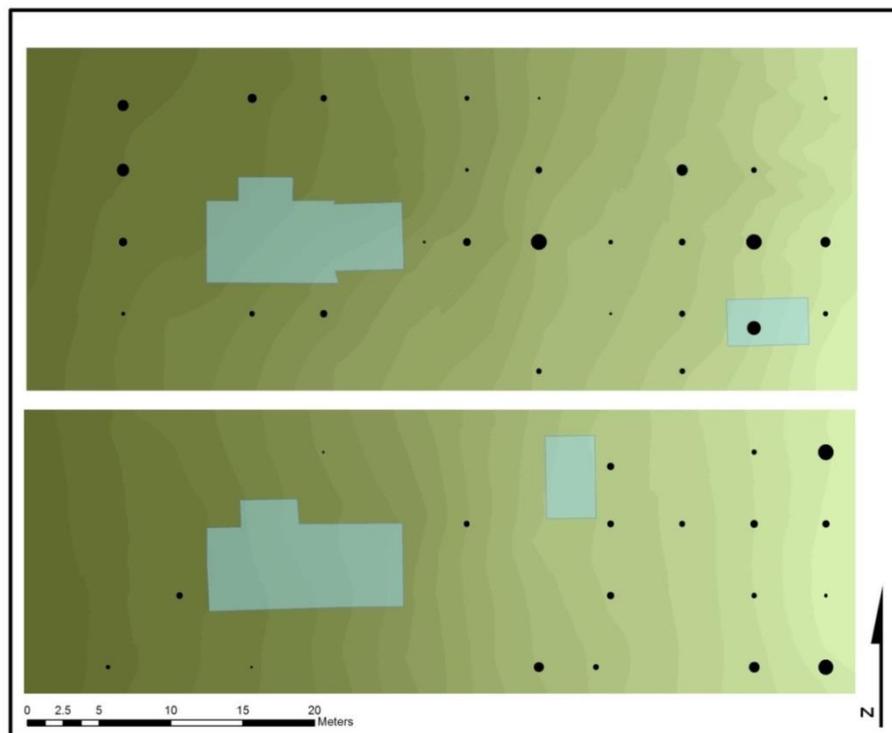


Figure II-38. Blue Row House Lot Nos. 11 (above) & 15 (below) showing Density Plot of Flat Glass.

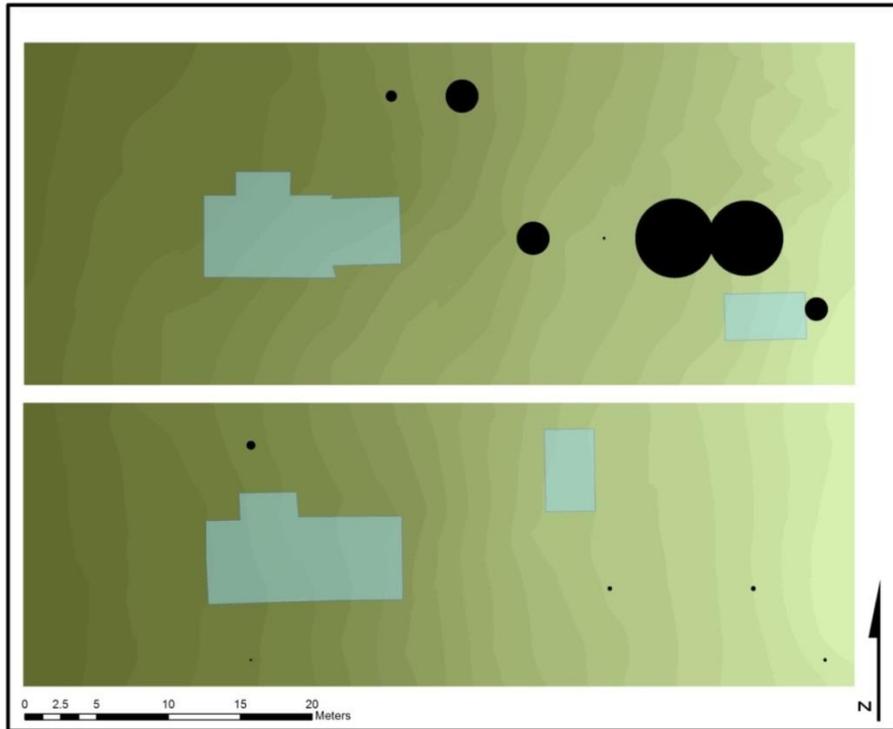


Figure II-39. Blue Row House Lot Nos. 11 (above) & 15 (below) showing Density Plot of Stoneware.

