SITE DESTRUCTION IN GEORGIA AND THE CAROLINAS

David G. Anderson and Virginia Horak, Editors
Site Destruction in Georgia and the Carolinas

David G. Anderson and Virginia Horak, Editors
Interagency Archeological Services Division
National Park Service
75 Spring Street, S.W.
Atlanta, Georgia 30303

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**READINGS IN ARCHEOLOGICAL RESOURCE PROTECTION SERIES**

No. 1  *Coping With Site Looting: Southeastern Perspectives* — John E. Ehrenhard, Editor
No. 2  *Site Destruction in Georgia and the Carolinas* — David G. Anderson and Virginia Horak, Editors
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This volume, the second in the Readings in Archeological Resource Protection Series published by the Interagency Archeological Services Division, serves as a companion to Coping With Site Looting: Southeastern Perspectives, a collection of essays edited by John Ehrenhard and released in 1989. That volume directed attention to a particularly insidious problem—the intentional and malicious destruction of cultural resources by people who, in most cases, are well aware of the harm they are causing.

This volume continues to examine site destruction in the Southeast. However, as bad as the problem of looting is—as illustrated throughout this book—it is not the sole cause of resource loss. So, while the first volume highlights a single issue, this time the focus is on a wider range of destructive forces—erosion, agriculture and silviculture, residential and industrial development, undocumented or underdocumented collection, and, of course, looting and vandalism.

Site destruction is perhaps the most significant problem facing the historic preservation community in the Southeast. Historic and prehistoric archeological sites represent our primary source of information about all but the most recent events in the long story of human settlement in the region—a record stretching back over 10,000 years into the past. While every well-informed citizen is probably aware that cultural as well as natural resources are being lost, we suspect that few comprehend the extent of this loss or the forms that it can take. Most professional archeologists know of specific sites lost through erosion, development, or looting. Only those working in regulatory or land management agencies or involved in Cultural Resource Management (CRM) archeology, however, likely realize the full extent and impact of the destruction.

The articles in this volume should help us all understand the magnitude of the problem. Our intent here, as in our first volume on site looting, is to inform both the professional archeological community and the interested public about the extent of site destruction in the Southeast. Rather than resorting to hand-wringing, however, the contributors to this volume offer explicit solutions to the ongoing loss of our heritage. Thus, while one of our goals is to document the extent of site destruction in the region, another is to show how the archeological community is facing and, most importantly, resolving the problem.

The articles cover areas from south Georgia to eastern North Carolina, with most of the studies focused on areas in and near South Carolina (Figure 1). They show that cultural resources can be lost overnight, as Robert Morgan documents when discussing the effects of Hurricane Hugo in the Francis Marion National Forest. Resources can also disappear more gradually, as Chris Gillam’s and Gail Wagner’s studies of changes over time at the Mulberry Mound Group demonstrate. The successful cultural resources cleanup program implemented in the aftermath of Hugo was the result of quick yet thoughtful planning by Forest Service archeologists, and reminds us that good personnel are an essential part of any preservation/management program. At Mulberry, the primary architectural features—late prehistoric and early historic mounds and a fortification ditch—are slowly being plowed or pushed down, filled in, and washed away. As Wagner recounts, the Depart-
ment of Anthropology at the University of South Carolina has committed itself to recovering information about this site before it disappears forever. An exciting aspect of this program is Chris Gillam’s study, which shows that the inspection of old aerial photographs can provide exact measures of the extent and rates of erosion, and help date when specific events in the history of the site occurred, such as the leveling of mounds or the destruction of structures.

Christopher Amer illustrates how endangered cultural resources occur not only on dry land, but in the lakes, rivers, and offshore waters of the region. These remains are also subject to destruction through processes as varied as erosion, intentional collection, and development. In South Carolina, where Amer is the state underwater archaeologist, an active and effective underwater archeology program exists, coordinating the activities of the state’s amateur and professional diving communities.

Another South Carolina program, the Heritage Trust, has as a primary mission the purchase and protection of major archeological and historic sites. Christopher Judge explains how an assessment of the state’s most important archeological sites by the Trust found that many have suffered damage from a variety of causes in recent years. The findings reinforce the need for programs directed to site purchase and protection.

The commercial looting of archeological sites is not a phenomenon limited to Hopewelian earthen mounds of the Midwest or late prehistoric cemeteries of the Mississippi River Valley.
As Ken Sassaman documents, it is also a problem in Georgia and the Carolinas. Archaic and Woodland period shellmiddens in the tidal marshlands and along the region’s rivers and streams are being systematically pillaged for artifacts of stone, shell, and bone. So much damage is occurring that archeologists must often devote considerable energy to finding surviving pockets of undisturbed material before beginning excavation.

In another problem area, the Ocmulgee-Big Bend region of south Georgia, timber management practices, industrial and residential development, and a long tradition of looting have resulted in the destruction of numerous sites. This shows that considerable destruction and loss of information is occurring even in the rural areas of the South. Keith Stephenson and Frankie Snow describe the efforts of a small but dedicated group of avocational and professional archeologists in south Georgia who are doing what they can to counter this loss. Their example underlines the importance of developing cadres of trained avocational archeologists across the region, groups of people who can assist professionals in the recovery of data from threatened sites.

Major cultural resources can even be destroyed if professionals charged with their protection don’t know how to recognize them. Mark Mathis writes about how, at the Broad Reach site, important archeological remains were found adjacent to a large shellmidden in an area that would be ignored by most researchers. As Mathis concludes, archeologists must reexamine the way they explore shellmidden settings.

In yet one more cautionary tale, Linda France Stine shows how another category of threatened sites in the South—Civil War battlefields and defensive works—are such a common and accepted part of the landscape that they are often taken for granted. Charleston’s Civil War history, for example, helps generate tremendous tourist revenues locally. The sites, however, where this now-profitable historical record was shaped, are being rapidly lost. In emphasizing strategies for preserving major sites associated with the 1861–1865 siege of Charleston, Stine shows how the goals of preservation and development coincide.

Michael Trinkley and William Vartorella’s important contribution offers methods by which agencies as well as individuals can accurately assess site destruction in the Southeast and beyond. Their system has much to offer and should be adopted by the regional preservation community.

Finally, John Ehrenhard’s philosophical postscript reminds us that we cannot ease up on our determination to overcome the unrelenting and needless loss of our cultural resources.

Many of the contributions in this volume were first presented at a workshop sponsored by the Council of South Carolina Professional Archaeologists (COSCAPA), held in Columbia, South Carolina, on October 11, 1991. The symposium was organized by David G. Anderson with the support of the officers and members of COSCAPA, led by Leslie M. Drucker who was, at the time, president of the organization. Participants were asked to identify how archeological sites are threatened locally, to delimit particularly sensitive or threatened site types, and to examine rates of destruction. A second, complementary goal of the workshop was to explore strategies by which site destruction could be reduced. The meeting was well attended and seven papers, all of which are included here, were delivered. The discussion sessions between the presentations were quite lively, indicating appreciable interest in the subject. As the volume was being organized, contributions from four additional authors—DePratter, Gillam, Mathis, and Stine—were solicited. All, happily, joined in the effort. In producing this volume, Anderson handled technical coordination, Virginia Horak assumed primary responsibility for copy editing and manuscript assembly, and Julie Barnes Smith produced much of the artwork.

The ongoing destruction of America’s heritage is a major crisis, but one the professional archeological community is actively addressing. Educating the public about the nature of this problem and harnessing their energies towards its solution are goals of this volume and the series.
INTRODUCTION
The forces that disturb or destroy cultural resources, whether on land or submerged, are of increasing concern to those who strive to manage these resources. How to control or diminish the effects of negative forces is an issue of paramount importance to managers, archaeologists, and preservationists alike.

While impacts on submerged archaeological historic properties is a concern of global magnitude, South Carolina with its rich submerged heritage provides numerous examples of what can and should be done, as well as what is being done. Before solutions can be devised and implemented, the types of disturbances must first be characterized and problems identified.

DISTURBANCE PROCESSES
The dynamics of site destruction can be reduced to two factors: natural and cultural (humanly caused) influences. Each plays a role in the reduction and destruction of cultural resources on and beneath the earth’s surface and beneath the water.

Natural Influences
Natural influences can take the form of ongoing destruction (erosion) or sudden events (hurricanes) and other natural events and disasters.

The development and settlement of the state was very dependent on the sea and its labyrinthine river systems until the advent of the railroad and road systems. Aboriginal peoples utilized the rivers for their livelihood; ships of discovery and colonization brought settlers; a diverse array of small riverine and coastal craft helped populate the state and allowed trade to flourish between the upland settlements, low country plantations, and urban centers. Vessels of commerce brought goods to the state and took away rice, indigo, cotton, and other agricultural products grown in the rich soils along the coast. Control of waterways and coastal approaches was a major factor during the various military conflicts that raged throughout the state.

Nature is both a preserver and a destroyer. The shoreline and sea bottom are constantly changing through cycles of erosion and accretion. Sites preserved for hundreds of years beneath the shifting sediments may be alternately exposed and reburied, but ultimately must succumb to the destructive forces that reduce their fabric. Natural events like hurricanes are instrumental in both creating archaeological sites, such as shipwrecks, and exposing and destroying existing sites through erosion or subsidence.

In South Carolina, the sites of the lumber carriers Freda Wiley and Jonathan May (wrecked on Myrtle Beach during "The Great Storm" of 1893 and exposed again during Hurricane Hugo in 1989) bear mute testimony to these processes. (Figures 1 and 2).

Man’s attempts to control nature have generally failed as evidenced by the remains of mid-20th-century house foundations and bulkheading on Hunting Island several hundred meters seaward of the present dunes. The bulkheading often only serves to alter the natural erosion pattern and hasten erosion elsewhere.

The ever changing course of South Carolina’s rivers and the formation of inland bodies of water have a profound effect on existing cultural sites primarily through erosion and inundation. Aboriginal sites, whether habitations or ceremonial in nature, were usually located near sources of water. The Mulberry Mound site, thought to
Figure 1 — Ship thought to be the Jonathan May or the Freda Wiley, wrecked in 1893 on Myrtle Beach. (Horry County Museum)

Figure 2 — Wreck of lumber carrier Freda Wiley as exposed by Hurricane Hugo in 1989. (Courtesy SCIAA)
be the site of the chiefdom of Cofitachequi visited by DeSoto in the 16th century, has suffered from both erosion and periodic inundation. The one remaining mound has been eroding into the Wateree River for over a century (DePratter and Amer 1988:6). As a result of a local farmer’s agricultural pursuits, much of the remainder of a second mound and associated village site was bulldozed into a nearby creek. (See articles by Gillam and Wagner herein.)

The Rembert Mound site, a late prehistoric multiple mound/village complex that lies beneath Clark Hill Reservoir (Lake Thurmond), suffered intense erosion from the Savannah River through the 19th and early 20th centuries prior to inundation (Caldwell 1953). Evidence confirms that the site continues to erode beneath the waters of the reservoir. Proposed increased flow from the hydroelectric dam upstream will certainly hasten the process (Anderson et al. 1993).

**Cultural Influences**

Man-made influences on submerged cultural resources are the product of a wide range of factors. Foremost among these is our rapidly advancing technology that allows man greater accessibility to the underwater world and submerged sites. Other factors include pressures from a growing population and commensurate competition for resources for food harvesting, recreation, commercial utilization (land development, agriculture, timber exploitation), and treasure hunting in its various forms.

The diving industry also has a profound effect on the state’s submerged cultural resources. Every year thousands of "history seekers" dive the rivers and inlets of South Carolina collecting a myriad of well-preserved artifacts and fossils. Some individuals "work" submerged sites with a profit motive. If uncontrolled, their activities could devastate South Carolina’s rich underwater cultural heritage. Fortunately, the state sponsors the Sport Diver Archaeology Management Program that allows licensed divers to hand collect artifacts and fossils from state-owned bottomlands in exchange for reporting their finds to state archaeologists and paleontologists. This educational and monitoring program has helped contain site loss. In one example of licensed salvage, a submerged site in Charleston Harbor containing the remains of several blockade runners was explored between 1986 and 1989. Unable to meet the state’s stringent data recovery standards, the salvor eventually ceased activities.

A review of licenses issued by the South Carolina Institute of Archaeology and Anthropology (SCIAA) for search and salvage since the inception of the licensing program in 1976 reveals both a recent reduction in the number of licenses granted and a shift from artifact recovery to data recovery. Between 1976—when the South Carolina Underwater Antiquities Act was passed—and 1987, some 32 licenses were granted for search and salvage in state waters. Between 1987 and 1991, the state received five search license applications and granted four (all to professional archaeologists), while four of the six salvage licenses applied for were issued. During the latter period, professional archaeological standards were increasingly applied to applications for search and salvage licenses, and public hearings were held to help determine the merit of each application. These processes culminated with the passage of the South Carolina Underwater Antiquities Act of 1991. This Act mandates that professional archaeological standards be required for all data recovery from submerged cultural resources in the state. The Act has also tightened restrictions on "recreational" artifact recovery.

Vandalism often calls for more direct action, such as physical protection of endangered sites. When the submerged site of a Revolutionary War gunboat in the Cooper River was recently vandalized, state underwater archaeologists chose to protect this significant site by covering it with chain link fence sandwiched between two thick layers of sand.

The population and rate of growth of coastal South Carolina has been dramatically increasing since 1960 (South Carolina Coastal Council 1991:30). The influx of residents and the growth in resort related developments on the barrier islands have produced noticeable impacts on submerged cultural resources. Bridge construction and expansion projects, which provide access to
these previously remote areas, disturb bottoms of waterways, as do the proliferation of private docks and unplanned shoreline developments.

The term shoreline is often misleading when applied to barrier islands because the interface between the island and the sea is constantly changing over time. Cultural resources that were once submerged or associated with the shoreline can today be significantly inland on the islands. For example, while driving piles for a condominium development behind the dunes of Pawleys Island, South Carolina, workers encountered the incomplete remains of a late 19th-century sailing ship. Most of the individual and articulated timbers were removed from their seven-meter-deep resting place before archaeologists could investigate. The remains obviously were not afforded the treatment appropriate to their historical and archaeological importance.

With the expansion of private and resort developments comes a need for private docks, marinas, and facilities to support recreational activities. These facilities encroach on public waters potentially impacting both submerged cultural resources and those buried in the foreshore. For example, a marina was constructed in front of the historic slipways of the Prichard Shipyard. This site near Charleston, South Carolina, was first utilized as a shipyard in 1753 and operated for approximately one hundred years. Today, pilings pierce the submerged component and boat traffic affects the exposed slipways on the foreshore.

Nearby, the construction of a private dock would have severely damaged a small, 19th-century sailing vessel buried in the marsh were it not for the diligence of the construction company employees who reported their find to state officials. After state archaeologists determined the extent of the site, the company agreed to alter the spacing of the dock pilings so as to avoid the historic wreck.

Wake from recreational boats, many of which are high-performance types, certainly is having an adverse impact on many submerged and partially submerged archaeological sites along the state's waterways. The Malcolm Boat, an historic sailing vessel that appears to have been abandoned and now lies embedded in the bank of the Ashley River near Charleston, is one of many such boats (Figures 3 and 4). The loss of meters of its structure is directly attributable to wake from passing boats. There are many other water-related sites suffering similar fates—historic

Figure 3 — Plan and elevation views, starboard of the Malcolm Boat. (Drawn by Christopher Amer and William Barr, courtesy SCIAA)
landings and causeways, historic and prehistoric canoes, barges, and historic water control structures associated with the cultivation of rice and indigo, to name a few.

Agriculture and forestry impact submerged cultural resources—notably historic wetlands—and sites once associated with riverine usage along South Carolina’s coast. However, according to the South Carolina Coastal Council, land development is the greatest threat to the wetlands (1991:6) and certainly has the most profound effect on the state’s submerged cultural sites.

SOLUTIONS
So how do we control, or at least reduce, the severity of negative impacts on the state’s submerged cultural resources? As archaeologists and managers of those resources, it is our duty to put them to the best possible use in the public trust, whether that be by protecting and preserving sites or collecting data and publishing the results.

South Carolina has a number of means to address the problems that threaten our submerged cultural heritage.

Legislation
The state’s submerged cultural resources are managed under the South Carolina Underwater Antiquities Act of 1991 (Article 5, Chapter 7, Title 54, Code of Laws of South Carolina, 1976, as amended). This act is intended "to preserve and encourage the scientific and recreational values inherent in submerged archaeological historic properties and paleontological properties for the benefit of all the people of the State...." The protection of cultural resources is also addressed in the South Carolina Mining Act and in the implementation of the Coastal Zone Management Program for the state’s eight coastal counties. Special Area Management Plans, like those proposed for an historic corridor along the Ashley River near Charleston, contribute by developing public policy for conservation of the natural and historic character of an area and developing policies and recommendations for land-use planning to ensure the protection of historic and archaeological sites. Section 106 of the National Historic Preservation Act of 1966 (as amended) requires federal agencies to review the effects their actions may have on properties eligible for the National Register of Historic Places.