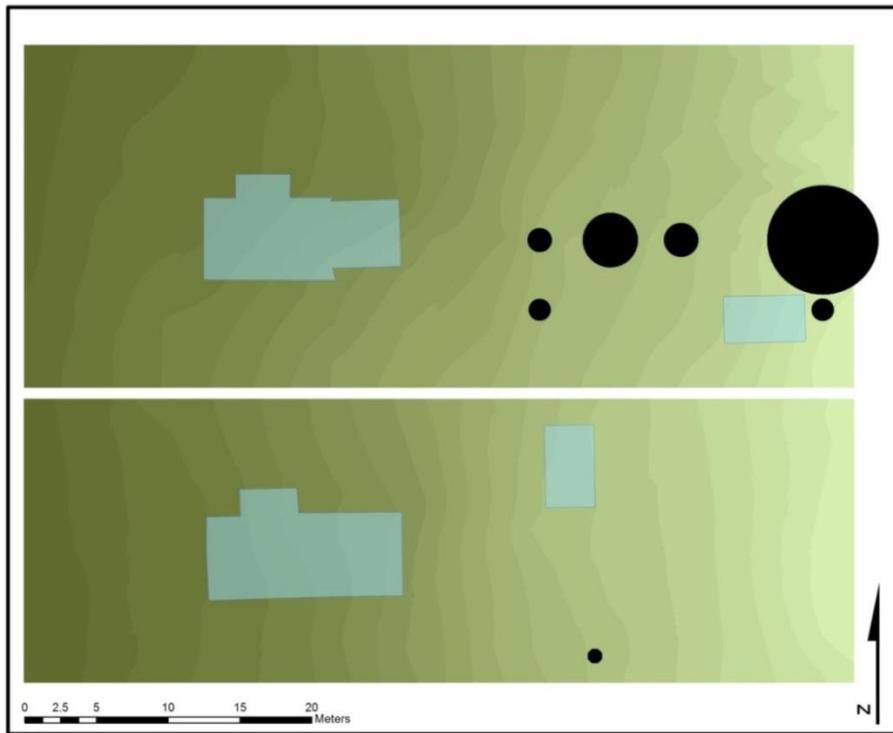


Figure II-40. Blue Row House Lot Nos. 11 (above) & 15 (below) showing Density Plot of Dark Green Bottle Glass.

Ultimately, our research will expand to include the yards of boarding houses and those of mill supervisors. The variety of artifact types recovered will point to any differences in affluence between the households of operatives and supervisors residing there. Through this study, we will attain a deeper understanding of the social relations between the mill operatives and their supervisors. Visit our Graniteville Archaeological Project page on Facebook for further details and updates on this research.

PART III. PUBLIC EDUCATION

EDUCATIONAL OUTREACH

Christopher R. Moore

As set forth in the PMOA, and implemented through the DOE/SCIAA cooperative agreement, the SRARP continued to offer a variety of educational and outreach programs in FY13. These activities included archaeological displays, lectures, tours, and special assistance for the public. Outreach activities in FY13 continued with an emphasis on local archaeological displays. School programs included the very popular “You Be the Archaeologist” program conducted at the Silver Bluff Audubon Center & Sanctuary located near Jackson, South Carolina. In FY13, 273 students participated in the program at Silver Bluff, while more than 4,052 people attended public outreach displays at USC Aiken’s Science Education and Enrichment Day (SEED), Kids Earth Day in North Augusta, and the South Carolina Archaeological Society Fall Field Day event at Santee State Park on Lake Marion. SRARP staff participated in a number of other well attended outreach events throughout the year, such as CoastFest and Georgia on My Mind Day (see PUBLIC SERVICE ACTIVITIES section below).

SRARP VOLUNTEER PROGRAM

Christopher R. Moore and Tammy F. Herron

As part of the SRARP’s three-fold mission of compliance, research, and public outreach, we utilize dedicated volunteers to assist in archaeological research. Volunteers aid in a variety of tasks and have been an integral part of the SRARP since the program’s inception in 1973. Staff members of the SRARP are sincerely grateful for the contributions of our volunteers. Indeed, much of the research that we carry out would not be possible without the assistance and support of the volunteers.

During FY13, the SRARP continued to expand its volunteer-based research programs. Due to the fact that archaeological research of the 19th-century mill town of Graniteville is being conducted off-site, several of the local residents of the community were able to visit the ongoing excavation. Excavations such as these serve to inform the general public of the significance of archaeological sites, with the hope of fostering their support of archaeological preservation, education, and research.

George Heath, a former resident of the area that would become the Savannah River Plant (known today as the SRS), has been assisting with archaeological site survey on the SRS and processing artifacts, including water-screening, sorting artifacts, and weighing brick fragments. He constructed new screens for use in shovel testing during site survey. Mr. Heath has also been very helpful in providing information about Sleepy Hollow Township, a Reconstruction Period enumeration district on the SRS that contained the community of Hawthorne where George was born in 1933. He also continues to identify agricultural-related artifacts that mystify the archaeologists. As a

result of his volunteer work with the program, Mr. Heath logged in 375 hours this fiscal year.

Long-time volunteer Jill Nazarete assisted with a variety of tasks in the lab this year, including data entry, reintegrating artifacts into the collection, sorting artifacts, washing artifacts, preliminary analysis of artifacts, Xeroxing, and checking duplicate Timber Compartment and Site Use files to be housed in Columbia. Throughout the course of the fiscal year, Mrs. Nazarete donated a total of 232 hours of volunteer time to the program.