Permitting and review processes, mandated by law, make the resources of a number of state and federal agencies available for the monitoring and review of proposed projects that potentially impact archaeological sites. Assistance for enforcement and surveillance is also available. These procedures alert agencies, contractors, developers, and landowners to the potential for encountering submerged sites during construction near waterways and in wetlands areas. However, while these laws and plans address the issues, it is equally essential to have adequate numbers of trained and motivated law enforcement personnel to arrest violators and assist in monitoring and patrolling threatened sites (Jameson 1990:27; Snedeker and Harmon 1990:45).

Education/Community Interaction
Interaction with and the education of the diving community and public play a large role in the management of the state’s submerged cultural
resources. The Sport Diver Archaeology Management Program educates divers through public lectures and archaeological training. The program stresses the fragile nature and importance of our finite underwater resources. A graduate becomes a "Certified Archaeological Diver" and receives a hobby license permitting the collection of artifacts and fossils from the state's bottomlands. In return the diver must report finds to the state archaeologists.

Hobby divers are very proprietorial and often regard certain sites as "theirs". Thus, those trained through the state's program are ideally suited to monitor and, in some instances, record and preserve endangered or threatened sites. Licensed divers are encouraged to participate in state-sanctioned underwater archaeology projects.

CONCLUSIONS
The measures discussed only provide a partial solution to the problems facing cultural resource managers in South Carolina. Until we gain a more comprehensive understanding of the full extent of the underwater cultural resource base, we will never be able to make informed decisions regarding the significance of the submerged sites. Only by understanding the forces that may destructively impact this base, can managers take appropriate action to protect threatened sites. Intensive archaeological surveys, at both the regional and statewide levels, should be conducted. These surveys will enable archaeologists to identify and prioritize sites and sensitive areas in the state and identify the real and potential pressures on the resource.

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South Carolina Coastal Council
Comparing observations recorded in historical documents with present-day conditions is one technique for tracing the site destruction that results from both natural and cultural forces. This method was applied at the Mulberry site (38KE12)—a large, late prehistoric village with associated mounds.

**NATURAL FORCES**
The Mulberry site is located south of Camden in Kershaw County, central South Carolina. It lies on the east bank of the Wateree River at the mouth of Big Pine Tree Creek, a major navigable stream. The site is located in a floodplain setting, just below the fall line in the upper Coastal Plain of South Carolina. As a result, periodic flooding has contributed to massive erosion. Sheet erosion, channel erosion, and a downward movement of soil from the mounds have all taken their toll.

**Description**
Overall, destruction by natural forces has not been well documented. We do, however, have some basis for comparison beginning with one of the first historic descriptions of the site. Dr. William Blanding, a Camden physician and amateur archaeologist, began observing Mulberry in 1806. Some forty years later he described it as follows:

> On the opposite side of the river, about two hundred yards below the mouth of Pine-tree Creek, is a group of mounds, surrounded by a low embankment. One of them has been nearly washed away by the river, and the others have been much reduced by cultivation. The largest is yet twelve or fifteen feet high, with a very wide base...As the water washes away the side of the mound on its bank, charcoal, urns, bones, etc., in successive strata are exposed. (Blanding 1848:107)

Blanding included a sketch depicting the embankment as beginning south of the mounds at the bank of the Wateree River, circling around to the east, then north across the creek, and back to the Wateree River on the north side of the creek. The embankment encompassed two large and nine small mounds (Figure 1).

It wasn't until 1891 that the first archaeological excavations at Mulberry were undertaken. Henry L. Reynolds, for the Bureau of American Ethnology, Smithsonian Institution, reported one large oblong mound eroding into the river, three smaller mounds nearby to the north and east, and no trace of the embankment described by Blanding. Thé large mound (present-day Mound A) was 47 meters long, 35 meters wide, and 3 meters high. Reynolds trenched this mound and another 0.6-meter-high mound (Mound C) located 151 meters to the northeast (Thomas 1894). Some sixty years later, in 1952, archaeologist A.R. Kelly (1974) estimated that the remnants of Mound A measured nearly 46 meters long and 2.7 meters high. The other small mound trenched by Reynolds was approximately 9 meters in diameter and 0.3 meters high.

In 1970, Stuart (1974) described the two remaining mounds. Mound C had been levelled by bulldozer in 1953. Mound A was approximately 35 meters long, 34 meters wide, and 2.7 meters high. Mound B, immediately to the northeast of Mound A, was nearly 37 meters long and 24 meters wide.

Today, Mound A, which is actively eroding into the Wateree River, stretches for about 49 meters along the river and for up to 24 meters
Figure 1 — Dr. William Blanding's map of the Mulberry Mounds area in the 1840s. (Adapted from Squier and Davis 1848)
Further archaeological investigations were conducted in 1972 when the continued channel erosion of Mound A was brought to the attention of archaeologists (Ferguson 1973). An initial sediment study (Sassaman 1984) indicated that erosion of the mounds and subsequent colluviation of surrounding areas probably proceeded rapidly once the site was abandoned in the late seventeenth century. An extensive midden appears to be buried under alluvium and colluvium to depths ranging from 200 centimeters in places near the river to 30 centimeters in areas eastward away from the river (Sassaman 1984).

Since 1913 when the Wateree River was dammed upstream from Mulberry, dams have been constructed upstream in Big Pine Tree Creek. Severe flooding in late 1990 removed all of the dams on the creek and contributed to erosion of Mound A into the river. Local residents relate that when flooding is severe, the creek breaks out of its banks midway across the north side of the field and courses southwestward in a sheet across the village to join the Wateree River further downstream. This, too, can be traced through historic documentation.

**CULTURAL FORCES**

Cultural forces, including historic occupation, agricultural practices, looting, and archaeological explorations, have combined with natural forces to considerably alter the site. This, too, can be traced through historic documentation.

**Historic Occupation**

The mounds undoubtedly were considered convenient prominences that would keep structures high and dry above all but the worst flood waters. Blanding wrote, "On the large mound stood the overseer's house; around it, on the smaller piles [mounds], were the negro quarters" (1848:107). The overseer's house may have remained on top of the mound until as late as 1849 (Stuart 1974:99), but it was gone by Reynolds' 1891 excavations. By 1911 two barns were present, one on top of Mound B and the other apparently on top of Mound A. A third small structure was located on the river bank (Merry 1982:33). Aerial photographs show that the structure on top of Mound B was still present as late as 1941, but, by 1949, it too was gone (Merry 1982:33). In 1973, a number of bricks were recorded by Ferguson (1974:9) on the summit of Mound A.

**Agricultural Practices**

The site "...was long under cultivation in corn, then indigo, and in 1806, when I first saw it, in cotton, which is still cultivated on it" (Blanding 1848:107). Blanding goes on to say that the mounds had been "much reduced by cultivation". Thus, we have indication that agricultural practices, such as plowing, have been a long-time factor in the eradication of the mounds and embankment. Plowing has not only levelled the mounds, it has churned together 20 centimeters of topsoil across the village. Plowing in the mid-1980s reached to between 30 and 35 centimeters in depth across part of the field. Mounds A and B and the area immediately surrounding them have been preserved in permanent pasture since
the 1970s; however, the village portion of the site remained under cultivation through 1989. In early 1990, the village was planted in loblolly pine. Early historic plowing may well have mixed zones that are now deeply buried by alluvium. Recent historic plowing has affected only those parts of the site not already buried by this alluvium.

Looting
Those parts of the site exposed along the river and creek banks, particularly the profile of Mound A, are under constant scrutiny and collection by looters. Although such illegal activity is discouraged by the landowners, the site is too remote for constant supervision and all too accessible to looters by boat. In the past, No Trespassing signs have been posted along the bank, and one farm manager was known to forcibly chase off looters (J. Michie, pers. comm. 1991).

Site looting accentuates and speeds the effects of channel erosion. Hundreds of probe holes have been poked into the profile of Mound A, particularly into the pre-mound midden. In places, the dirt is gouged out to depths of 1.5 meters or more. Entire sections of the profile are deeply undercut and highly dangerous. The disturbances by the collectors prevent vegetation from taking hold along the upper profile, which in turn leads to more erosion during flooding. In addition, small and relatively shallow pits have been dug into the tops of both mounds—some in just the past few years—even though Mound B is in grass and the Mound A remnant is wooded.

Archaeological Explorations
Since the first excavations in 1891, archaeological investigations have destroyed parts of the site, mostly on Mound A. Reynolds’ unbackfilled trenches in Mound A and pit in Mound C, dating to 1891, were still visible in 1952 (Stuart 1974). During the 1952 excavations, the 45.7-meter-long profile of Mound A was cut back an average of 1.7 meters to a depth of over 3.7 meters (Kelly 1974:75) (Figure 2). Most other archaeological excavations, while still destructive, appear to have been backfilled.

SUMMARY
Today the owners are very concerned about the integrity of the site and the information it contains. The area around the mounds, which was placed on the National Register of Historic Places in 1970, was taken out of cultivation and planted in grass. There has been discussion through the years about whether or not to completely excavate the remains of Mound A before it is totally destroyed by looters and erosion. At least one archaeologist has pointed out that the layers of clay used to build part of Mound A may be all that protects the rest of the site from encroachment by the river. Some discussion has also centered on what would be necessary to stabilize the present river bank (L. Ferguson, pers. comm. 1991); it is likely this question will be further pursued.

The mound summits are gone, but at least some bases yet stand (Figure 3). And while the historic components have been mixed by plowing, alluviation, and colluviation, presumably they still remain in the general area where they were deposited. The village of Mulberry is nearly intact and even though parts of it have undergone plowing, much appears to be buried and therefore preserved underneath alluvium and colluvium. Even though destruction continues—mostly along the river bank due to channel erosion and looting—the Mulberry site can still yield a great deal of archaeological information, despite 300 years of cultural and natural destructive forces.
Figure 3 — Modern topographic map of the main mounds at the Mulberry site (38KE12).
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AERIAL PHOTOGRAPHIC INTERPRETATION OF SITE DESTRUCTION AT MULBERRY MOUNDS

J. Christopher Gillam

INTRODUCTION
The Mulberry Mounds site (38KE12) represents a major Mississippian Period ceremonial center rich in cultural significance. Unfortunately, much of the mound complex associated with this center has already been destroyed. This destruction has occurred through natural erosional processes and through cultural activities, such as agricultural plowing, pothunting, and the bulldozing of site features. The need for protection and/or salvage of what currently remains of this ceremonial center cannot be overstated.

Aerial photographs can be used to interpret the natural and cultural influences actively damaging the Mulberry site. Examining these photographs helps us establish the rate at which riverine erosion is destroying those areas bordering the Wateree River. In addition, by using aerial photographs from past decades, it is possible to locate and examine site features that no longer exist today.

BACKGROUND
Mulberry Mounds has been a focal point of archaeological interest in South Carolina since the early 19th century. In one of the earliest publications about North American archaeological sites, the 1848 Smithsonian Contributions to Knowledge, Dr. William Blanding of Camden provided a written and illustrated description of the site, then known as Taylor’s Mounds. In his description, the natural and cultural influences affecting the site were quite obvious. He stated:

On the opposite side of the river, about two hundred yards below the mouth of Pine-tree Creek, is a group of mounds, surrounded by a low embankment. One of them has been nearly washed away by the river, and the others have been much reduced by cultivation....As the water washes away the side of the mound on its bank, charcoal, urns, bones, etc., in successive strata are exposed....It was long under cultivation in corn, then indigo, and in 1806, when I first saw it, in cotton, which is still cultivated on it. On the large mound stood the overseer’s house; around it, on the smaller piles, were the negro quarters. (Blanding 1848:105-108)

Since the publication of Dr. Blanding’s report, extensive archaeological fieldwork has been conducted at the site. Henry L. Reynolds of the Smithsonian Institution conducted excavations for the Mound Division of the Bureau of American Ethnology in 1891. Reynolds reported that only four mounds remained at the time of excavation, the others having been reduced by cultivation and natural erosion. No further excavations were conducted until 1952 when the owner of the property, Mr. David R. Williams, arranged for Dr. Arthur R. Kelly (University of Georgia) to conduct salvage excavations on portions of Mound A and the village area that were eroding into the river (Ferguson 1974) (Figure 1). Fieldwork has taken place on almost a yearly basis over the past 15 years under the auspices of the Wateree Archaeological Research Project (Department of Anthropology, University of South Carolina).

AERIAL PHOTO INTERPRETATIONS
The natural forces that have continually damaged the Mulberry site typically include gradual, lateral riverine erosion and dynamic periods of erosion caused by overbank flooding. Cultural
influences, such as agricultural plowing, the building of structures on mound surfaces, and intentional destruction of site features, have only escalated the already rapid deterioration of portions of the site. A series of six aerial photographs (1941, 1949, 1953, 1956, 1964, and 1969) housed at the South Carolina Institute of Archaeology and Anthropology (SCIAA) were used to: locate physical features, such as earthworks and historic structures; document changes in these features; and evaluate the erosional processes destroying the site.

**Location of Features**
Aerial photographs offer a permanent record of site conditions and associated features that no longer exist and may provide a better perspective for locating site features not clearly visible.
from the ground. Differences in the tone and texture of soils and the growth patterns of crops and other vegetation can be examined in aerial photographs and may lead to the location of eroded site features otherwise difficult to detect. The presence of structures within known site areas are also easily detectable due to the vantage point offered by the photographs.

Blanding’s map (see this volume, p.11) illustrates that an earthen embankment once enclosed the mound complex at the Mulberry site. The embankment is no longer visible from the ground and its location is still a matter of debate. Reynolds stated that the earthen embankment reported by Blanding in 1848 could no longer be located at the site by 1891. Soil and/or crop marks associated with such features often exist long after the relief characteristics have deteriorated (Wilson 1982). Unfortunately, no conclusive evidence of such markings was present in the black-and-white aerial photographs used in this evaluation and the location of this feature remains unknown. Infrared photography, which broadens the visible spectrum, may reveal evidence of the embankment’s location, but this medium has not yet been investigated.

Midden-rich soils associated with areas of habitation often produce similar soil and/or crop marks visible in aerial photographs (Solecki et al. 1960). Therefore, an examination of soil and crop markings was conducted on the six photos to determine the extent of the site area. Significant variation in soil tones was present in the 1941 aerial photograph (Figure 2), but this was determined to be an inconclusive indicator of the habitation areas at Mulberry due to the frequent deposition of organic materials in the region by flooding.

The location of the Mulberry site within the floodplain of the Wateree River has created some unique hazards to its earthen features. The mounds associated with the site represent the highest points of land in the immediate area and were the location of historic era buildings in the past. The structures reported by both Blanding (1848) and Reynolds (1894) were slave houses located on top of some of the mounds. This trend of building structures on the high ground of the mound surfaces continued into the 1940s. Evidence of this is present in the 1941 photograph where a single structure stands directly on top of Mound B (Figure 2). This structure had been destroyed by 1949, being absent from the photograph taken that year (Figure 3). Although the amount of damage caused by the continual building, use, and dismantling of such structures cannot be determined here, the implication of displacement as a result of such activity should be recognized.

A small mound, known as Mound C, was documented to have been located approximately 480 feet northeast of Mound A (Figure 1) and to have had a diameter of approximately 30 feet (Kelly 1974; Stuart 1970). While Mound C no longer exists, it was present in the three earliest photographs of the site (1941, 1949, 1953) (Figures 2-4). To confirm previous documentation, Mound C was evaluated using an engineering scale. From the measurements it was determined that Mound C was located approximately 440 feet northeast of Mound A and had a diameter of approximately 33 feet. These measured attributes match relatively well with the previous estimations by Stuart (1970) and Kelly (1974). Stuart (1970) also stated that Mound C was "levelled" in 1953. This is confirmed by the absence of the mound in aerial photographs taken that year and after (Figures 4, 5, 7).

**Rate of Erosion**

The occurrence of erosion at the site over the past half century was determined by using the 1941 aerial photograph for base information and comparing it to photographs taken at later dates. A portion of the wooded area was measured for comparison and extended approximately 660 feet along the Wateree River and 85 feet along Big Pine Tree Creek. Reference points of this extension were kept at a constant by the preparation of a transparent overlay systematically used on all photographs. A dot-grid was used to measure the area and determine that 26,700 square feet had been lost over the 28 year period (Figures 6, 7). With little erosion detectable along Big Pine Tree Creek, an average loss per year was 950 square feet along the shoreline of the Wateree
Figure 2 — The Mulberry site as it appeared in 1941. Note the structure present on top of Mound B.

Figure 3 — The Mulberry site as it appeared in 1949. The structure atop Mound B is no longer present.
Figure 4 — The Mulberry site as it appeared in 1953. Note the presence of Mound C near the creek.

Figure 5 — The Mulberry site as it appeared in 1956. Between 1953 and 1956 Mound C was destroyed.
Figure 6 — The Mulberry site as it appeared in 1941, with Mounds B and C clearly indicated.

Figure 7 — The Mulberry site as it appeared in 1969. Mounds B and C are gone, and erosion is evident along the river bank.
River. Erosion of the mound profile was determined to be nearly one and a half feet per year per foot of shoreline.

**CONCLUSIONS**

The use of aerial photographs in evaluating the Mulberry site has been instrumental in determining both short- and long-term hazards that continue to impact the site. The aerial photographs used were 24" x 24" enlargements of standard 10" x 10" black-and-white negatives. Displacement resulting from the enlargement process has not been corrected, but the precision of the measurements may nevertheless be considered fairly accurate at the present scale (1:7920).

More precise estimates may be obtained with a polar planimeter or coordinate digitizer rather than a dot-grid. However, the dot-grid is the simplest and least expensive method of evaluating irregular areas while still maintaining a considerable level of accuracy (Lillesand and Kiefer 1987). Dot-grids are highly portable and can easily be taken to the photographs rather than the photographs taken to the device. This is extremely helpful if using reference photographs housed in a location other than one's own workplace, as was my situation.

The photographs used in this evaluation date from 1941 to 1969. Twenty-three years have since passed. Evaluation of more recent photographs would update the erosion rates and provide additional information about dynamic impacts on the site, such as Hurricane Hugo in 1989 and the flooding of the site in the fall of 1990. Only through continued examination can the impact of these natural forces be understood and properly dealt with through protective and salvage-related measures.

The use of color and/or infrared photographs may prove useful in further evaluation. The extent of the site area, traces of the embankment, and other features may become more pronounced with the use of such mediums (Avery and Berlin 1985). While natural deposition of organic materials in the site area may be substantial enough to render such mediums inconclusive, the potential for such forms of aerial photography is more than worthy of consideration and is an exciting possibility for future research.

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INTRODUCTION

The Late Archaic Stallings culture emerged in the Georgia-Carolina area at a time when regional populations and environments were undergoing remarkable change. Marked by the rise and consolidation of local groups, the expansion of the subsistence base to include shellfish, an increase in nonsubsistence production and exchange, and the development of numerous technological innovations, the Stallings culture of 4500-3000 B.P. comprised an unprecedented level of social and economic complexity for hunter-gatherer populations of the mid-Holocene.

The rise and fall of this elaborate culture remains one of the most intriguing problems in Southeastern prehistory, and its fascinating sites have attracted the attention of many researchers. Unfortunately, these sites have also attracted, and continue to attract, unscrupulous relic seekers. Thus, while the third millennium demise of the Stallings culture remains shrouded in mystery, a second fall is underway through the wanton destruction of the last vestiges of a once great and thriving hunter-gatherer society.

THE SCOPE OF THE PROBLEM

Looting of the Stallings record is particularly acute at the numerous shellmiddens that line the banks of the Savannah and Ogeechee rivers and their tributaries (Figure 1). Besides the obvious fact that these sites are good sources of elaborate material culture, there are at least three other reasons why shellmiddens are favored targets of looters.

- **The sites are conspicuous.** Shell deposits often form mound-like features that are visible to even the untrained eye, and certainly to the experienced looter. In fact, some mounds can be detected on USGS topographic maps.

- **Shellmidden sites are usually accessible.** While private landowners and government agencies try to restrict land access, many sites can be reached by small watercraft. Boat access is difficult to curtail without round-the-clock surveillance.

- **Perhaps most importantly, shellmiddens afford good preservation of bone, antler, and other organic remains.** Tools and decorative items made from organic media are the hallmarks of Stallings material culture. Among these are elaborate carved bone pins. Several sources have indicated that bone pins are the primary target of looters, especially at the Ogeechee River sites (Roshto 1985), because they command as much as $1,000 on the antiquities market (Snow 1985). I have repeatedly been informed that some individuals are employing diggers to "mine" the Ogeechee River middens for bone pins.

The loss of any archaeological resource is troublesome to professionals and the concerned public, but the loss of Stallings shellmiddens is an especially sad situation. These sites are the only good sources of well-preserved subsistence remains for the period. Moreover, because deposits are often well-stratified, shellmiddens are ideal contexts for investigating changes in subsistence, technology, and other aspects of prehistoric life. Similarly, shellmiddens provide ideal contexts for refining and expanding Late Archaic chronology.

While a few good studies of shellmidden sites
have been published, the volume of scientific research is woefully disproportionate to the abundance and variety of shellmounds. Much more can be gained from continued research on the Stallings culture, but I fear the pace of looting has long surpassed professional investigation.

Examples of looting at Stallings shellmounds underscore the scale and extent of destruction. As the type site for and a major center of the Stallings culture, Stallings Island has long been a popular target for looters (Figure 2) despite its National Landmark status. Professional investigations, begun in the late 19th century and continuing into modern times (Claflin 1931; Fairbanks 1942; Bullen and Greene 1970; Crusoe and DePratter 1976), have focused considerable attention on this site. Today it is owned by an Augusta, Georgia, resident who tries to limit access to authorized persons only. It is quite obvious, however, that looters continue to slip onto the island by boat for short periods of unauthorized digging. It is rare to meet a serious collector from the middle Savannah River Valley region who does not own artifacts from Stallings.
Island. Dozens of large assemblages are in the hands of local collectors, and many artifacts are being sold and traded every year.

Several small shellmiddens in the vicinity of Stallings Island have also been the subject of looting. For instance, the Mims Point site (38ED9) on the Sumter National Forest in South Carolina is riddled with potholes. A visit to the site in 1991 by Christopher Judge uncovered a cached screen and other evidence of recent looting. Accordingly, the United States Forest Service organized a field project, conducted in January 1992 (Figure 3), to assess the site’s integrity and to obtain information to supplement earlier testing by Dan Elliott (1983, 1984). This effort is providing data on a site type that continues to prove enigmatic. Small shellmiddens in the vicinity of Stallings Island have not been adequately documented. We know little about the relationship of these sites to the larger type site; so too we lack such basic information as site function and chronology.

The magnitude of shellmidden looting is even more severe in remote areas of the region. Along Brier Creek in Georgia, for instance, many small shellmiddens have been badly damaged by vandals. One such site was brought to our attention in late 1990 when staff of the Georgia Department of Natural Resources discovered vandalism on property they were inventorying for the Nature Conservancy. A visit to the site, dubbed Midden Point, in January 1991 showed that little was left of a rich Stallings period shellmidden. Looting had apparently occurred over a period of several decades. The only portions of the site spared were nonmidden areas containing abundant lithic debris, and small strips of shellmidden situated between large potholes. Staff of the Savannah River Archaeological Research Program, faculty and students of Georgia Southern University, and other volunteers spent a few days mapping the site and excavating two one-by-two-meter units (Sassaman 1991). They recovered an enormous quantity of subsistence remains, lithic debris, and pottery from intact stratified deposits. Through this joint effort, the team managed to

Figure 2 — The results of looting at Stallings Island, Columbia County, Georgia, 1990.
salvage a small bit of what was once a rich archaeological deposit. Another positive outcome of an otherwise unfortunate situation is the subsequent recommendations for future site management on Nature Conservancy properties.

Site looting along the Savannah River and Brier Creek pales in comparison to the devastation that has occurred at shellmiddens along the Ogeechee River in Georgia. Timber companies control much of the property along the river, which itself is a scenic set-aside. Thus, while there has been little commercial or residential development along the river, the remoteness of its archaeological resources renders site protection and public conscience-raising near impossible. Very little professional work has taken place at these sites, so we know little about their role in regional chronology, settlement, and sociopolitics. Most of the Ogeechee record has probably been erased from existence.

Two shellmidden sites visited by Frankie Snow in 1985 exemplify the severity of destruction (Snow 1985). One of these, the Chew Mill Swamp site, is located on the north bank of the Ogeechee River about 10 miles east of Midville. Here looting was extensive, although small portions of the site were intact. Snow made a large collection of pottery and other abandoned items from backdirt piles, and the assemblage is indeed useful for typological and technofunctional analyses. It is doubtful that any portion of the midden has survived over the past six years.

The other shellmidden, the Strange site, is located about three miles east of Chew Mill Swamp. Unlike the latter, the Strange site is situated above the swamp on a raised terrace. It was cleared in the 1970s and planted in pine. The site was almost totally destroyed when Snow visited it in 1985. Like at Chew Mill, the chief cause of destruction was looting for carved bone
pins. Human burials were also removed from the sites.

POSSIBLE SOLUTIONS
What little remains of the Ogeechee River shellmiddens must soon be salvaged lest all traces of these important resources be lost forever. One looter informed Frankie Snow of his plans to dig into other shellmiddens. To offset these devious efforts, an intensive survey and education program must soon be implement-ed. Minimally, these sites should be visited to map locations and collect surface remains. Hopefully, there are enough partially intact sites in the hands of informed or reformable owners to provide a source of scientific information and afford future preservation. The Ogeechee River situation appears to be very bleak, but until a systematic effort is made to inventory and evaluate the damage, we should not dismiss all hope, or worse, acquiesce to the unbridled greed of a few ignorant characters.

Thus, I envision some short-term and long-term strategies for salvaging and preserving shellmidden sites in the Georgia-Carolina region. For the short term, we, as professionals, must always respond to information about site looting as quickly and as thoroughly as possible. This means giving up pet projects, negotiable deadlines, and other obligations and getting into the field to assess damage and collect materials. This must be combined with efforts to curtail looting, preferably by involving landowners and managers in the process of educating looters of their wrongdoing, posting notices, and protecting sites from further destruction. Indifference on the part of professional archaeologists catalyzes looting. If we professionals do not assert ourselves in these matters, the message we send to both looters and the public is "Go ahead, nobody cares."

Long-term solutions are more time-consuming and costly, requiring big commitments; they have to be initiated now. The mandate for professional archaeologists is twofold: intensive survey projects must be developed to locate sites—those already looted and those still spared the inevitable—and we must work with landowners and managers to protect sites. The mandate for govern-ment agencies is of course to provide funds for survey and preservation efforts. In particular, survey and planning monies in Georgia should be earmarked for this purpose. It will take a substantial lobbying effort on the part of concerned professionals to wrest this money away from more traditional projects. Other sources of funds should be explored. For instance, the U.S. Forest Service Challenge Cost-Share program is one option for sites located on Forest Service property, and I am sure that some of the big commercial owners of Ogeechee River sites could be persuaded to fund survey and testing projects on their lands.

Finally, preservation agencies, both private and governmental, are often looking for new projects. The magnitude of shellmidden looting is probably not widely recognized among these agencies. The Nature Conservancy of Georgia was surprised to find that a shellmidden on a tract of their land leased to a hunting club was being looted. Once informed of the problem, they responded decisively and quickly, providing support and access for professional investigators. At the national level, the Archaeological Conservancy expressed interest a few years ago in acquiring the Stallings Island site, although negotiations have apparently ceased.

CONCLUSIONS
It goes without saying that the destruction of shellmiddens appears to be an overwhelming problem. Looting will probably never stop, but we cannot continue to sit by and let it happen. When the Stallings culture collapsed some 3,000 years ago, a rich record of its existence was left for generations to follow. How much of it survives into the 21st century will depend largely on the efforts of professional archaeologists. Looters are the culprits, but indifferent professionals are their accomplices. Through the assistance of local, state, and federal agencies, and commercial sponsors, we must all work to locate and test sites, advise landowners of their options, engage legislators in the development of state and local laws, and educate those that will listen about the need to prevent the second fall of the Stallings culture.
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INTRODUCTION
On the night of September 21, 1989, the full force of Hurricane Hugo slammed into coastal South Carolina, effectively altering the landscape for the next 50 years. Hugo’s influence on the lives of the people of South Carolina is well documented. However, such natural disasters affect our cultural heritage as well. Hugo’s impact on cultural resources on the Francis Marion National Forest and the subsequent hurricane recovery activities undertaken by the Forest Service reveals this other side of Hugo’s legacy.

Originating off the African coast, Hugo is known as a Cape Verde hurricane, few of which make landfall in the United States. Of the 13 that have occurred since 1906, nine were major hurricanes—category III or IV (USACE 1986). Hugo, a powerful category IV hurricane, had maximum sustained winds estimated at 135 mph with gusts up to 185 mph. Near the coast, hurricane force winds (> 74 mph) occurred in a band at least 55 miles wide (USACE 1986) (Figure 1). The eye was about 24 miles wide when it came ashore. Sustained winds of hurricane force occurred at least 90 miles inland and gusts up to 80 mph were recorded as far inland as Hickory, North Carolina, 220 miles from the coast.

Approximately 14 other hurricanes approaching or exceeding Hugo’s strength have made landfall from Texas to Virginia since the turn of the century (NOAA 1977; USACE 1986), and more than 100 lesser hurricanes have made landfall during the same period (Neumann et al. 1987). A review of hurricane activity along the South Carolina coast has documented that, since 1700, approximately 18 hurricanes have probably affected the area now covered by the Francis Marion National Forest (Hooper et al. 1990).

These data suggest the Francis Marion National Forest is subjected to hurricane-force winds about every 16 years. This estimate may be inflated because it is impossible to get specific information about the early hurricanes. However, the mean elapsed time between hurricanes is fairly stable across centuries (1700s = 16.7; 1800s = 14.3; and the 1900s = 17.8). Clearly, not all these hurricanes had the same effect as Hugo. (Hooper et al. 1990:6)

Coastal South Carolina can expect a hurricane to make landfall about every six years, given that the area has experienced approximately 34 hurricanes between 1786 and 1985 (Langley and Marter 1973). A probable category IV hurricane struck South Carolina in 1893 and another in 1954 (USACE 1986). Including Hugo, South Carolina has had three category IV hurricanes in the past 96 years. Experts consider the probability of another Hugo to be a one-in-one-hundred-year event for any given point within South Carolina (Hooper et al. 1990).

The Francis Marion National Forest, no stranger to hurricanes, is located in the lower Atlantic Coastal Plain, a broad, gently sloping belt of sediments that extends about 120 to 150 miles inland. The topography is flat and almost featureless. Most of the forest is characterized by nearly level pine flats, with numerous drainages, swamps, and ponds.

Located only 20 miles northeast of the city of
Figure 1 — Hurricane Hugo's path through the Francis Marion National Forest.
Charleston, South Carolina, the Francis Marion National Forest bore the brunt of Hugo's wrath (Figures 2, 3). The damage is the most severe received by any national forest in the country. There is not a resource, facility, or improvement on the forest that was not damaged, and some were totally destroyed.

The Forest Service estimates that 60 to 70 percent of the pine sawtimber trees (greater than 10 inches in diameter) were destroyed. However, not all stands of pine trees were affected equally by winds of the same force. Damage to the forest appeared to be a function of both tree age and number of trees per acre (Hooper et al. 1990).

**EFFECT ON CULTURAL RESOURCES**

Prior to the hurricane, approximately 20 percent of the forest had been inventoried for cultural resources and more than 750 historic properties recorded in the state site inventory. The spatial distribution of prehistoric archeological sites is riparian oriented as most sites are located on well-drained soils on terraces adjacent to drainages, along the transition zone between high ground and swamps, and around natural ponds and bays. Archeological sites dating to the historical period (i.e., postdating the founding of Charles Towne in 1670) are numerous. They are usually the result of intensive land use associated with the agricultural base established some 300 years ago.

Once in 100 years is nearly meaningless to an individual. However, when dealing with historic properties, this statistic takes on a very different meaning. Numerous historic structures are located within and adjacent to the Francis Marion National Forest, and many of these have experienced one or more of these 100-year events. Prehistoric archeological sites, many of which are thousands of years old, may have suffered the effects of dozens of such 100-year events. On the other hand, archeological sites by their very nature are often less susceptible to wind and water damage than standing structures. Most prehistoric sites within the forest area have soil overburden of 10 to 30 centimeters or more, which helps protect them from both natural and artificial disturbance. Historic period sites with no standing structures usually have less overburden and tend to be more susceptible to disturbance.

Archeological site damage caused by Hurricane Hugo occurred in two ways: first, as a result of the storm surge along the coast and, second, due to wind damage, particularly when trees were uprooted. As if in an extremely high tide, water rose 15 to 20 feet above normal. The surge caused extensive erosion along the shoreline as the topsoil was stripped away. Archeological sites normally protected by the soil overburden were exposed and, thus, were more likely to be damaged by collectors and vandals. The greatest damage to sites occurred when large trees were uprooted, causing extensive disturbance to the surrounding soil matrix and artifacts. This exposes the site to additional degradation and adversely affects its integrity.

Besides the natural impacts, there were human-induced impacts to the cultural resources. These occurred during post-hurricane management activities implemented as part of the recovery process. In addition to work on the National Forest, there was considerable recovery effort on private and corporate lands. Although much of this work was sponsored by both state and federal agencies, it was often planned with little or no regard for historic preservation. Clean-up activities, such as the demolition of structures and the use of heavy machinery for debris removal (Figure 4), severely affected cultural resources.