The Carolina Bay Volunteer Research Program (CBVRP) involves the interested public in geoarchaeological and paleoenvironmental research of Carolina bays located throughout the CSRA. Now in its fifth year, the CBVRP logged approximately 400 volunteer hours in FY13. A significant decrease in the total number of hours logged this year is attributed to the temporary loss of volunteer John Whatley as a result of health related issues. Throughout the course of the fiscal year, local Aiken resident Jessica Cooper sorted artifacts from Flamingo Bay (38AK469) and worked on the production of a photographic database of carbonized nuts and seeds from the site. Our most recent volunteer, John Kolmar, is also from Aiken and is working on a photographic database of all the stone tools excavated from Flamingo Bay (38AK469). Bob Van Buren continued his volunteer work in the wet lab by conducting grain size analysis, as well as working on the Statewide Collector Survey projectile point database. Rooney Floyd also continued volunteer work by assisting with unit excavations at Flamingo Bay (38AK469) and artifact sorting. As with previous years, volunteer hours were focused on completing lab work and the analysis of data collected from previous volunteer excavations. Additional tasks involved washing and sorting artifacts, lithic analysis, analysis of archaeological sediments (i.e., sieving), flotation, and data entry. Two short field seasons at Flamingo Bay (38AK469) (one during the fall of 2012 and one in the spring of 2013) were conducted with the help of the SRARP field crew and volunteers. CBVRP volunteers for FY13 included Jessica Cooper, Rooney Floyd, George Heath, John Kolmar, Duval Lawrence, Jill Nazarete, Scotty Thompson, Jason Trefz (son of Jill Nazarete), and Bob Van Buren.

Over the course of the fiscal year, program volunteers have logged in approximately 1,007 hours of work. The staff of the SRARP appreciates the work of our volunteers in helping further the program's three-fold mission.

PUBLIC ARCHAEOLOGY BY THE SRARP

(The following is excerpted text on reverse of 2013 archaeology month poster)

Sharing the Past: Public Archaeology in South Carolina
South Carolina Archaeology Month October 2013

Christopher R. Moore

Public archaeology by the SRARP is part of our threefold mission of compliance archaeology, research, and public education at the SRS. As part of our mission of public

education, we utilize dedicated volunteers to assist in archaeological research by the SRARP (Figure III–1). Volunteers have been an integral part of the SRARP since the program’s inception in 1973 and assist in a variety of tasks such as archaeological fieldwork, artifact processing and analysis, soil sediment analysis, data entry, documents research, assisting with exhibits, Xeroxing, and filing. In the last few years, several volunteers have directly assisted in ongoing geoarchaeological research of Carolina bays and more recently, excavations around historic mill houses in Graniteville, South Carolina. In this regard, the SRARP has seamlessly integrated public education and archaeological research.

In addition to providing opportunities for volunteers, the SRARP staff presents numerous lectures and educational programs throughout the year. These include public lectures to various social groups in the Central Savannah River Area (CSRA), as well as educational outreach to local schools. We also present an educational and interactive program at the Silver Bluff Audubon Center in Aiken County called *You Be the Archaeologist*. In this program, students learn what archaeology is (and what it isn’t) and then participate in a hands-on component that includes a simulated excavation. This simple program is a great way to introduce children to archaeology or reinforce lessons about American history and prehistory. *You Be the Archaeologist* is best suited for [classes](#) in the third grade through Junior High. For more information on other public archaeology programs and volunteer opportunities, contact Christopher Moore at cmoore@srarp.org or visit our website (www.srarp.org).



Figure III–1. Educational outreach using an alkaline-glazed stoneware vessel crafted by Dave, an enslaved Edgefield potter, to teach the importance of archaeology and to tell Dave’s story.

CINEMATIC OUTREACH

George L. Wingard

George Wingard continued his association with filmmaker Mark Albertin of Scrapbook Video Productions this year and completed the documentary *Discovering Dave: Spirit Captured in Clay*. This documentary discusses what is known about an enslaved African-American potter named David Drake, the area where he lived and worked, and places Dave's life into a historical context. The catalyst for the film was the excavation of one of Dave's alkaline-glazed stoneware creations by the SRARP. The archaeological discovery of the vessel and its use as an outreach tool are also highlighted in the film.

The documentary premiered in Edgefield, South Carolina for those who participated in its development. Later, it was screened at the Etherredge Center located on the University of South Carolina-Aiken campus to nearly 450 interested members of the public. This work has been accepted as a finalist in the documentary category at the DixieFest film festival in Athens, Georgia and has been invited to be shown at the first annual Arkaois Archaeological Film Festival on Hilton Head Island, South Carolina. The film has been submitted to nine other film festivals, and we are awaiting word on their acceptance.

Discovering Dave: Spirit Captured in Clay will be distributed to local schools, libraries, and museums in the CSRA. Georgia Public Broadcasting and the South Carolina Educational Television have each voiced an interest in airing the documentary on their respective networks in 2014.

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Sassaman, K. E., I. R. Daniel, Jr., and C. R. Moore

2002 *G. S. Lewis-East: Early and Late Archaic Occupations along the Savannah River, Aiken County, South Carolina*. Savannah River Archaeological Research Papers 12, Savannah River Archaeological Research Program, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Sauer, C. O.