The Forest Service developed recovery plans in compliance with the National Historic Preservation Act and set the recovery process in motion. Some of the recovery activities included:

- **Removal of damaged or downed timber.**
  This had to occur within six to nine months because such trees deteriorate rapidly and lose their commercial value. Environmentally stressed trees are also particularly susceptible to insect infestation that can spread to adjacent stands of living trees with lethal effect.

- **Protection of historic properties from timber salvage.**
  Of particular concern are earth disturbing ac-
Figure 2 — Trees snapped by Hurricane Hugo at public campground, Francis Marion National Forest.

Figure 3 — Damage caused by Hurricane Hugo, Francis Marion National Forest.
tivities such as: constructing log skid trails, log landings to load cut timber, and new roads; reconstructing existing roads to access proposed cutting areas; and removing biomass with heavy machinery (Figure 5). To lessen the impacts of salvage operations, alternative logging methods were employed, including helicopter logging, horse and mule logging, and using specialized low-impact equipment, such as wide-tire machinery.

- **Drastic fire suppression measures.**
  The hurricane created an extreme fire danger due to an enormous buildup of debris on the ground. Normal fire suppression techniques for wildfire control could not be implemented because of the heavy tangle of downed trees. This increased fire danger called for drastic presuppression measures, including the construction of about 300 miles of fuel breaks approximately 30 to 60 feet wide.

- **Reforestation of damaged woodlands.**
  This included preparing the ground for planting new trees and, in some cases, chopping the ground to break up the slash.

**THE SOLUTION**

To deal with Hurricane Hugo’s effects on cultural resources, the Forest Service, South Carolina’s State Historic Preservation Office (SHPO), and the Advisory Council of Historic Places (ACHP), through a Programmatic Agreement (PA) addressed three primary concerns.

1. Cultural resources should not be adversely affected by land management activities proposed in conjunction with the sale and harvest of salvage timber.

2. Cultural resources made more visible by the hurricane should be protected from vandalism, which includes not only looting by the general public but also by employees and contractors working in the salvage effort.

3. The Forest Service should consult the SHPO and ACHP, in accordance with the PA, if emergency salvage work might adversely affect a historic property.

To fulfill the PA, the Forest Service developed a Cultural Resources Treatment Plan for the Hurricane Hugo recovery program. It stipulated the following for known historic properties:

1. When feasible and if ground conditions permit, known National Register or eligible properties will be identified in each proposed project area. The Forest Service will identify these as "special areas" on sale area maps and mark them for avoidance from potential adverse effects of the activities.

2. The Forest Service will inform the project administrator and timber purchasers of these areas.

3. The Forest Service will monitor known but inaccessible historic properties during the project implementation.

The Forest Service attempted to relocate nearly 100 previously recorded sites and succeeded in relocating 80 percent of them.

All previously unrecorded historic properties discovered or exposed during the recovery program were afforded the same protection specified for previously recorded sites. More than 600 new archeological sites were recorded. Prior to salvage harvesting, cultural resources inventory was conducted in areas of high potential effect, such as log landings, road right-of-ways, and some presuppression fire breaks. Afterwards an intensive post-harvest survey was conducted within timber salvage areas to identify previously unrecorded properties. In addition, the Forest Service assessed damage to cultural resources from natural causes and from land management activities, including site evaluation, restoration, and stabilization.

**PLANNING FOR THE FUTURE**

The coastal plain forest in the vicinity of the Francis Marion National Forest evolved with hurricanes, which, as we have seen, are not rare
Figure 4 — Use of heavy equipment in debris removal following Hurricane Hugo, Francis Marion National Forest.

Figure 5 — Timber salvage harvesting following Hurricane Hugo, Francis Marion National Forest.
events. The point is not if a hurricane will strike but when. Thus the most important question is how to protect cultural resources in the future.

The answer is simple—preparation. Direction for compliance with historic preservation during emergency situations is found in 36 CFR 800.12. However, what a federal agency considers an emergency undertaking may often vary from what is defined in the regulations. Agency officials may not always know what their compliance obligations are and may not even have the staff to advise them. Contingency plans to deal with possible threats would go a long way towards meeting agency needs, complying with legal obligations, and, most importantly, protecting the cultural resources on public lands.

In the case of hurricanes or major storms, the Francis Marion National Forest had developed an action plan for personnel, records, and facilities. However, there was no plan for protecting natural or cultural resources. At the time we were not prepared for a disaster the magnitude of Hugo. Our response, while good and timely, could have been much better with a little advance planning.

In conclusion, Hurricane Hugo has taught us that human response to a disaster can potentially affect cultural resources as much as nature’s most powerful events. While a variety of recovery activities are necessary, they should be undertaken with foresight and understanding of the primary and secondary effects they have on cultural resources. Historic preservation compliance has been very much a part of the Hugo recovery process on the Francis Marion National Forest. Many more archaeological sites would have been lost or irreparably damaged if not for historic preservation planning.

Suggestions for the future? In areas where there is a known threat from natural disaster, contingency plans should be developed, reviewed, and approved in advance by all consulting parties. This would greatly reduce confusion about agency responsibilities during an emergency and the subsequent recovery efforts.

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U. S. Army Corps of Engineers
INTRODUCTION
Prehistoric shell midden sites, ranging from only a few meters in diameter to hundreds of hectares, are a common feature along the North Carolina coast. In some areas, shell middens and scatters stretch for miles along the shoreline, broken only by streams, marshes, and recent construction. The majority of the sites appear to be associated with Middle to Late Woodland period occupations (ca. A.D. 200–1600). Evidence from earlier periods is scant, indicating that either earlier exploitation of shellfish was minimal or, more likely, the associated shell middens have been lost to the forces of shoreline inundation, erosion, and modern development.

In spite of an abundance of shell midden sites, research on them has been limited in North Carolina. Most of it has occurred as a result of recent cultural resource management-related surveys and salvage projects. Few of the sites have been investigated beyond initial survey and testing, and only a handful have been subject to more than a single season of fieldwork (Loftfield 1979, 1987; Phelps 1984). Furthermore, the majority of the studies have focused on the shell-middens themselves, with very little work conducted in areas adjacent to and away from the middens.

The net result is that we actually know very little about the overall nature and extent of these sites and virtually nothing about intra-site structure and composition. This is both a research and management problem since shell middens and their associated habitation areas, perhaps more than any other class of archaeological resource, are under the constant threat of both natural and human-induced impacts. I have no qualms, in fact, about stating that within the coming decades we will see virtually all of the North Carolina shell midden sites destroyed or severely damaged.

THE BROAD REACH PROJECT
In May 1991, the North Carolina Office of State Archaeology (OSA) began the Broad Reach Archaeological Project at site 31Cr218, a large shell midden and habitation site located on Bogue Sound in Carteret County (Figure 1). The site was first identified in 1987 during a cultural resources survey of a proposed development project (Martin and Drucker 1987). The survey was conducted using a typical combination of surface inspection and shovel testing at 100-foot intervals.

The Broad Reach site was defined primarily by exposed marine shell covering an area extending approximately 600 meters along the shoreline and 200 meters inland (Figure 2). A series of evaluative tests defined a 60-centimeter-thick "core" within the site covering an estimated 122 x 107 meters. This "core" area also coincided with "the densest surface distribution of shell and artifacts, thereby confirming a core occupation area" (Martin and Drucker 1987:34).

The proposed development project will involve construction of a marina basin and access channel covering roughly 3 hectares (7.5 acres). Slightly over one-half of the marina falls within the recorded site boundaries, but just outside the reported "core occupation area". Future construction at the site will include roads, condominiums, and attendant utilities.

Normally, impact mitigation for a coastal development project like this would be conducted (like the initial survey) by a private or institutional contractor. Based on past experience,
Figure 1 — 1991 area estimate of the Broad Reach site, 31Cr218.
However, such work probably would be limited to the site area defined in 1987, with a focus on the "core occupation area". At most, the marina basin itself would receive cursory attention in the form of small block excavation or test units. Because of this, the OSA negotiated with the developers to conduct investigations within the marina basin area as a whole in order to evaluate the validity of the site boundaries and gain a better understanding of the periphery of the shell midden site.

For several years the OSA has been concerned about (1) the overall efficacy and focus of shell midden survey and evaluation projects; (2) the tendency to define site boundaries and specifically "core" areas based on the distribution of shell and shell midden, or even on the density of surface artifacts; and (3) the subsequent focus of mitigation or research excavation activities on the "core" areas. It can be argued, of course, that surface evidence often is a reasonable indicator of subsurface content and, further, that the peripheries of sites generally are of lesser importance in our efforts to understand and interpret the archaeological past, particularly when we are faced with limited budgets for data recovery.

In recent years, however, a number of ossuaries and shell-filled pits have been serendipitously discovered at considerable distances (hundreds of meters) from shell midden areas. These discoveries, combined with ethnographic information for other parts of the world, have generated a suspicion that, simply put, there may be considerably more to these sites than meets the eye and that the peripheries of the sites may be more important than previously thought. Unfortunately, shovel testing and even larger test excavations alone are only minimally effective discovery and evaluation techniques, particularly as we move away from the midden areas.

It can be assumed that in most instances people did not actually live on the heaps of discarded shell, referred to generically as the midden, and that the midden area itself was nothing more than a "community dump" or temporary activity area, albeit possibly a focus of

![Diagram of Broad Reach 31CR218](image-url)
community activities. Actual households and habitation areas were established on the midden periphery and perhaps at considerable distances from the midden. As the midden grew, adjacent household areas were abandoned and reestablished elsewhere, leaving the abandoned areas to be covered over by the growing midden.

One of the likely effects of this site formation process is the horizontal and even vertical mixing of midden and feature debris in and adjacent to the shell middens. Although it is generally assumed that pit features contain the remains of temporally discrete activities, the potential for incidental "contamination" by earlier materials is particularly great in the immediate vicinity of shell middens. This is of some concern since virtually all of the large shell middens recorded along the North Carolina coast contain both Middle and Late Woodland period components. One site illustrating this problem is the Flynt site (31On305), located roughly 25 miles to the south of Broad Reach. Over 100 pits features were partially or completely excavated at the site between 1985 and 1987. Only about 10 percent of these can be confidently assigned to a single cultural period (Loftfield 1987; Mathis n.d.). All but a few of the features were adjacent to or beneath shell midden. A comparable case of temporal mixing was found in the shell midden areas at both the Flynt and Broad Reach sites (Martin and Drucker 1987).

Given this, we can state with some conviction that in many instances excavations conducted solely on or even at the immediate periphery of the middens are very likely to recover temporally mixed or potentially equivocal data for purposes of developing temporally valid models of settlement and subsistence. Furthermore, focusing research on the middens is likely to provide only limited information concerning intra-site structure. The density and overlap of chronologically disparate features tend to obscure or severely limit postmold and feature pattern recognition. Unfortunately, it far easier to find the dense "stuff" and to "sell" mitigation and research plans that focus on these "core areas".

With this in mind, the Broad Reach Project was designed to test the proposition that there is much more to coastal shell midden sites than previously recognized, and that our basic techniques for site identification and evaluation have been only marginally effective in recovering valid samples of the overall archaeological record.

The Broad Reach site was selected for this "test" for two reasons. Based on the initial survey, the site appeared to be a typical Middle to Late Woodland period shell midden. We expected to find shell-filled pits, rectangular structures, hearths, dog burials, an occasional secondary human burial, and possibly even an ossuary, all typical features of the Late Woodland coastal Carolina Algonkians (Phelps 1983). We have no real sense of what to expect for the Middle Woodland component, assuming it differs from the Late Woodland. In the course of the fieldwork we hoped to expose structures, examine a sample of the features, and, if necessary, recover any identified human burials.

The second reason for selecting Broad Reach for the test was logistically defined: the developers had the necessary equipment on-site and were prepared to cooperate with us.

RESULTS
Using a road grader and pan combination, the plowzone was removed from approximately three hectares (7.5 acres) within the proposed marina basin and access channel. During the grading operation obvious features were flagged and numbered as they were exposed. The initial stripping process took almost two weeks to complete.

Between May and December 1991, 419 features were recorded, including 217 shell-filled pits of various sizes and shapes; 9 small, possibly "household" midden scatters; 44 presumed general refuse pits; 4 burned surfaces; 110 miscellaneous humus stains, some of which are probably trees or rodent burrows; and 35 known or suspected burials (Figure 3). Actually, the total number of features exposed by the grading was far greater than the 419 recorded. In one area covering approximately 20 x 40 meters, the shell-filled pit features were so dense that we simply did not have time to formally record them all. Nonetheless, we feel reasonably confident the
bulk of the shell-filled pits were at least partially exposed, if not recorded. However, in many areas the grader did not cut to the base of the plowzone, so other types of features (e.g., burials) probably escaped detection.

In addition to the obvious shell-filled pit features and large humus stains, small postmold-like stains were ubiquitous. One small oval structure and portions of at least two other oval or round structures were identified, along with a number of short lines of apparent postmolds consisting of from five to ten stains. However, discrimination of true postmolds in the sandy coastal soils is difficult even under the best of circumstances. Soil accretion is minimal along the coast so that, by the time the plowzone is removed, we are often left with only the bottom of the postmold. Furthermore, we can generally assume that many or most structures constructed along the coast were composed of saplings stuck in the ground and bent over to form a domed or arched roof. Given the loose and unconsolidated
sands, it was not necessary to hand-excavate a deep hole to set a wall post (or sapling). Therefore, not only are we left with the bottom of postmold stains, but stains that are only a few centimeters in diameter. Such features tend to rapidly disappear soon after exposure to the sun, making identification all the more difficult. In fact, only a few definite structures have been identified to date at sites along the outer coast of North Carolina. This has less to do with the presence/absence of structural evidence than the combination of postmold definition problems and the spatial focus of investigations. Most research has been too limited in scale or has centered on or immediately adjacent to the shell middens where structures are either unlikely or obscured by the "noise" of other archaeological features. Structure identification and discrimination is still possible, but to do so with confidence we may have to move well off the midden areas.

A total of 84 features were partially or totally excavated in 1991, including 37 shell-filled and general refuse pits; 15 confirmed burial pits; 20 possible (but empty) burial pits; 2 cobble caches; and 10 probable natural disturbances (i.e., trees, animal burrows). Most of the shell-filled pits were generally round- to oval-shaped basins containing shell and little else. Oyster was predominant in the majority of features, although lesser amounts of other shellfish were usually present as well. Several pits primarily or exclusively contained clam shell; at least one contained only scallop. As our analysis has only just begun, I can say little about the temporal associations or differences, if any, between these features. The majority of the shell-filled pits, however, appear to be associated solely with episodes of shellfish processing and consumption.

At least 31 of the shell-filled pits identified (eight of which were excavated) apparently were used for more than simply roasting or steaming open shellfish. In these features, the shell was severely burned if not fully calcined. In one instance, small charred logs were present at the bottom of the pit. Cursory examination of the feature contents indicates that few other artifacts occur within the pits. While the function of the burned-shell pits remains unknown at this time, it is possible they initially served as shellfish roasting or steaming pits, then as shell-lined "household hearths" in which fires were kept burning for long periods of time. If so, their spatial distribution may be a reflection of the distribution of households and domestic areas across the site.

The most perplexing features recorded at Broad Reach, however, are the human burial types, which generally are not characteristic of the coastal region. As such, they throw an anomalous "wrench" into the initial assumption that Broad Reach represents a typical North Carolina coastal shell midden site. A total of 15 definite burial pits, containing the remains of all or parts of at least 29 individuals, have been excavated. These include two ossuaries, a primary interment containing two individuals, and nine burials containing all or portions of single individuals. An additional 20 features thought to be burials contained no human remains or only small fragments of possible human bone. Skeletal analyses are pending.

Ossuaries generally are considered a characteristic feature of the coastal Algonkian mortuary complex (Phelps 1983; Loftfield 1990). They typically contain the remains of 15 to 150 individuals and only rarely contain burial offerings. In contrast, the two Broad Reach ossuaries contain fewer than 10 individuals and deliberately interred artifacts.

Burial 1, a small ossuary containing portions of at least six individuals, was discovered during the initial grading operations. This shallow, roughly oval burial had been damaged by plowing prior to the grading. Nonetheless, there was little or no evidence of bundling or articulation. Initial observations indicate that only portions of the six or more individuals were interred in the pit. Only a few clearly identifiable long bones were present, and several clusters of vertebrae were observed, indicating some segregation of the remains during the interment process. The ossuary also contained a partial cremation. Eight small copper beads, recovered from the burial, were scattered among the skeletal remains as if "sprinkled" onto the bones during the ossuary ceremony.
The other ossuary, Burial 6, appeared on the graded surface as two distinct clam shell features. Located approximately two meters apart and five meters from the Burial 1 ossuary, they were selected for excavation because of their proximity to Burial 1. In addition, they appeared to contain only clam, unlike most of the other shell features that contained primarily oyster.

Soon after we began the feature excavations, it became apparent that they were more than just a couple of shell-filled pits. Beneath the graded surface (the base of the plowzone), the pits joined to form a basin-shaped layer of shell ranging from 45 to 60 centimeters thick. The center of the basin was overlain by a sterile layer of soil, indicating that the pit probably had subsided and filled with sand over the years. The two originally identified "features" were in fact merely exposed outer "rim" segments of a single large feature measuring over three meters in diameter. The majority of the shell was clam, with only a minor scattering of oyster, scallop, and whelk. One exception was what appeared to be two separate basketloads of oyster shell.

Scattered among the shell, but primarily around the edges of the basin, were numerous large potsherds, some of which measured over 20 centimeters. All of the sherds are shell-tempered and fabric- or textile-impressed, indicating a Late Woodland affiliation for the pit. Further examination of the sherds indicates that most come from only a small number of vessels.

At the base of the shell layer, a thin zone of apparently sterile sand was encountered. Below
this and extending well into what appeared to be the natural sand subsoil were human bones. The excavation revealed the bundled remains of nine individuals (Figure 4). The bundles were placed on the pit floor in four distinct groups consisting of one, two, three, and three individuals. The bundles appeared to contain the majority if not all of the bones of each individual. Based on field observations, all of the individuals—eight young adults and one older adult—appeared to be male. Each bundle contained a number of articulated elements—vertebrae, hands, and feet, in particular.

Two of the bundles included artifacts, which, as noted previously, is not characteristic of the known burials in the outer coastal region. The isolated single bundle, the older adult, appears to have been the "status individual" of the ossuary. Over the top of the bundle was a thin layer of clam shell. Adjacent to the skull was a small pottery vessel, a turtle shell, a small perforated green chlorite schist "cup", and a string of cut-shell disk beads. The disk beads appear to have been attached to the cup-like artifact via two small holes on opposite rim edges. At the northern end of the bundle were five and possibly six groups or strands of marginella shell beads. To one side was a small, currently unidentified animal skeleton, apparently placed in the burial as a bundle.

The other bundle with associated artifacts appears to have either been laid upon or wrapped in a cloth to which several hundred marginella shell beads were attached.

The dimensions of the oval-shaped ossuary pit were estimated at slightly over 5 x 3.5 x .7 meters deep (not including the plowzone). A crude calculation indicates that at least eight metric tons of earth were excavated for the ossuary. It is quite possible the large pottery sherds recovered from the fill were used as shovels in the digging process.

Given the extraordinary depth and size of the pit, plus the artifacts, it is suggested that the burial represents a status interment, and that the individuals contained within the burial may well have been "nobility" within the prehistoric community.

Another possible "status" interment (Burial 8) contained the flexed and semi-flexed remains of two individuals. The individuals were positioned with the feet of the flexed interment at the skull of the other. Both appear to be females of advanced age. Contained within the burial were a pottery vessel and at least five turtle shells, two of which appear to be turtle shell rattles. Found with one of the rattles were several deer and turkey bones, a deer antler, and beaver teeth in what may be a medicine bundle.

Burial 13 contained the semi-flexed remains of an adult male. Associated with the burial was a cache of seven shark teeth, a fragment of deer bone, a deer antler tip, and a small hammerstone.

Five burials contained the remains of single individuals. Each appears to have been interred in a tightly flexed position, although there is some reason to suspect that each was actually a partially disarticulated, flexed bundle. Each of the burials contained an apparent burial offering. Burial 10 was accompanied by a turtle shell; Burial 5 by a whole clam positioned on end next to the skull; Burial 3 by three shark teeth; Burial 14 by a whelk shell; Burial 1 by a cobble. In two and possibly three of the burials, two or more hand and wrist bones were recovered from inside the cranial cavity. These bones appear to have been deliberately placed inside the skull prior to or during the burial ceremony. This suggests that the deceased had been placed elsewhere—possibly in a charnel house—for a period of time prior to the final interment.

A significant feature of the individual burials and of at least 18 other features thought to be burials is that they are located in a cemetery-like cluster. Cemeteries are not a previously documented feature of prehistoric cultures in the North Carolina coastal region.

Six other burials, four within the cemetery cluster and two near the ossuaries, contained only a few fragments of human bone. In two instances, one-half or less of a cranium was recovered. One of those burials also contained a dog cranium positioned directly below the human cranium. Only a few unidentifiable human bone fragments were recovered from the four other burials. The depth of the pits and the position of
the bone fragments—at the pit edges, below the plow depth—suggest that the lack of additional remains was not a result of plowing or grading damage. Rather, we believe that these and many of the other "empty" pits excavated in the cemetery area were burials from which the bulk of the remains were removed by the site occupants, either for reinterment in a nearby ossuary or for movement to another village site altogether when the Broad Reach site was abandoned.

CONCLUSIONS
The Broad Reach Project was initiated to test the proposition that studies along the coast of North Carolina have been only nominally effective in locating and estimating the boundaries of shell midden-associated sites. The field program demonstrates conclusively that we have, in the past, operated on the basis of what are now known to be unsubstantiated assumptions about the size of these sites, and, as a result, large segments of the prehistoric habitation areas attendant to these sites have been overlooked.

The recent project area, covering approximately three hectares, straddles the Broad Reach site boundaries estimated in 1987 on the basis of visible surface artifacts. Removal of the plow-zone from the area revealed over 400 features, including shell-filled pits, human burials, and apparent house patterns, a significant number of which were located outside the estimated site boundaries. During the 1987 survey, shovel tests were excavated at 100-foot intervals across what was to become the 1991 project area, but no obvious subsurface features were encountered. This is not particularly surprising given the distribution and density of the features revealed in 1991. Even in those areas of highest feature density, the probability of encountering a feature is relatively low (Nance and Ball 1986; Lightfoot 1986). At intervals of 100 feet (30 meters), even the cemetery cluster, with 36 features and burials in an area roughly 15 meters square, could have been (and was) missed by the shovel testing.

Nevertheless, shovel testing is a standard site discovery technique, and intervals of 25 to 30 meters are typical whenever surface visibility is low or when there is a potential for subsurface features or buried cultural deposits. In many situations, however, shovel testing may not be employed at all if surface visibility is particularly high, as in a plowed field, and the potential for subsurface deposits is low. In such instances surface artifact distributions alone are used to define sites and site boundaries. As we have seen from the Broad Reach case, however, neither shovel testing nor surface artifact distributions provided an accurate measure of the extent or subsurface nature of the site. Significant features were discovered in substantial numbers at the periphery of the recorded site area and beyond. In this regard, the Broad Reach results have significant implications for the interpretation and treatment of coastal shell midden sites in the future. Exactly how the results will affect the design of future survey and evaluation projects remains to be seen. However, I would not hesitate to suggest that a road grader become a part of our standard field equipment.

From the purely academic perspective, the mortuary complex and oval structures identified at Broad Reach, regardless of any contemporaneity or cultural affiliation issues, are unique to our current understanding of the coastal region. It is quite possible, however, that Broad Reach represents a classic case where the concept of "unique" is nothing more than the first encounter with a common phenomenon. Perhaps it is only a matter of finally looking in the right place, combined with no small amount of luck.
ACKNOWLEDGEMENTS

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Martin, Debra K. and Lesley M. Drucker

Mathis, Mark A.

Nance, Jack D. and Bruce F. Ball

Phelps, David S.

INTRODUCTION
Charleston County is graced with some of the best preserved Civil War material remains in South Carolina and the United States. There are extensive portions of Confederate and Union siege-lines, forts, redoubts, redans, and encampments in the area (Figure 1). These archaeological sites and imposing landscape features—having lasted for approximately 130 years—are an important asset for understanding the momentous events of 1861-1865. At the same time, these cultural resources are faced with imminent destruction.

CHARLESTON’S CIVIL WAR HISTORY
Charleston, according to Fonvielle and Legg, was the "Confederacy’s most important seaport on the South Atlantic Coast" (1989:13; see Power 1991). Charleston and its environs played a major role in the history of the American Civil War. A primary goal for many of the South’s blockade runners was to reach the harbor, bringing vital supplies for the military and civilian populations. Both the Union and the Confederacy recognized the strategic importance of this port. From 1861 to 1864 numerous plans of offense and defense were drawn and executed by both sides.

Besides playing a critical role as a major trading center, Charleston had great symbolic value during the war. South Carolina voted for secession in December 1860. Fort Sumter, which guarded Charleston’s harbor, had fallen to the nascent Confederacy with the war’s first shots on April 12-14, 1861 (McPherson 1990:1-4). Thus, Charleston was a symbol of Southern defiance and of Union determination throughout much of the war (Fonvielle and Legg 1989:13-14).

Geography defines Charleston. It lies within the low country’s intricate system of inland and coastal marshes, fresh and tidal rivers, barrier and sea islands, and fine natural harbors. The waterways served as natural transportation routes to and from the city. As there was little imposing high ground, defenders had to construct masonry and/or earthen ramparts to protect the waterways, inland roads, and rail systems.

Militarily, access to the city could be gained from the south, up the Stono River and across James and Johns islands. Confederate Gen. P.G.T. Beauregard strongly believed, both during and after the war, that James Island was the weakest natural point of the city’s defense (Beauregard 1884:14). Confederate Gen. John C. Pemberton also recognized the island’s weakness and importance when he ordered construction of defensive works in 1861. Morris Island was another possible staging ground for an attack on the city. The Union army could also attack from the north after taking Sullivan’s Island. If Fort Sumter could be breached, Charleston’s harbor would lie open to invading gunfire (Beauregard 1884:4-5, 14; McPherson 1990:2).

At the outbreak of the war, Charleston’s defenses relied primarily on four previously built forts: Fort Sumter and Castle Pinckney in Charleston Harbor, Fort Moultrie on Sullivan’s Island, and old Fort Johnston to the south on James Island. When Beauregard took charge of South Carolina and Georgia defenses in September 1862, he found that Pemberton had "injudiciously located" most of Charleston’s earthworks, except for Fort Pemberton on the Stono River (Beauregard 1884:1).

Pemberton, in 1861, and Beauregard, beginning the following year, did have a series of
batteries, forts, and related works constructed throughout the area. Engineering plans for many of these can be found in *The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies* and its related atlas, issued by the Government Printing Office in 1880. Memoirs, regimental histories, official reports, diaries, maps, letters, and paintings all offer substantial data on Charleston’s myriad resources. For example: Frank Vizetelly sketched "Dead Negro Soldiers at Fort Wagner" (reproduced in Williams 1961:237); Union Maj. Charles Fox illustrated the 55th Massachusetts encampment on Folly Island in 1863 (reproduced in Fonvielle and Legg 1989:27); and Union Maj. Gen. Quincy A. Gillmore included scaled plans of the "Rebel Works on James Island" with his official reports.

Figure 1 — Civil War earthworks, fortifications, and battle sites in the Charleston area.
From such sources we learn that fortifications had to withstand bombardments, sporadic feints, and actual assaults. When the Confederates, under Pemberton, fell back from the Coles Island batteries in the middle of May 1862, the Stono River entrance was free for Union taking (Beauregard 1884:7). In order to protect the all-important James Island, Confederates began construction on what is now known as the James Island siege-line, which included Fort Lamar (38CH1271) (Figure 2) at Secessionville and Battery #5 (38CH507) at nearby Seaside. On June 16, 1862, those defenses were tested. Union Maj. Gen. David D. Hunter, commander of the Department of the South at Hilton Head, had Gen. Henry W. Benham approach the works. In the words of Fonvielle and Legg:

[Benham] led 6,500 troops against a third as many strongly entrenched Confederates near the hamlet of Secessionville, on James Island. Hunter had sanctioned a reconnaissance, but Benham chose to attack instead. The Union frontal assault incurred heavy casualties and was repulsed in a few hours. Benham was compelled to order a retreat from James Island. (1989:14)

This was indeed a "miserable failure" for the Union. The Battle of Secessionville (Figure 3) was the "most significant Civil War battle fought in South Carolina" (Power 1991:21). At the time of the engagement, Secessionville's defenses had been both "poorly devised and poorly executed" (Beauregard 1884:2). The Union had lost its chance to take Charleston via James Island, and the Confederates had bought time to strengthen all of the city's defenses (Beauregard 1884:4-5, 21; Power 1991:21).

By April 1863, Union troops began to encamp on nearby Folly Island. During that month, the Union navy under the command of Admiral Samuel F. DuPont attacked Fort Sumter only to be repelled in two hours (Fonvielle and Legg 1989:16-17). The Union retained a large presence on Folly. An estimated 3,000 to 4,700 men from the Union's Tenth Army Corps were there under the command of Brig. Gen. Israel Vogdes (Fonvielle and Legg 1989:18). When Gen. Q.A. Gilmore took command from Hunter in 1863, he fortified Folly Island with about 11,000 troops before attacking Morris Island (Fonvielle and
Legg 1989:18). In July 1863, a feint attack was made at Secessionville while Union troops fell upon Battery Wagner by land and sea. The two land assaults of July 11, 1863 were unsuccessful, even though Col. Robert Shaw, commanding the all-Black 54th Massachusetts, had made an heroic effort. Instead, Union forces had to concentrate on taking the rest of the island, which they did. They constructed more gun emplacements and used a number of these positions to shell Charleston and other Confederate defenses intermittently in 1864 and 1865 (Beauregard 1884:14; Fonvielle and Legg 1989:21).

The Union army was not able to take Battery Wagner until after the Confederate withdrawal in September 1863. Beauregard, having decided his men were stretched too thin, chose to strengthen his James Island forces (Beauregard 1884:18-19; Fonvielle and Legg 1989:21). He could not believe that the Union forces neglected to mobilize against James Island again in 1863 (Beauregard 1884:21). Perhaps the memory of their failure in 1862 was too strong. Their neglect to attack was a factor contributing to a stalemate in Charleston throughout much of the war. The city did not fall until Union Gen. Sherman’s troops arrived from the south and west in 1865. On April 14, 1865, the "Stars and Stripes" were seen over the ruins of Fort Sumter once again (McPherson 1990:6).

SITE DESTRUCTION IN CHARLESTON
In his foreward to a recent Conservation Fund publication, Patrick F. Noonan states that much of our "hallowed ground"—Civil War related archaeological sites—used to be willingly preserved by American small farmers. With the transformation of the United States’ economy and the decline of the small farmstead, many of these lands are now faced with development (Noonan 1990:xi).

Charleston’s environs are changing from rural to suburban; agrarian landscapes are being replaced by housing developments. Breastworks and forts saved from the farmer’s plow are being bulldozed to make room for clubhouses and residential units. Increasing development pressures...
include expansion of municipal services and related structures. Battery #2 on the James Island siege-line, for example, was bulldozed for the construction of a municipal water tower (Fred and Chevis Clark, pers. comm. 1991). Residential development has increased access to archaeological sites for bottle and Civil War artifact collectors. Charleston has an active group of metal detector enthusiasts, and collectors vary in their sense of responsibility for Charleston’s history. Site damage from collecting activities ranges from moderate to severe (Legg and Smith 1989:55-97).

Natural disasters, such as Hurricane Hugo, have led to the deleterious effects of wind and water erosion. Site destruction includes continued deforestation to open up more areas for recreational access. Subsequently, trail bike and pedestrian activities have added to natural erosional problems. People usually do not realize that earthworks can be worn down and eroded by simple recreational activities.

The area’s vast collection of Civil War resources is at risk from development, recreational activities, looting, and the processes of natural erosion. Preservation efforts must be greatly increased to address such site destruction problems.

PRESERVATION ACTIVITY TO DATE
The preservation of Civil War sites in and around Charleston has been piecemeal. As yet there is no unified perspective or regional plan for their preservation. Some of Charleston’s Civil War resources are protected as National Historic Landmarks and as part of the National Park system (e.g., Fort Sumter, Fort Moultrie). Local government has helped preserve some batteries as part of James Island County Park (e.g., unnamed batteries, James Island). Some features, such as Battery Pringle, 38CH465 (Figure 4), have been protected as part of the Dill Property, which is managed by The Charleston Museum. Other period historic properties have been quietly preserved by private landowners (e.g., Fort Pem-
berton, 38CH197; Secessionville Manor). Some private landowners, however, have incorporated Civil War breastworks as part of their residential landscape (e.g., probable shell midden and battery, 38CH67; Battery Wilkes, 38CH429). However, such undirected "preservation" activities can be harmful to site interpretation since erosion is not always controlled.