1925 The Morphology of Landscape. *University of California Publications in Geography* 2(2):19-54.

Savannah River Archaeological Research Program (SRARP)

1989 *Archaeological Resource Management Plan of the Savannah River Archaeological Research Program*. Submitted to the Savannah River Operations Office, US Department of Energy. Savannah River Archaeological Research Program, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

1990 *Annual Review of Cultural Resource Investigations by the Savannah River Archaeological Research Program: Fiscal Year 1990*. Submitted to the Savannah River Operations Office, US Department of Energy. Savannah River Archaeological Research Program, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

2006 *Annual Review of Cultural Resource Investigations by the Savannah River Archaeological Research Program: Fiscal Year 2006*. Submitted to the Savannah River Operations Office, US Department of Energy. Savannah River Archaeological Research Program, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

2011 *Annual Review of Cultural Resource Investigations by the Savannah River Archaeological Research Program: Fiscal Year 2011*. Submitted to the Savannah River Operations Office, US Department of Energy. Savannah River Archaeological Research Program, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

2012 *Annual Review of Cultural Resource Investigations by the Savannah River Archaeological Research Program: Fiscal Year 2012*. Submitted to the Savannah River Operations Office, US Department of Energy. Savannah River Archaeological Research Program, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

2013 *Archaeological Resource Management Plan of the Savannah River Archaeological Research Program*. Submitted to the Savannah River Operations Office, US Department of Energy. Savannah River Archaeological Research Program, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Semenov, S.

1964 *Prehistoric Technology*. Cory, Adams and Mackay, London.

Sensabaugh, G. F., A. C. Wilson, and P. L. Kirk

1971a Protein Stability in Preserved Biological Remains I. Survival of Biologically Active Proteins in an 8-year-old Sample of Dried Blood. *International Journal of Biochemistry* 2:545-557.

1971b Protein Stability in Preserved Biological Remains II. Modification and Aggregation of Proteins in an 8-year-old Sample of Dried Blood. *International Journal of Biochemistry* 2:558-568.

Steen, C., C. Judge, and J. Legg

1995 An Archaeological Survey of the Nature Conservancy's Peachtree Rock Preserve. Diachronic Research Foundation, Columbia, SC.

Steponaitis, V. P., J. D. Irwin, T. E. McReynolds, and C. R. Moore (editors)

2006 *Stone Quarries and Sourcing in the Carolina Slate Belt*. Research Report No. 25, Research Laboratories of Archaeology. University of North Carolina Press, Chapel Hill.

Tringham, R., G. Cooper, G. Odell, B. Voytek, and A. Whitman

1974 Experimentation in the Formation of Edge Damage: a New Approach to Lithic Analysis. *Journal of Field Archaeology* 1:171-196.

Yerkes, R. W.

1987 *Prehistoric life on the Mississippi Floodplain: Stone Tool Use, Settlement Organization, and Subsistence Practices at the Labras Lake Site, Illinois*. University of Chicago Press, Chicago.

APPENDIX. PUBLICATIONS AND PROFESSIONAL ACTIVITIES

PUBLISHED PAPERS

Iriarte, José, Silvia Moehlecke Copé, Michael Fradley, Jami Lockhart, and J. Christopher Gillam

2013 Sacred Landscapes of the Southern Brazilian Highlands: Understanding the Grammar of the Southern Proto-Jê Mound and Enclosure Complexes. *Journal of Anthropological Archaeology* 32:74-96.

Moore, Christopher R., and Mark J. Brooks

2012 An In-situ Clovis Assemblage from a Carolina Bay Sand Rim, Aiken County, South Carolina. *South Carolina Antiquities* 44:110-112.

Moore, Christopher R., Mark J. Brooks, James K. Feathers, and Tommy Charles

2012 Recovery and Luminescence Dating of a Buried Cache from Frierson Bay, Barnwell County, South Carolina: Implications for Middle Archaic Provisioning and Social Interaction in the Inter-riverine Coastal Plain. *South Carolina Antiquities* 44:2-17.

Wittke, James H., James C. Weaver, Ted E. Bunch, James P. Kennett, Douglas J. Kennett, Andrew M. T. Moore, Gordon C. Hillman, Kenneth B. Tankersley, Albert C. Goodyear, Christopher R. Moore, I. Randolph Daniel, Jr., Jack H. Ray, Neal H. Lopinot, David Ferraro, Isabel Israde-Alcántara, James L. Bischoff, Paul S. DeCarli, Robert E. Hermes, Johan B. Kloosterman, Zsolt Revay, George A. Howard, David R. Kimbel, Gunther Kletetschka, Ladislav Nabeleku, Carl P. Lipo, Sachiko Sakai, Allen West, and Richard B. Firestone

2013 Evidence for Deposition of 10 Million Tonnes of Impact Spherules Across Four Continents 12,800 Years Ago. *Proceedings of the National Academy of Sciences* 110(23):1-10.

DOCUMENTARY FILM

Wingard, George L., and Mark Albertin (producers)

2013 *Discovering Dave: Spirit Captured in Clay*. Savannah River Archaeological Research Program, Aiken, SC and Scrapbook Video Productions, Augusta, GA.

PROFESSIONAL PAPERS AND POSTERS

Daniel, I. Randolph, Jr., Christopher R. Moore, and E. Christopher Canyon

2013 Sifting the Sands of Time: Geoarchaeology, Culture Chronology, and Climate Change at Squires' Ridge, Northeastern North Carolina. Paper presented at the Annual Meeting of the North Carolina Archaeological Council UNC-Chapel Hill, NC.