With continued construction of new golf courses, Planned Urban Developments (PUDs), and new highway access to portions of Mount Pleasant and James Island, there is great pressure on private landowners to develop their lands. Federal laws, such as the National Historic Preservation Act of 1966, as amended, especially Section 106, and related tools, such as the National Register of Historic Places (NRHP) and 36 CFR Part 800, are helpful. In 1982, the Berkeley-Charleston-Dorchester Council of Governments had historic preservation planner W. David Chamberlain draw up a thematic nomination for Charleston's Civil War sites. In August 1982, eighteen sites were placed on the NRHP at a national level of significance. Of these sites, 12 were new; the other six had been previously recorded in the South Carolina Department of Cultural Resources, Historic Preservation Division site files. However, these were mostly standing landscape features. The nomination did not include associated archaeological encampments and cemeteries. No archaeological site forms or numbers were given, and no systematic survey or mapping was undertaken (Chamberlain 1982; Stine 1991:84-88).

The NRHP nomination is only the first step in the preservation process. No subsequent comprehensive preservation plan has been implemented to interpret or protect these sites. The nomination considers few of the 34 archaeological sites and components recorded in the South Carolina Institute of Archaeology and Anthropology (SCIAA) site files. Site significance for the 1982 thematic nomination was based neither on a holistic, regional perspective nor on criteria for evaluating archaeological sites. As a result, only 18 aboveground landscape features were listed. Those judged "too eroded" for listing may, in fact, incorporate important belowground remains. Encampments, such as those excavated by the SCIAA archaeologists on Folly Island (Legg and Smith 1989), were not considered in the 1982 nomination. It is a pity the archaeological sites recorded in the SCIAA site files and the landscape features recorded in the Historic Preservation Division files are usually not cross-listed at each state agency.

Federal preservation laws are only applied to projects on federal lands or projects federally licensed, advised, or financed. Tools, such as Section 106, only minimize impact on cultural resources through avoidance or archaeological investigation. Research may preserve data important to America's past, but it often leads to site destruction through excavation. State regulations, like those adopted by the South Carolina Coastal Council, are helpful but limited to developments falling under their specific mandate. Too many Civil War sites are falling through the cracks and being destroyed. Their destruction is unconscionable. They not only have the potential to draw tourists, with all the related economic benefits, they also can and should be primary educational tools. After all, the network of interrelated sites are evidence of a unique event in American history—the Civil War. In their construction they reflect the diverse influences of the Northern and Southern cultures and our nation's black and white heritage.

Charleston did have important symbolic and strategic roles in the Civil War. The city's defenses were integral to those roles (Power 1991:1) and should be preserved. At present, the scope of the battlefields, defenses, and encampments has generally not been recognized. While the public can take a boat ride to Fort Sumter and visit Fort Moultrie on Sullivan's Island, these important forts were only part of a vast master plan devised by the Confederacy to defend the city and thwart the Union. Charleston and its environs have extant, significant historic properties that should be preserved and interpreted. They should be precisely mapped, professionally evaluated, and incorporated into a joint regional plan.
PRESERVING CHARLESTON’S PAST FOR THE FUTURE

As John Heinz said, increasing developmental pressures must be met by a consortium of federally inspired preservation activities. Support from state and local governments and the private sector are integral to the protection of Civil War sites (1990:116).

Heinz writes that "To appreciate history, we must evoke our imaginations, and this is best achieved through direct contact with the things that remain from past days" (1990:115). The city of Charleston, the state of South Carolina, and the National Park Service have a unique opportunity to bring the past to light using Civil War resources. Standing near any Civil War feature, one can compare past and current landscapes with the help of historical documentation and archaeological results. Preserving a series of breastworks and forts will also help preserve some of the low country’s natural beauty and viewscapes. Some sites, such as Battery Pringle (Figure 4) on the Dill property, are already being readied for preservation and public interpretation by The Charleston Museum. If other areas were protected and interpreted, visitors would see how the landscape was used to possible advantage by both sides. Visitors could also sense how army camps must have been miserable in summer and pleasant in winter (e.g., 38CH964, see Legg and Smith 1989). It is very difficult to do this now as many sites are inaccessible, forested, or hidden behind developments. Occasionally people do visit these sites, and visitation, while educational, can unfortunately sometimes lead to site looting. Visitors also unknowingly erode away some of Charleston’s "sacred ground" just by walking or riding over the defenses.

The Charleston area would benefit from the construction of linear parklands (greenways) along the city’s defenses and offensive camps. For example, the Rails-To-Trails Conservancy, funded by private donations since 1985, has helped create a number of linear parks with hiking and biking trails that follow old railroad right-of-ways. One such park is the Oil Creek State Park Trail in Pennsylvania, consisting of 5.3 miles of scenic beauty. Other states have turned abandoned canals into greenways. South Carolina created a fine educational park along Columbia’s old waterworks. The Civil War driving and walking tour in Vicksburg, Mississippi, can also serve as a template. As part of a regulated greenway, Charleston’s Civil War resources would be protected, viewed, and enjoyed. Such a plan is feasible as there is great local, state, and national interest in seeing these resources managed.

A number of local groups are already discussing ways to best protect these properties. The Civil War Roundtable of Charleston, the Charleston Planning Office, the Lowcountry Open Land Trust, The Charleston Museum, and many local collectors are very supportive. Many collectors contacted in 1991 stated that much of the area has been "worked", and that they would rather see the sites protected and regulated than bulldozed. Excavations at Folly Island (38CH1213, 38CH920, 38CH964, and 38CH965) have proven that looting, while affecting specific features, does not usually leave a site totally destroyed. Much information can still be gathered for interpretation and public enjoyment.

At the state level, the Heritage Trust, the Department of Archives and History, South Carolina Department of Parks and Recreation, and SCIAA, to name a few, recognize the significance of these resources. On the national level, groups and programs, such as the Association for the Preservation of Civil War Sites and the Conservation Fund’s Civil War Battlefield Campaign, can aid local preservation efforts with matching funds and expertise.

One has only to write to these organizations. For example, Mr. Christopher Judge, consulting archaeologist for the Heritage Trust, can be contacted at the address provided in the Contributors section, page 100. Locally, Ms. Elizabeth Hagood of the Lowcountry Open Land Trust, P.O. Box 1293, Charleston, South Carolina 29402, will send information about area preservation. On the national level, contact Mr. A. Wilson Greene, Executive Director, Association for the Preservation of Civil War Sites, P.O. Box 1862, Fredricksburg, Virginia 22401. Ms. Frances Kennedy, Director of the Civil War Battle-
field Campaign, Conservation Fund, 1800 North Kent Street, Suite 1120, Arlington, Virginia 22209, also has the expertise to help those interested in preserving Civil War sites.

THE NEED FOR EFFECTIVE MANAGEMENT
The first step in stopping Civil War site destruction is to create a managing entity for the whole area to protect the sites and identify, assess, and interpret them for the public’s understanding and enjoyment. Preservation organizations are occasionally at cross-purposes, negotiating against each other to purchase the same piece of property for preservation. This can drive the price up, confuse the landowner, and set preservationists at odds against one another.

Preservation activities must be networked through a new organization or assigned as a specific function of an existing organization. This nonprofit group should be able to raise enough money to fund a systematic archaeological mapping program of Charleston’s Civil War sites. The sites may have to be surveyed on a priority basis depending upon threat, access, and funding. Federal, state, local, and private dollars should be pooled.

Frye and Frye (1989), with their work at Maryland Heights, Harpers Ferry, West Virginia, offer a good example of the usefulness of systematic site recording. Chamberlain (1982) and Stine (1991) have already compiled lists of possible Charleston sites. Vast archival records related to these properties offer insights as well. Many collectors and local landowners are willing to share their data. The NRHP nomination form should be amended as needed (Chamberlain 1982).

As sites are added to these lists, they should be systematically mapped and evaluated for their potential contribution to understanding Charleston’s role in the War. A master plan should be created, detailing the most threatened and most important sites. Creating specific management layers in a Geographic Information System (GIS) would be most useful. Archaeological survey of these sites should include shovel testing, stripping, and some type of remote sensing. (Legg and Smith [1989] point out that traditional methods of site evaluation based on shovel tests are not very useful at Civil War sites.)

Charleston’s sites should be incorporated into an overall interpretive park. A walking and perhaps driving tour and a greenway could integrate federal, state, and local parks, as well as private lands. Private owners could donate sites on their land to the park(s) or adopt preservation easements. Charleston already has access to important resources through the National Park Service and The Charleston Museum. James Island and sites on Johns and Wadmalaw islands should be included. New transportation corridors would allow easy access to the sites. Some of the Civil War properties would best serve as recreational parks, their paths paralleling defensive lines. Others, such as Battery Pringle or Fort Moultrie, would illustrate specific types of construction. Sites with great symbolic value, such as Fort Sumter (Figure 5) or Secessionville, would deserve detailed interpretation.

CONCLUSION
Charleston’s Civil War battlefields, siege-lines, hospitals, and encampments are being destroyed through neglect. Some sites are being bulldozed to make room for golf courses or water towers; others are being saved as passive parks in residential developments. However, unregulated passive parks are often used for trail bike riding and hiking. This leads to erosion and subsequent destruction. We need to educate the public about the importance of protecting sites from damage.

Charleston’s Civil War resources are non-renewable. Once these sites are gone, they are gone forever. Site destruction has been severe in some areas, moderate to light in others. Now is the time to act to save these sites for public enjoyment and scientific interpretation. Historians, Civil War enthusiasts, and archaeological researchers will also be well served by the preservation of these properties. The end result will be preservation of Charleston’s historic Civil War landscapes. By adopting a joint, broad landscape perspective, these sites can be located, assessed, protected, and interpreted for the benefit of all.
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INTRODUCTION

Archaeologists today continually encounter sites where artifact deposits are disturbed almost beyond research usefulness. The increasing loss of cultural resources has elicited various responses and actions from archaeologists. Recent symposia and publications (Ehrenhard 1990; Smith and Ehrenhard 1991) increase our awareness of the prevalence and magnitude of site devastation and inform us as to what archaeologists are doing to prevent it. Public education programs focusing on site preservation are being implemented, and avocational archaeologists are encouraged to become involved in site protection and preservation. Finally, intensified enforcement of preservation laws on federal, state, and even private properties has resulted. All of this activity demonstrates that archaeologists are more concerned now than ever over the loss of archaeological resources.

The south central portion of the Georgia Coastal Plain is certainly not spared from the problem of site destruction. This area, known as the Ocmulgee Big Bend region, includes the counties in the vicinity of the lower Ocmulgee River where it flows eastward through a long crescent-shaped channel prior to forming the Altamaha River. Although rich in prehistoric and historic sites, the Big Bend region lags behind other regions in the state with regard to the conducting of long-term problem-oriented research. Also, as most site destruction occurs on privately owned land, it seems little can be done to prevent the loss of cultural resources.

It is therefore imperative that sites in this area be preserved for future scientific investigation. More importantly, in reviewing and evaluating site disturbance and destruction in the region, we can also relate what concerned archaeologists are doing to recover data from its significant sites (Figure 1) before they are obliterated.

We feel archaeological research is just reaching maturity in the Big Bend region. Extensive opportunistic surveys (Snow 1977a, 1977b; Nielsen 1966) and sporadic excavations (Bracken et al. 1986; Crook 1987; Kelly n.d.; Milanich et al. 1976; Snow and Stephenson 1990; Stephenson 1990; Stephenson et al. 1990; Stephenson and King 1991), along with several recent cultural resources management (CRM) projects (Braley 1987; Duncan 1986; Price 1988; Smith 1988), have resulted in a narrative history of the area. However, just as archaeologists are beginning to address questions of culture change, it seems that site destruction is escalating to the point where this goal may no longer be obtainable.

Out of alarm over the loss of crucial information, a consortium of archaeologists formed the South Georgia Archaeological Research Team (SOGART) for the purpose of scientifically investigating and reporting sites that are being destroyed. As we discovered during our work in the area, the greatest threat to archaeological sites in the region derives from three major sources: land preparation following clearcutting by commercial timber companies, land-altering development projects, and flagrant, uninhibited site vandalism.
CAUSES OF SITE DESTRUCTION

Clearcutting
Clearcuts in the Ocmulgee River floodplain are extensive and usually contain numerous archaeological sites. Figure 2 reveals the intensity of soil disturbance during land preparation prior to replanting. This type of preparation is known as bedding. Eventually, pine seedlings will be planted on the ridges of soil that have been turned up by a bedding harrow. The depth of plowing can be as deep as 45 centimeters. Although clearcutting exposes extensive areas for archaeological survey, bedding preparation causes extreme damage to primary artifact deposits and subsurface features. It can even result in reverse stratigraphy.

For example, during a clearcut survey in the area, the excavation of a test unit at site 9WL11 revealed a large plow scar intersecting a prehistoric shell feature that had been disturbed by bedding (Stephenson 1990). Because bedding recurs at sites about every twenty to thirty years during reforestation, features such as this eventually will be obliterated.

In another clearcut at the late Lamar site 9WL7, a clay feature—most likely the floor remains of a Lamar structure—was partially exposed in a deep plow furrow. Trowelling revealed that most of the feature had been severely damaged by bedding operations.

Bedding practices usually are not implemented on clearcuts located away from wetland areas. Instead, the vegetation is sheared and raked with heavy machinery into windrows, and pine seedlings are planted on the unplowed surface. This type of land preparation generally results in the least damage to sites.

During survey of a river terrace, another late Lamar site (9JD81) was found in a sheared and...
raked clearcut (Snow 1990). Daub concentrations exposed in the clearcut indicated the presence of two Lamar structures. A block excavation in the area of one daub concentration revealed intact postmolds in proximity to an associated trash pit. The historic Tallahassee Trail ran adjacent to this site, and several recovered artifacts indicated Spanish contact. This excavation demonstrates the subsurface integrity of sites where bedding has not occurred.

Commercial timbering actually involves many procedures not described here. Certainly all adversely impact archaeological deposits to some degree. However, while clearcutting exposes large tracts of land, it also provides ideal conditions for archaeological survey (e.g., Freer 1989, 1991; Kowalewski and Hatch 1991; Snow 1977a, 1977b) and generally causes no more damage to sites than agricultural plowing.

Other reforestation techniques are more detrimental to sites. One example, bedding, causes severe damage to artifact deposits and features and results in reverse stratigraphy and site erosion. In wetland areas, there is no alternative for bedding. Archaeologists must understand the impact of such timbering activities on sites and act quickly to investigate those with significant research potential before they are gone.

**Development**

Commercial development is increasingly becoming a pressing threat to archaeological sites in rural south Georgia. Several major prehistoric and historic sites have been severely impacted by land alteration for residential development and construction of access roads. At least two Middle Woodland Swift Creek mounds and associated villages were destroyed with little or no excavations conducted.

A Swift Creek burial mound at the Milamo site (9WL1) was destroyed in order to develop a mobile home trailer park. A portion of the Milamo site was excavated by A.R. Kelly in 1956 (Kelly n.d.). Kelly did not, however, do any testing on the mound. In his report, he described the mound to be in a fair state of preservation, although it had suffered some damage from looting. He recommended it be excavated before it was destroyed by local pothunters. In the autumn of 1980, limited salvage work was conducted to investigate the nature of the mound (fieldnotes in possession of F. Snow). The mound was subsequently bulldozed during construction of an access road to the residential area.

Recently, members of SOGART conducted excavations at the Hartford site (9PU1), another Swift Creek period site located along the Ocmulgee River. Once again, a Swift Creek mound standing in the way of a real estate development was being levelled when our excavation began. Although the mound had been almost completely bulldozed, we salvaged evidence of a ceremonial submound structure and recovered a sample of well-preserved faunal and botanical remains that will provide crucial information regarding sub-

Figure 2 — Archaeological site in a clearcut with soil turned up by a bedding harrow.
sistence (Snow and Stephenson 1990).

Not the first mound destroyed at the Hartford site, another mound was destroyed by WPA workers, and the soil used in the construction of a nearby road (C.H. Fairbanks to A.R. Kelly, memorandum, June 6, 1940, Ocmulgee National Monument, Macon). Ironically, at about this same time, the WPA was excavating the Swift Creek type site just 60 kilometers upstream.

In addition to prehistoric sites, one riverfront housing development is located on the site of an English settlement known as the Bosomworth Trading Fort. Established by Mary Musgrove in the mid-eighteenth century, this frontier trading post was but one in a succession of posts that began operating here in the early 1700s. It was at such forts that Native Americans exchanged deerskins with the English in return for European goods. This significant early historic site is in danger of being completely destroyed before any archaeological testing can be done.

Site Vandalism
Site looting in the Ocmulgee Big Bend is prevalent and continues unchecked. Much of the land is owned by commercial timber companies that have neither mechanisms nor incentives for site protection. Many private land owners are unable to prevent unscrupulous trespassers from digging into sites on remote areas of their property. It is hard to comprehend, judging from the numerous craters at many sites, that a relatively small network of voracious pothunters create much of this damage. Although the material culture of the region is not elaborate in comparison to other regions, some collectors seem to be driven by the compulsion to possess as many "arrowheads" as they can dig for in a lifetime. Experience has shown that while collectors in the region are willing to share their collections and knowledge of site locations, they have no compunction about unauthorized digging. The fresh potholes at many sites indicate that local collectors do not intend to cease looting despite recent state legislation prohibiting such unauthorized activities (House Bill 457, Article 9).