Gillam, J. Christopher, Sergei A. Gladyshev, Andrei V. Tabarev, Biambaa Gunchinsuren, and John W. Olsen

2013 *Modeling Paleolithic Landscapes of Northern Mongolia*. Invited paper presented in the symposium “Before Beringia: Archaeological Evidence and Late Pleistocene Population Dynamics in Central and Northeast Asia” for the 78th Annual Meeting of the Society for American Archaeology, Honolulu, HI.

Herbert, Joseph M., Daryl Armour, and Christopher R. Moore

2013 Archaic Tool Caching in the North Carolina Sandhills. Paper presented at the Third Annual Reconstructive/Experimental Archaeology Conference, The Schiele Museum, Gastonia, NC.

King, Adam, and Johann Sawyer

2012 The Sacred Geography of the Pot. Paper presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA.

McNamee, Calla, Christopher R. Moore, Mark J. Brooks, Andrew H. Ivester, and James K. Feathers

2013 Microbotanical analysis of Carolina Bay Sand Rims: Reconstructing Holocene Vegetation and Paleoenvironment through Phytolith Analysis. Paper presented at the 78th Annual Meeting of the Society for American Archaeology, Honolulu, HI.

Moore, Christopher R., and Tommy Charles

2013 Diachronic and Geospatial Trends in South Carolina Prehistory: Evaluating the Social Scale of Hunter-Gatherers using the Statewide Collector Survey. Paper presented at the 39th Annual Meeting of the Archaeological Society of South Carolina in Columbia, SC.

Moore, Christopher R., Mark J. Brooks, James K. Feathers, and Tommy Charles

2012 Recovery and Luminescence Dating of a Buried Cache from Frierson Bay, Barnwell County, South Carolina: Implications for Middle Archaic Provisioning and Social Interaction in the Inter-riverine Coastal Plain. Paper presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA.

Moore, Christopher R., Mark J. Brooks, Andrew H. Ivester, Terry A. Ferguson, and James K. Feathers

2012 Geoarchaeological Investigations of Carolina Bay Sand Rims in the Central Savannah River Area, South Carolina: Differentiating the Undifferentiated. Poster presented at the Annual Meeting of the Geological Society of America, Charlotte, NC.

Moore, Christopher R., Mark J. Brooks, Andrew H. Ivester, Terry A. Ferguson, and James K. Feathers

2012 Carolina Bay Formation and Evolution: Kaczorowski was Right! Paper presented at the Annual Meeting of the Geological Society of America, Charlotte, NC.

Moore, Christopher R., Mark J. Brooks, Andrew H. Ivester, Terry A. Ferguson, and James K. Feathers

2012 Geoarchaeological Investigations of Carolina Bay Sand Rims in the Central Savannah River Area, South Carolina: Differentiating the Undifferentiated. Poster presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA.

Moore, Christopher R., Drew S. Coleman, and Mark J. Brooks

2012 Geochemical Sourcing of Stone Quarries and Artifacts in North and South Carolina using Neodymium Isotopes and Rare Earth Elements. Poster presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA.

Needham, Maggie M.

2012 Reconsidering an Eighteenth-Century Yuchi Settlement on the Savannah River (9EF16). Paper presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA.

Needham, Maggie M., and George L. Wingard

2013 The Archaeological Stoneware Project: Analysis of Central Savannah River Area Stoneware Production. Poster presented at the 39th Annual Meeting of the Archaeological Society of South Carolina in Columbia, SC.

Herbert, Joseph M., Jay W. Gray, Christopher R. Moore, and Daryl W. Armour

2012 Archaic Caches in the Carolina Sandhills. Paper presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA.

Stephenson, Keith, Karen Y. Smith, and Kevin Kiernan

2013 Preston Holder's WPA Excavation of the Truncated Mound at the Evelyn Site in Glynn County. Paper presented at the Semi-Annual Meeting of the Society for Georgia Archaeology, Macon, and the Annual SOGART Symposium on Southeastern Coastal Plain Archaeology, Douglas, GA.

Thornock, Christopher

2013 The Hollywood Mound Site: A Middle Mississippian Community on the Savannah River. Paper presented at the 39th Annual Meeting of the Archaeological Society of South Carolina in Columbia, SC.

Walker, Chester P., Adam King, and Kent Reilly

2012 The Etowah Archeo-Geophysical Survey. Paper presented at the 69th Annual Southeastern Archaeological Conference, Baton Rouge, LA.

Wingard, George L., and Keith Stephenson

2013 Public Archaeology and the Graniteville Textile Village, South Carolina, 1845-1900. Paper presented at the Third Annual Charles Towne Landing Archaeology Conference, Charleston, SC.

Wingard, George L., Maggie M. Needham, and Keith Stephenson
 2013 Graniteville Archaeological Project: Interpreting Gregg's Textile Mill Village of Graniteville, Old Edgefield District, South Carolina, 1845-1870. Poster presented at the 39th Annual Meeting of the Archaeological Society of South Carolina in Columbia, SC.