Favored targets of pothunters are the numerous elevated sandy ridges found throughout the floodplain of the Ocmulgee River. Local residents believe they are artificial mounds constructed from sandbar soils by prehistoric Indians. Actually, these landforms, known geologically as relict sand bodies, are most likely point bar/levee remnants that have formed through alluvial deposition during the early to mid Holocene. Groups during the Early Archaic through the early Mississippian periods favored relict sand bodies for habitation areas.

Sites located on relict sand bodies are targeted by looters for several reasons. First, they are prominent features in the otherwise low, swampy floodplain and are easily detectable. Second, although these sand bodies are isolated—always an advantage for unimpeded, unauthorized digging—they are fairly accessible by truck or boat. Finally, many have rich organic midden deposits and contain well-preserved burials and associated artifacts.

One of these relict sand body sites (9DG8, formerly 9DG1) near Abbeville has a unique history of destruction. In 1955, Joseph Caldwell visited the site at the request of the landowners, who had been digging there for several weeks (Caldwell 1955; 1958:50). During his reconnaissance, he documented on film what he must have considered a most unforgettable visit to the first recorded site in Dodge County.

Caldwell reports that the enterprising landowners had exposed and later encased several prehistoric burials in small cinderblock structures and were charging the public a nominal fee for viewing privileges. Caldwell states in a summary report that the collectors "had located several dozen skeletons, but had covered most of them back up. Six skeletons, I believe, are now exposed, protected by concrete boxes with wooden covers" (1955:1).

The landowners' efforts at a financial venture did not end here. Caldwell further explains that they built a small wooden structure for a museum and had plans to build a parking lot, install a drinking fountain, develop fishing facilities, and eventually serve refreshments at a stand.

Caldwell recognized the importance of this site and attempted to persuade the landowners not to destroy any more of the archaeological
context than they already had. Soon thereafter he recommended to the Historical Commission that legitimate archaeological research be conducted. Despite his plea, no systematic excavation was ever carried out. What became of the so-called archaeological park is unknown.

Site 9DG8 was not visited again by an archaeologist until 1970 when Frankie Snow learned that the site was being bulldozed. Soil from the site was being used to build logging roads in the floodplain, and artifacts were scattered for more than a mile during this operation. The equipment operator eventually dug away the site leaving an enormous borrow pit in its place.

Another incident involving burial desecration occurred at the Telfair Mound site (9TF2), also a point bar/levee remnant. Recently, three human skeletons from a possible multiple interment dating to the Late Woodland period were vandalized. Earlier, in 1985, Nancy White had conducted archaeological investigations at the site. Because extensive pothunting and burial looting had already destroyed portions of the site, she implemented a local public awareness program on the disastrous effects of pothunting, stressing the importance of site preservation (Bracken et al. 1986). Recent indications ascertain that her short-term campaign was to no avail.

The destruction of these and other Late Woodland sites has hindered research. Many aspects of this period are not well understood, and more intensive research is needed before certain questions can be addressed. Although Late Woodland cord-marked ceramics are ubiquitous along the Ocmulgee River (Snow 1977a, 1977b; Stephenson 1990), very few sites have well-preserved intact features. Those sites with ideal contexts for investigation are areas favored for uninhibited pillaging or areas being destroyed for road fill. Had they been preserved for scientific research, we would understand much more about this period than we do today.

Another threatened site worth mentioning is Sandy Hammock (9PU10) (Stephenson et al. 1990; Stephenson and King 1991). This site was intensively occupied during the Late Archaic, Woodland, and Middle Mississippian periods. A prominent cultural feature is a small Savannah period mound. Sandy Hammock is especially significant because it is the only major occurrence of Etowah and Savannah Complicated Stamped pottery along the lower Ocmulgee River. The site has never been plowed or mechanically clearance, thus, its shallow artifact deposits remain, for the most part, undisturbed. However, extensive pothunting has occurred in an area that contains Late Archaic lithic debris and at the mound, which has been completely bisected by a looter's trench.

SOGART members conducted investigations of various portions of Sandy Hammock, including the mound and associated village, out of concern that continued looting would eventually destroy the remaining archaeological resources. Excavations on the mound revealed several construction stages, including a premound structure. The village excavations recovered a large artifact assemblage from household middens just centimeters below the surface.

In retrospect, it is fortunate that SOGART carried out this fieldwork. Recently, the landowner decided to have the site clearcut for its commercial timber. This will certainly damage the shallow Mississippian village midden deposits and thereby hinder future efforts to understand intrasite patterning. Through volunteer salvage archaeology, a portion of one of the few important pristine sites in the Big Bend region has been documented. This work will most certainly contribute to our knowledge of the area.

**CONCLUSION**

Increasing silviculture practices and residential development projects during the last three decades are threats to archaeological sites in the Big Bend region. However, as Bracken and his colleagues (1986) point out, archaeologists should not advocate halting timbering activities or any other financially profitable enterprise. Rather, we should exploit opportunities to work with privately owned commercial agencies. Preserving or salvaging cultural resources can promote corporate public relations, and many businesses are cooperative in this endeavor.

Site destruction by looting in the Big Bend
region has certainly kept pace with destruction by vandalism in the rest the Southeast. We are not naive enough to believe it will ever completely stop. As one prominent Southeastern archaeologist aptly stated, looting is the second oldest profession in the world.

It seems that incidents of pothunting could be reduced through long-term public awareness programs at the local level. The public needs to understand that they are the ones who ultimately lose when nonsystematic digging occurs at sites. Public pressure against collectors who ravage sites is a viable means of ending the destruction of our limited resources.

Even so, we feel it is ultimately the responsibility of archaeologists to excavate threatened sites. In the past, as mentioned, archaeologists have had opportunities to excavate sites in the Big Bend region before they were destroyed. These opportunities were not exploited and important information was lost as a consequence.

For this reason SOGART was formed a number of years ago under the initiative of Dwight Kirkland, a former president of the Society for Georgia Archaeology (SGA) and former editor of the SGA newsletter. As an affiliate of SGA, SOGART’s purpose is to preserve the historic and prehistoric past and encourage a constructive public attitude toward the archaeology of the area. In addition, SOGART voluntarily endeavors to test sites as they are being impacted, whether by extensive looting or commercial projects. In these situations, the organization provides a pool of competent labor for the scientific investigation, study, and interpretation of archaeological sites, after which it publishes and distributes the results of the investigations. Although volunteer salvage archaeology is only an immediate and short-term solution to site destruction, it is nonetheless effective.

The recovery of large artifact assemblages from volunteer excavations has been criticized because, due to time constraints and lack of personnel, they cannot always be immediately analyzed. However, we feel it is better to properly store well-excavated, albeit unanalyzed, artifacts than to lose them to the blade of a bulldozer or to pothunters and artifact traders.

Through SOGART’s efforts, we have found that badly disturbed sites should not be dismissed as having no research potential. SOGART has already salvaged crucial data from several Swift Creek, Middle Mississippian, and late Lamar sites that would have otherwise been lost to commercial and looting activities.

A similar program, also affiliated with SGA, was implemented in the Atlanta area. So far, the Archaeological Survey Team/Atlanta (AST) has been instrumental in investigating and documenting threatened sites on privately owned property (Frazier et al. 1991). With SOGART and AST as examples, we are advocating that archaeologists contribute their time to investigate significant sites in imminent danger of destruction, even if it means working weekends and holidays.

As we all know, archaeological sites are vanishing finite resources. We must do all we can to ensure their preservation or, when this is not possible, to excavate them. If we don’t strive to reach these goals, it is likely that one day the only sites remaining with any research potential will be those in state and federal parks.

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LOOTING AND SITE DESTRUCTION AT WARE CREEK RIDGE
Hampton County, South Carolina
Chester B. DePratter

It is not likely that the swamps of the Savannah [River] had a large population in prehistoric times, for the aborigines were good judges of dwelling sites. — C.B. Moore 1899a:167

SITE DISCOVERY
In October 1989, Tommy Charles, my colleague at the South Carolina Institute of Archaeology and Anthropology, received a phone call from an anonymous informant. The caller reported that a site located on the South Carolina side of the Savannah River was being systematically looted, and that in recent months a large number of whole pots (burial urns) had been recovered. Two of the recent finds were said to be complete Savannah period vessels (A.D. 1200-1325) with patterned red-filmed designs on their interior surfaces. The informant stated that the two unusual vessels were currently for sale in a Macon, Georgia, antique shop.

With our curiosity aroused, Tommy Charles and I traveled to Macon the next day and met with the owner of the antique store in question. He was quite courteous, but refused to show us the pots. As he put it, up to that point our knowledge of the pots was only hearsay, and if he ended up in court concerning those pots, we would not be able to testify against him. He further stated that if he had any indication that legal action was about to be taken against him, he would take the pots into the woods and destroy them rather than be caught with them in his possession. Given this man’s attitude and his reaction to our visit, it is likely that he disposed of the pots shortly after our visit.

Based on our conversations with the antique dealer and the anonymous informant, it was clear that a major site on the central part of the Savannah River was being subjected to intensive looting. In addition to the two red-filmed pots, more than 150 other vessels were reported to have come from this site. One individual from Georgia was reported to have found more than fifty whole vessels there. The two red-filmed pots were for sale due to a divorce between a man and a woman who were said to own more than two dozen vessels from this site.

We also learned from the informant that the site was first discovered in the mid-1960s by a collector using aerial photographs to prospect for likely sites in the Savannah River swamp. Thus, by the time the unsolicited call aroused our interest in the site, collectors had been digging there for 25 years! Following this disturbing piece of news, the informant provided cursory directions on how the site could be reached.

A few days after our unsuccessful trip to Macon, Tommy and I set out to locate the source of this seemingly endless supply of burial pots. Our only directions placed the site in the vicinity of Groton Plantation in Allendale and Hampton counties, South Carolina, and entailed departure from a boat landing on the Georgia side of the river and travel upstream from there. I contacted Mr. Robert Winthrop II, manager of Groton Land Company, for permission to search for the site on Groton land. He expressed concern about the stories we had heard and provided us with one of the plantation’s hunting guides to facilitate our search. Thus we began what I thought could well be another of those wild-goose chases that I had been led on so many times before in search of burial, platform, and stone mounds.
We were nearly to the boat landing in Georgia when our guide looked at our USGS maps and realized our search area could be reached by land. Because the Savannah River was in flood and our boat was small, we quickly decided to abandon our boat-based search for a less dangerous alternative. We drove back to Groton Plantation where, upon descending into the floodplain, we found that the river swamp was indeed flooded.

Our guide, unperturbed by this minor obstacle, parked the truck and began wading waist deep through the swiftly flowing flood water covering a bridge that spanned what must have been a small, gurgling brook during times of normal flow. Not wanting to be left behind, Tommy and I plunged into the icy cold water (remember, this is October). After fording two more flooded creeks, we came to an area of higher ground. If our informant was correct, the site was not much farther ahead.

Fanning out through the dense floodplain forest, we began looking for the site that we knew to be a ridge containing a multitude of potholes. Within minutes, we found what we were looking for, but both the size of the ridge and the extent of the looting that had taken place there was surprising.

FIRST EXAMINATION

The ridge, now called Ware Creek Ridge (38HA-148), is about 305 meters (1,000 feet) long, 125 meters (410 feet) wide, and 5 meters (16.4 feet) high (Figure 1). Its tree-covered sides slope steeply up from the surrounding floodplain. The entire ridge is densely vegetated with the trees and understory growth composed primarily of evergreen species.

As we climbed the slopes of the ridge’s north end for the first time, we immediately encountered a scatter of potholes measuring between 0.8 and 2 meters in diameter. Although the potholes seemed to be everywhere we looked, there were still large areas of the site that remained undiscoverable.
turbed. Soils contained in backdirt and observed in the walls of unfilled potholes indicated that the ridge was composed of fine to medium sand. We continued our inspection as we moved south, and potholes continued to be present in moderate density until we reached the southernmost third of the ridge. At this point, we encountered a mass of potholes that stretched along the ridge crest to its southern terminus.

The destruction on the southern third of the ridge was appalling. Potholes ranging between 1 and 7 meters in diameter were apparent everywhere. The ground surface was so irregular in places that movement across the site was difficult. The backdirt piles around the potholes were littered with sherds of pottery, flakes of stone, river clam shells, and bone.

When we first observed the bone on backdirt piles, I assumed that most of the small, calcined fragments were food remains from meals consumed by the ridge's inhabitants; but, upon closer inspection, I realized that much of it was cremated human remains. On one backdirt pile beside a pothole nearly four feet deep were the scattered bones from a looted burial. Clearly, the potholes were being dug to recover burial-associated artifacts, and many of the backdirt piles containing human remains were located on the southeastern slope of the ridge where there were several freshly dug holes. As I walked along the ridge, I wondered how many other burial remains, in addition to those still visible, had been scattered across the site by looters only to be gnawed to dust by rats or consumed by feral pigs.

From around some of the larger potholes, I collected a handful of pottery sherds. A quick inspection of this pottery indicated that most of the site's occupation occurred during the late Savannah and early Irene periods, which placed the occupation between A.D. 1300 and 1425 (DePratter 1991). These dates accord well with what is currently known of the time period in which urn burials containing human cremations occurred in this part of the Southeast.

As we moved across the site, we found a shovel and a small tripod-mounted shaker screen near one hole. An abundance of soft drink cans and other food refuse littered the surface around the larger and denser potholes on the southern third of the ridge. Based on the "freshness" of some of the potholes and the undeteriorated condition of the lunch-related debris, many of the most recent potholes were excavated in the late 1980s, and some may have been excavated only weeks or months before our visit. Other, older potholes in this same area, particularly those at the most southerly tip of the ridge, were weathered and filled. Many were represented by shallow depressions only 20 to 30 centimeters deep.

One of the last areas we looked at that day was on the western half of the ridge just north of the major concentration of potholes. Here, on the backdirt of a large, relatively isolated pothole, we found large pieces of fired clay daub of the sort that would have originated from a wattle-and-daub structure—the type that was in use during the Savannah and Irene periods (Caldwell and McCann 1941). This large pothole, measuring 6 meters (nearly 20 feet) long, 4 meters (13.1 feet) wide, and 0.75 meters (2.5 feet) deep, was one of the larger potholes on the ridge. Exposed in its profile was a dark midden zone approximately 25 centimeters (0.8 feet) thick. Later, in 1992, I conducted excavations adjacent to this large pothole. These indicated that the pothole had, in fact, penetrated parts of at least one, perhaps two, houses dating to the late Savannah or early Irene periods.

SITE MAPPING AND BURIALS
Well, now we had found the site. What should be the next step? Clearly, my first task was to inform the property owner about the site, its condition, and its potential for producing significant information about Savannah River prehistory. After I had informed Mr. Winthrop about the damage to the site, he asked what needed to be done. I suggested a field project to map the damage and assess the site's remaining research potential. Mr. Winthrop agreed with my suggestions and pledged his full cooperation.

Groton Plantation was the scene of two previous archaeological projects. The first, in 1964, surveyed and tested two floodplain sites, Rabbit Mount and Clear Mount (Stoltman 1974). Stolt-
man did not mention Ware Creek Ridge in his final report. Drexel Peterson conducted another survey and testing project in 1969. He mentioned but did not visit an occupied sand ridge on the southern floodplain of Groton. The site, which he called Hidden Mount, was probably Ware Creek Ridge (Peterson 1971:310).

In the winters of 1991 and 1992, a small crew worked at Ware Creek Ridge in an effort to understand the site’s occupational history and assess the extent of the damage to its contents. Work had to be scheduled around the Savannah River’s frequent floods. For example, a four-week project planned for the winter of 1990 had to be canceled due to high water. Access roads were flooded on several occasions during a total of 11 weeks (four in 1991 and seven in 1992) of work on the site.

Once the commitment was made to work on the ridge, our first challenge was to map a densely vegetated, 300-meter-long area covered with evergreen vegetation and pockmarked with potholes. Realizing that professional surveyors using modern surveying equipment could do the job most efficiently, I hired a surveying company to produce the site base map. Then, using reference points installed by the surveyors, I transit mapped and numbered all observed potholes (Figure 1) while we collected artifacts and bones from the backdirt surrounding each disturbance. In this way, we mapped 609 potholes and identified an additional nine potholes that were not mapped due to the extremely dense vegetation surrounding them. In all, we collected nearly 3,000 sherds and 800 pieces of flaked stone from the associated backdirt piles of 251 potholes.