POPULAR LITERATURE

Gillam, J. Christopher
 2013 Going Polynesian in Hawai'i: Natural and Cultural Landscapes of the Big Island. *Legacy* 17(1): 26-28.

Gillam, J. Christopher, Sergei A. Gladyshev, Andrei V. Tabarev, Biambaa Gunchinsuren, and John W. Olsen
 2012 Halfway to Mörön: Shedding New Light on Paleolithic Landscapes of Northern Mongolia. *Legacy* 16(2): 14-17.

Shakespeare, Margaret
 2012 Down by the Savannah Riverside. *Archaeology* 65(6):43-47. This article on Carolina bay research was based on interviews with SRARP staff.

REVIEWS OF ARTICLES, MANUSCRIPTS, AND PROPOSALS

Gillam, J. Christopher
 2012 Article review for the *Journal of Anthropological Archaeology*.

2013 Article review for the *Journal of World Prehistory*.

King, Adam
 Article review for *American Antiquity*.

Article review for *Southeastern Archaeology*.

Article review for National Science Foundation.

Article review for University Press of Florida.

BOOK REVIEWS

Stephenson, Keith
 Review of book for the University Press of Florida, Gainesville. Shannon McCarthy, Acquisitions Assistant.

OFFICES AND APPOINTMENTS HELD

Brooks, Mark J.
 Director, Savannah River Archaeological Research Program.

Division Head, South Carolina Institute of Archaeology and Anthropology.

Member, Senior Advisory Council, South Carolina Institute of Archaeology and Anthropology.

Member, Ethics Committee, South Carolina Institute of Archaeology and Anthropology.

Member, Grants and Contracts Committee, South Carolina Institute of Archaeology and Anthropology.

Member, SRS Senior Environmental Managers Council.

Gillam, J. Christopher

Research Member of the joint-international Mongolia Archaeological Project (MAP) on Paleolithic archaeology along the Tolbor River of northern Mongolia, with Biambaa Gunchinsuren, Mongolia Academy of Sciences/Institute of Archaeology, Ulaanbaatar; Sergei Gladyshev and Andrei Tabarev, Russian Academy of Sciences/Institute of Archaeology and Ethnography, Novosibirsk; and Nicolas Zwyns and Tamara Dogandzic, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany.

Research Member of the international research project, Neolithisation and Modernisation (NEOMAP) of the East Asian Inland Seas, with Junzo Uchiyama, NEOMAP Director, and others at the Research Institute for Humanity and Nature, Kyoto, Japan.

Project Co-Director and GIS Manager for the Paleoindian Database of the Americas, with David G. Anderson, Project Director, and others at the University of Tennessee.

GIS and SC Paleo-Point Database Manager for the Southeastern Paleoamerican Survey, with Albert C. Goodyear, Director, and others at SCIAA, USC.

Archivist, Council of South Carolina Professional Archaeologists.

Research Associate of the Walker Institute of International and Area Studies, USC.

Research Affiliate of the Center for Asian Studies, USC.

Research Affiliate of the Latin American Studies Program, USC.

Research Affiliate of the Russian and Eurasian Studies Program, USC.

Voting Member, E&GIS Data Trustee Committee, SRS, Aiken, SC.

Head, Database Integration Committee (DIC), SRARP.

Herron, Tammy F.

President, Society for Georgia Archaeology.

Chairman, Georgia Archaeology Month Committee, Society for Georgia Archaeology.

Chairman, Exhibits Committee, Beech Island Agricultural Museum owned by the Beech Island Historical Society, Beech Island, SC.

Board Member and Secretary, Beech Island Historical Society.

Member, Beech Island Heritage Corridor Committee.

Moore, Christopher R.

Assistant Journal Editor, *South Carolina Antiquities*.

Co-Principle Investigator for the Tar River Geoarchaeological Survey, Coastal Plain portion of the Tar River in eastern North Carolina, with I. Randolph Daniel, Jr., Principle Investigator, East Carolina University, Department of Anthropology, East Carolina University, Greenville, NC.

Board member, Piedmont Archaeological Studies Trust (PAST), Newberry, SC.

Stephenson, Keith

Treasurer, Council of South Carolina Professional Archaeologists.

PROFESSIONAL ORGANIZATION SERVICE

Herron, Tammy F.

Assisted with organizing the Society for Georgia Archaeology's 20th annual Georgia Archaeology Awareness promotion for Archaeology Month 2013 themed "Digging and Diving into the Past: Celebrating 20 Years of Georgia Archaeology Awareness."

Presided over and assisted with organizing the Society for Georgia Archaeology's annual Spring Meeting at the Georgia Sports Hall of Fame, Macon, Georgia.

CONSULTING

Brooks, Mark J., and Christopher R. Moore

Geoarchaeological consultants to Audrey R. Dawson (SCIAA) and Andrew H. Ivester (Profile Sciences, LLC) for ongoing work at archaeological site 38RD841/842/844, a predominantly Middle Archaic, Sandhills site on Ft. Jackson, SC.

Gillam, J. Christopher

Numerous consultations during the fiscal year on prehistoric archaeology, GIS, GPS, and computer-related equipment and software for the Divisions of SCIAA.

Herron, Tammy F.

Archaeological Consultant, Aiken County Historical Museum, Aiken, SC.

Archaeological Consultant, Beech Island Historical Society, Beech Island, SC. Compiling text and photographs for exhibits in the Beech Island Agricultural Museum that will be operated by the Beech Island Historical Society.

Archaeological Consultant, Oakley Park Museum, Edgefield, SC.

Archaeological Consultant, Silver Bluff Audubon Center & Sanctuary, Jackson, SC.

Moore, Christopher R., and Mark J. Brooks

Geoarchaeological consultants to Carl Steen (Diachronic Research Foundation), Christopher Judge (USC-Lancaster), and Sean Taylor (DNR-Heritage Trust) for ongoing work at the Kolb site (38DA75) on the SC DNR's Great PeeDee Heritage Preserve near Mechanicsville, SC.

Wingard, George L.

Consulted with Mark Albertin of Scrapbook Productions on a documentary about the recovery of a "Dave" vessel excavated on the SRS. This historic period container is an alkaline-glazed stoneware churn attributed to David Drake, an enslaved potter from Edgefield, SC.

Consulted with Savannah River Heritage Foundation on the proposed Ellenton Walking Trail.

CONTRACTS AND GRANTS

Brooks, Mark J.

Cultural Resource Management on the US DOE's SRS, Aiken and Barnwell counties, SC. US DOE-SR Operations Office.

Gillam, J. Christopher

(Co-PI) Joint Mongolian-Russian-American Archaeological Expedition grant for 2014 fieldwork and Paleolithic research on the Kharganyn and Altatyn rivers, Mongolia, with John W. Olsen (PI), Department of Anthropology, University of Arizona, and others.

King, Adam

Refining the Middle Savannah River Valley Hollywood Phase Chronology Using Sequence Analysis. ASPIRE I, University of South Carolina.

National Science Foundation, National Geographic Society.

Moore, Christopher R.

2012 Archaeological Research Trust grant for Protein Residue Analysis of Paleoindian and Early Archaic Stone Tools at Flamingo Bay (38AK469) (\$2,000).

ACADEMICS

Brooks, Mark J.

Ph.D. dissertation committee: Audrey R. Dawson, Department of Anthropology, University of South Carolina, Columbia, SC.

King, Adam

Ph.D. dissertation committee co-chair: Christopher Thornock, Department of Anthropology, University of South Carolina, Columbia, SC.

Ph.D. dissertation committee co-chair: Johann Sawyer, Department of Anthropology, University of South Carolina, Columbia, SC.

Ph.D. dissertation committee co-chair: Amy Goldstein, Department of Anthropology, University of South Carolina, Columbia, SC.

Ph.D. dissertation committee member: Kimberly Wescott, Department of Anthropology, University of South Carolina, Columbia, SC.

M.A. thesis committee member: Wes Patterson, Department of Anthropology, University of South Carolina, Columbia, SC.

M.A. undergraduate honor's thesis committee member: Christina Ek, Department of Anthropology, University of South Carolina, Columbia, SC.

Fall Semester 2012 – Instructor, Department of Anthropology, University of South Carolina, ANTH 101 (Primates, People, and Prehistory) and ANTH 333 (North American Prehistory).

Spring Semester 2013 – Instructor, Department of Anthropology, University of South Carolina, ANTH 101 (Primates, People, and Prehistory).

Moore, Christopher R.

Ph.D. dissertation committee: Jacob Turner, Department of Geography, University of North Carolina, Greensboro, NC.

Needham, Maggie

Fall Semester 2012 – Adjunct Faculty, Department of History, Anthropology, and Philosophy, Georgia Regents University, Augusta, ANTH 1102B (Introduction to Anthropology).

Spring Semester 2013 – Adjunct Faculty, Department of History, Anthropology, and Philosophy, Georgia Regents University, Augusta, ANTH 1102B (Introduction to Anthropology).

PUBLIC SERVICE ACTIVITIES

August 2012

Herron, Tammy F.

Short lecture titled “Discovery of an Alkaline-Glazed Stoneware Vessel crafted by Dave at 38AK953,” presented to the Augusta Archaeological Society, Augusta, GA.

September 2012

Moore, Christopher R.

Visit with Val Green and Pelham Lyles in Fairfield County, SC to discuss historic maps.

Presentation to the Blackville Historical Society on Carolina bay research.

Wingard, George L.

Presentation on the Graniteville Archaeological Project to members of the Horse Creek Historical Society, Graniteville, SC.

Tour of Graniteville, SC for alumni/faculty/staff of Wofford College.

Presentation regarding the “Dave” stoneware vessel excavated by the SRARP at the Southern Studies Showcase, a genealogical conference hosted by the Old Edgefield District Genealogical Society and the Old Edgefield District African-American Genealogical Society Edgefield, SC.

October 2012

Herron, Tammy F.

Staffed an archaeological exhibit displayed at CoastFest; an event sponsored by the Georgia Department of Natural Resources Coastal Resources Division, Brunswick, GA (9,463 attendees).

Lecture titled “Mission and Vision of the Society for Georgia Archaeology: How You Can Participate” presented to the Augusta Archaeological Society, Augusta, GA.

Moore, Christopher R.

You Be the Archaeologist program for students at the Silver Bluff Audubon Center and Sanctuary, Jackson, SC.

USC Aiken Seed Day (3,300 people attended).

Fall Field Day (Lake Marion State Park).

Wingard, George L.
Tour of Ellenton for members of the USFS–SR.

November 2012

Herron, Tammy F.
Lecture titled “Alkaline Glazed Stoneware: Utilitarian Pottery of the Edgefield District, South Carolina, and the Verses of the Enslaved African-American Potter-Poet Dave” presented to the attendees of the Lunch and Learn Series, Morris Museum of Art, Augusta, GA.

Moore, Christopher R.
You Be the Archaeologist program for students at the Silver Bluff Audubon Center and Sanctuary, Jackson, SC

Wingard, George L.
Tour of the former homesite on the SRS for the McClain family.

January 2013

King, Adam
The Etowah Archaeo-Geophysical Survey. Presentation to the Hilton Head Island Chapter of the Archaeological Society of South Carolina, Hilton Head, SC.

Moore, Christopher R.
Presentation to the Wetland & Aquatic Issues Task Group meeting on Carolina bays at SREL.

February 2013

Moore, Christopher R.
The Solutrean Hypothesis. Presentation to the Augusta Archaeological Society, Augusta, GA.

Wingard, George L.
Presentation on the enslaved potter Dave and the SRARP Dave vessel to staff and students at SCIAA, Columbia, SC.

Wingard, George L. and Maggie Needham
Presentation on the enslaved potter Dave and the SRARP Dave vessel to students at Evans High School, Evans GA.

March 2013

Herron, Tammy F., Maggie M. Needham, and George L. Wingard
Staffed an archaeological exhibit at Georgia On My Mind Day featuring Abby the ArchaeoBus, an event sponsored by the Georgia Department of Transportation, Georgia Visitor Information Center, Sylvania, GA (236 students registered).

Moore, Christopher R.
You Be the Archaeologist program for students at the Silver Bluff Audubon Center and Sanctuary, Jackson, SC.

Wingard, George L. and Keith Stephenson
Tour of Graniteville, SC for freelance writer Margaret Shakespeare.

Wingard, George L.
Presentation on the enslaved potter Dave to the Columbia, South Carolina City Council.

Presentation on the enslaved potter Dave for the “Together We Can Read” campaign in Columbia, SC.

Presentation on the enslaved potter Dave to third graders at Brockman Elementary, Columbia, SC.

Presentation on the enslaved potter Dave to third graders at Arden Elementary, Columbia, SC.

Wingard, George L. and Maggie Needham
Tour of the former homesite on the SRS for the Kirkland Family.

Tour of Graniteville, SC for staff of the South Carolina Historic Preservation Office, Columbia, SC.

April 2013

Gillispie, Lizzie, and Brian Milner
Kids Earth Day, North Augusta (400 kids).

Herron, Tammy F.
Display of colonial period artifacts and information regarding the excavation of the Galphin site for attendees of the 7th Annual Historic Beech Island Tour, Silver Bluff Audubon Center and Sanctuary, Jackson, SC.

Wingard, George L.
Presentation on the enslaved potter Dave for the General Federation of Women’s Clubs of South Carolina, Columbia, SC.

May 2013

Herron, Tammy F.

Organized and staffed an exhibit at Artifact Identification Day, an event co-sponsored by the Augusta Archaeological Society and the Augusta Museum of History, Ezekiel Harris House, Augusta, GA.

King, Adam

The Etowah Archaeo-Geophysical Survey. Presentation to the Council of Thloplocco Tribal Town, Okemah, OK.

First Man, the Striped Pole, and the Bowl Giver. Presentation at the Chickasaw Nation Iconography Workshop, Sulphur, OK.

Moore, Christopher R.

Paul Knox Middle School, STEMfest (Science Night with ca. 200 students).

USC-Aiken presentation to the Gem, Mineral, and Fossil Society on Carolina bays.

Wingard, George L.

Tour of Berry Cemetery for members of the Wilson family of Washington, DC.

Represented the SRARP at the 60th Annual Dunbarton Reunion – a former town of the SRS.

June 2013

King, Adam

Vestiges of First Man at Etowah. Presentation at the Day of Discovery, Etowah Indian Mounds State Park, Cartersville, GA.

The Etowah Archaeo-Geophysical Survey. Presentation at the Day of Discovery, Etowah Indian Mounds State Park, Cartersville, GA.

Moore, Christopher R.

Visited the Marion County Historical Museum to document an artifact collection to be used for an upcoming museum display.

Wingard, George L.

Presentation on the SRARP and discovery of the SRARP Dave vessel to Pottersville Fieldschool, Piedmont Technical College, Edgefield, SC.

July 2013

King, Adam

Testing the Etowah Archaeo-Geophysical Survey. Presentation to the Northwest Georgia Chapter of the Society for Georgia Archaeology, Cartersville, GA.

Wingard, George L.

Presentation on the enslaved potter Dave to the Lexington County Library System, Pelion Branch, Lexington County, SC.

August 2013

King, Adam

Testing the Etowah Archaeo-Geophysical Survey. Presentation to the Leake Trail Dedication delegation, Cartersville, GA.

Wingard, George L.

Tour of the former homesite on the SRS for the Petty family.