After the mapping and surface collecting, we attempted to recover all disturbed human remains from the backdirt piles. We sifted the backdirt from Pothole 104 (where we first saw evidence of the remains of a human burial) through quarter-inch hardware cloth in an attempt to recover all exposed cremated human remains. Examination of these remains revealed that a minimum of 18 individuals were represented in the collections from these potholes (Table 1). Although the remains were fragmentary and had suffered damage during initial excavation by looters and subsequent exposure to the elements, most of these cremated bone fragments were determined to be from adult individuals. In two cases, cremated adult remains were found in association with the non-cremated remains of infants, but this may have resulted from mixing separate burials during looting.

**INTRASITE COMPARISONS**

Recovery of these human remains from the backdirt, combined with the reported presence of numerous whole pots, provides insight into the types of burials disturbed by collectors. From previous work by archaeologists, we have some understanding of the use of these burial forms
and the contexts in which they occur. Both urn burial and cremation were in common practice during the late Savannah and early Irene periods on the coast and coastal plains of Georgia and South Carolina and on the southern coastal plain of North Carolina.

Much of what is known about burial practices along the Savannah River, and wherever urn burial was practiced, is derived from mound excavations (Caldwell and McCann 1941; Larson 1957; Moore 1897, 1899a, 1899b; Thomas 1894; Waring 1968), though some nonmound burials have been excavated (Anderson and Schuldenrein 1985; Caldwell and McCann 1941; Coe 1952; Kelly 1974; Rudolph and Hally 1985; Smith 1981; South 1971; Trinkley et al. 1983). Doubtlessly, a great deal more information has been destroyed by pothunters' indiscriminate looting of cemeteries, village sites, and mounds.

During the Savannah and early Irene periods, urn burials were a commonly used burial type throughout southeastern Georgia and coastal plain South Carolina, and up the Pee Dee/Yadkin River drainage to the Town Creek site in North Carolina (Anderson 1989; Ferguson 1971; Judge 1987; McCann 1947). In much of South Carolina and up the Pee Dee River into North Carolina, the cultural period coeval with Irene is called Pee Dee. Typically, Savannah and Irene/Pee Dee urns are deep, complicated stamped jars. Savannah period examples have unornamented rims, whereas Irene/Pee Dee urns usually have reed punctates, rosettes, or a combination of these two treatments just below the vessel lip.

Urns usually contained either the bones of infants or small children or cremated remains (Caldwell and McCann 1941; McCann 1947; Coe 1952; Moore 1897; Smith 1981), although on the Georgia coast, urns sometimes contained the defleshed bones of adults (Caldwell and McCann 1941; Moore 1897). Typically, these burial urns are recycled cooking pots that have

<table>
<thead>
<tr>
<th>Pothole #</th>
<th>Type of Remains</th>
<th>Weight (gms)</th>
<th>Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>92</td>
<td>▶ cremated</td>
<td>1306</td>
<td>2 adults</td>
</tr>
<tr>
<td></td>
<td>▶ bones</td>
<td>—</td>
<td>1 infant</td>
</tr>
<tr>
<td>95</td>
<td>▶ cremated</td>
<td>90</td>
<td>2 adults</td>
</tr>
<tr>
<td>103</td>
<td>▶ cremated</td>
<td>5221</td>
<td>1 subadult, 5 adults</td>
</tr>
<tr>
<td></td>
<td>▶ bones</td>
<td>—</td>
<td>1 infant</td>
</tr>
<tr>
<td>104</td>
<td>▶ bones</td>
<td>—</td>
<td>1 adult</td>
</tr>
<tr>
<td>153</td>
<td>▶ cremated</td>
<td>578</td>
<td>1 adult</td>
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<tr>
<td>154</td>
<td>▶ cremated</td>
<td>627</td>
<td>1 adult</td>
</tr>
<tr>
<td>224</td>
<td>▶ cremated</td>
<td>629</td>
<td>1 adult</td>
</tr>
<tr>
<td>302</td>
<td>▶ cremated</td>
<td>117.5</td>
<td>1 adult</td>
</tr>
<tr>
<td>365</td>
<td>▶ cremated</td>
<td>32</td>
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</tr>
<tr>
<td>395</td>
<td>▶ cremated</td>
<td>1098</td>
<td>1 adult</td>
</tr>
</tbody>
</table>

TABLE 1
HUMAN SKELETAL REMAINS RECOVERED FROM SCREENED POTHOLE BACKDIRT
sooted exteriors. Often the bottoms have been knocked out of these jars/urns either to provide drainage or to ritually "kill" the pot, though, as Clarence B. Moore pointed out, urns containing cremated remains never have holes in their bottoms (Moore 1897:9, 121). At least two red-painted Savannah period burial urns have been described in print (Moore 1897:60, 70), so those reported to have come from Ware Creek Ridge are not unique.

Cover vessels are common in urn burials. When present, they are usually plain or burnished bowls, though in some instances stamped and/or incised cover vessels have been found. Occasionally, large sherds from broken vessels were used to cover upright urns (Moore 1897:51, 116). In other instances, the urn was placed in the ground upside down over infant bones or cremated remains that were, in some cases, in a bowl-shaped vessel (Caldwell and McCann 1941; Moore 1897:47, 54).

Cremation was a common burial practice during both the Savannah and Irene/Pee Dee periods. As noted, cremated bone was frequently buried within urns, either with or without cover vessels (Judge 1987; McCann 1947). Urns containing the cremated remains of either single individuals or multiple individuals have been found (Caldwell and McCann 1941; Moore 1897). Deposits of cremated bone were sometimes buried directly in the ground or in cloth or fiber bags that have long since deteriorated. These non-urn cremations consist of from one to many individuals and are frequently associated with initial stages of mound construction (Caldwell and McCann 1941; DePratter 1991; Larsen and Thomas 1986; Moore 1897, 1899a, 1899b; Waring 1968).

In non-urn burial cremation deposits, both uncremated and cremated human remains are commonly found mixed in the same burial (Larsen and Thomas 1986; Moore 1897, 1899b). These mixed deposits are frequently found in the centrally located features that represent the initial stage of mound construction. In these cases, either the bones or the cremated remains presumably represent the burial of one or more individuals of high status.

Inhumations are also common in Savannah and early Irene/Pee Dee sites (Caldwell and McCann 1941; Kelly 1974: Larson 1957; Moore 1897, 1899b), and many of those excavated so far have been in the flexed position like the individual found in Pothole 104. Other forms of burial found on sites of this period include extended and bundle burials. A common feature of all these burial forms is that they generally lack associated artifacts. If artifacts are present, they include small items such as pipes, shell beads, celts, or bone implements. Larger items, such as whole pots or shell drinking cups, are found only occasionally.

The scarcity of artifact associations may have limited the number of non-urn burials encountered by site looters (i.e., they could not dig what their probes did not detect). This may explain, in part, why remains of 18 cremated individuals, but only a single inhumation, were represented on the site surface. If the majority of the cremated remains and infants were buried in urns, then those burials would have been easily discovered through probing. Once an urn was uncovered, the cremation or child's bones contained therein would have been dumped, in most cases, on the backdirt pile.

Analysis of artifacts collected from the surface and subsequent testing of disturbed portions of the site in 1992 indicated that Ware Creek Ridge was occupied from the Kirk period (about 8000 B.C.) until the early Irene period (A.D. 1325-1425). The most intensive use of the site occurred during the late Savannah (Savannah II; A.D. 1325-1425) and early Irene periods (A.D. 1325-1425) resulting in the placement of an unknown number of burials (many in pottery urns) during this late prehistoric occupation. This occupation must have been semi-permanent or permanent in nature because most of the southern quarter of the site has a 25-centimeter-thick, organic-rich midden zone. In addition, in 1992, I excavated the remains of one, and possibly two, houses dating to this occupation.

Following the early Irene occupation, the site was abandoned and not reoccupied. This is consistent with other available evidence relating to the abandonment of the entire Savannah River
Valley, except for its headwaters, between A.D. 1450 and 1660. Reasons for this phenomenon have been addressed, but no final understanding has been reached (Anderson 1990; Anderson et al. 1986; DePratter 1989). It is possible that the remaining portion of the Ware Creek Ridge site contains important information relating to this abandonment and to many other important research questions about the Indian occupation of the Savannah River Valley.

AWARENESS AND PROTECTION
For now, the looting at Ware Creek Ridge appears to have ceased, at least temporarily. Perhaps this is because most of the burials have been excavated in the past 25 years, and what remains is of less interest to collectors. Perhaps word is out that the site is being actively worked on by a member of the professional community, and collectors now see the site as temporarily "off limits". Or, perhaps what we see is only an unplanned lull in the assault of Ware Creek Ridge and its remaining burial population.

Now that the landowners are aware of the site's existence and the damage caused to it by looters, they know to watch for new incursions by collectors with probes. Further destruction will not pass unnoticed. Landowners will begin to confront trespassers and have those who desecrate human graves arrested. At the same time, South Carolina has a new burial law—actually a 1989 amendment to a 1976 law—that makes desecration or destruction of any human grave or human remains a felony punishable by a fine of up to $2,000 and imprisonment for "not less than one nor more than ten years" (S.C. Code, Section 16-17-600). This law combined with the actions of knowledgeable and alert landowners should afford a new measure of protection to not only Ware Creek Ridge but to many other similar sites.

ACKNOWLEDGMENTS
David G. Anderson invited me to write this paper as a last minute contribution to this volume; I thank him for his invitation and his patience. Tommy Charles brought Ware Creek Ridge to my attention, and he has participated in each of the expeditions I have made to the site. I am grateful to the anonymous informant who first told Tommy Charles about Ware Creek Ridge. Special thanks go to the members of the Winthrop family, especially Robert "Rob" Winthrop II and Mrs. Edward S. (Nina) Bonnie, for allowing access to Groton Plantation and for generously providing support for my research there. The site map was made by Bob Parler and his company, Edisto Surveyors, Inc. of Orangeburg, South Carolina. Burial analyses were conducted by Dean Foster. Crew members involved in the mapping and testing programs included Tommy Charles, Barbara Hiott, Patrice White, Marilyn Pennington, and Nena Powell. Stanley South, Marianna DePratter, and Virginia Horak read and commented on various drafts of this paper.

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INTRODUCTION
Archaeologists in South Carolina are like archaeologists all over the country. We conduct investigations, analyze artifacts, write reports and papers, try to ensure that the fruits of our investigations will educate the public, and at times feel helpless against the ongoing destruction of archaeological sites and historic properties. While across the nation archaeologists are taking a stab at halting site destruction, how will we know when our efforts have had an effect? Publications such as *Coping with Site Looting* (Ehrenhard 1990) and *Protecting the Past* (Smith and Ehrenhard 1991) not only document the extent of site destruction, but also offer the hope that perhaps we can make a difference. To achieve this, however, will depend on each and everyone of us.

South Carolina began archaeological investigations, with a handful of exceptions, less than 25 years ago. This situation is unlike that in neighboring North Carolina, where Joffre Coe of the University of North Carolina began work in the 1930s, or in our neighbor to the south, Georgia, where a fair amount of WPA archaeology took place during the depression. Many sites in South Carolina remain unstudied not because we are uninterested, but rather because the time, money, and energy are not yet available to adequately undertake extensive projects. Unfortunately, some nonarchaeologists interpret this as a lack of interest and attempt their own forays. These often result in the near or total destruction of important archaeological sites. Is there a way to provide an outlet for interest in the past that is agreeable to both the non-professional and professional communities? The answer, given extensive avocational/professional interaction, is yes (Davis 1991).

The use of volunteers by professionals in the archaeological process is not something new (Green 1988; Judge 1988a). Volunteers have been a part of archaeology all along. In South Carolina relations between avocations and professionals are particularly strong. In 1993 the Archaeological Society of South Carolina (ASSC) will celebrate its 25th year of professional/avocational interaction. The ASSC has nearly 500 members and five chapters around the state. It has held an annual spring meeting with public-oriented, slide-illustrated lectures for the past 18 years. A more recent project, Archaeology Field Day, is a day long event for all ages that includes displays, aboriginal skills demonstrations, and lectures. This program has grown incredibly, from less than 100 participants in 1988, the first year, to about 1,500 in 1992. There is no indication that the growth of the ASSC will slow down.

CHANGING APPROACHES TO SITE PRESERVATION
While volunteerism is an important element in preservation, it alone cannot meet all the challenges. Demands on land surfaces in South Carolina are increasing as urban expansion and rural development devour once open areas. Site destruction by vandals also appears to be growing. Combined, these threats give us cause to reconsider our efforts to protect archaeological and historical sites (Figure 1).

South Carolina Institute of Archaeology and Anthropology (SCIAA) archaeologist Chester B. DePratter mapped a Savannah Phase Mississippian cemetery in Hampton County with 620 potholes, many filled with scattered human bone. While some of these potholes were quite old,
people are still looting here and elsewhere. Some just do not realize that what they are doing is wrong. Last year I personally had two run-ins with looters near Columbia, South Carolina. In January 1991, Steve Smith (then Deputy State Archaeologist for South Carolina) and I discovered a man deliberately desecrating graves at the Nipper Creek Heritage Preserve. In December 1991, Carl Steen, Jim Errante, and I encountered a man and his two teenaged daughters looting the Godley site near Cayce, South Carolina. Although they were ignorant of the consequences of their actions, they were looting nonetheless. Given these examples, it appears that we need to make changes in our approach to spreading the word on the preservation ethic.

The archaeological community must find a way to educate or, failing this, deter these people. The preservation of undisturbed stratigraphic contexts is essential to archaeology. But how do we prevent developers and vandals from getting to sites before the archaeologist? How do we convince the public that the pillaging of sites is wrong? How do we balance the need to protect archaeological sites with the anticipated rise in population in South Carolina over the next 20 years and the increase in industry and commerce that will undoubtedly follow? The answer to these questions lies in: (1) the development and implementation of state and local antiquities legislation; (2) increased public education outreach funded by state government and other sources; and (3) continued support for the South Carolina Heritage Trust Program’s efforts to acquire sites.
ANTiquITIES LEGISLATION
The implementation of strong state legislation in the form of a state antiquities act, modeled after such federal statutes as the Archaeological Resources Protection Act (ARPA) and the National Historic Preservation Act (NHPA), cannot be stressed enough. Enacting legislation cannot be accomplished by a small committee or a few individuals. It requires unified support and the collective effort of all archaeological and historic preservation professionals, including the State Archaeologist and the State Historic Preservation Officer (SHPO).

The South Carolina SHPO has been working for some time to develop a state antiquities act similar to the Section 106 requirement of the NHPA; but, the battle has only begun.

At the local level, ordinances and regulations are being implemented in different parts of the country (Kearns and Kirkorian 1991). The town of Hilton Head Island is the first municipality in South Carolina to enact measures to protect its archaeological and historical resources. One law even outlaws the use of metal detectors on private property (Town of Hilton Head Ordinance). It is hoped that other towns and communities will follow this example. The Charleston County Planning Office has also been studying ways to preserve significant archaeological and historic sites as the county grows (Stine 1992).

PUBLIC EDUCATION AND OUTREACH
Public outreach about the need to conserve and protect archaeological and historical sites is a subject near and dear to my heart, and should be so for all professionals. In South Carolina, as in many states, funds are not currently available to hire an outreach person trained in archaeology. The volunteer work of a limited number of committed professional archaeologists is one step in the right direction. For example, I serve on the Society for American Archaeology’s (SAA) Committee on Public Education, and two South Carolina archaeologists, Gail Wagner and Michael Trinkley, currently represent South Carolina on the SAA’s public education network. While educating the public—including the land managers, federal and state agency personnel who work outdoors, farmers, hunters, recreationists, students, teachers, and parents—cannot be adequately accomplished by a handful of volunteers, it seems to be becoming more mainstream than before (Smith 1991).

Numerous publications have been written on public outreach activities, and a number of guides are available to help teachers integrate archaeology into classroom curriculum (Hawkins 1987; Hawkins et al. 1989; Judge 1988b, 1989; Smith and McManamon 1991). The education of South Carolina primary and secondary students might be the best way to deter site destruction in the future. While adults are hard to change, children in their formative years can be greatly influenced. How about a "Just Say No Looting" campaign? Maybe we could convince kids to "turn in" (educate) their parents!

Many South Carolina primary and secondary teachers are finding out more about archaeology through publications, such as Can You Dig It? A Guide to South Carolina Archaeology (Hawkins et al. 1989), or by having an archaeologist come to their classroom. In recent years, over 75 South Carolina teachers of grades 4 through 12 have graduated from a nine-day intensive course called South Carolina Classroom Archaeology: Summer Institute for Social Studies Teachers. This course was designed and is taught by the author, with funding from the South Carolina Department of Education, the South Carolina Humanities Council, and SCIAA. The course is held at SCIAA, and graduate credit is offered through the Department of Anthropology at the University of South Carolina (Bevitt and Waldbauer 1991:14; Akers and Meredith 1991, Federman and Bevitt 1991:37).

Recently Gail Wagner used a questionnaire to compile data on the public education activities of South Carolina archaeologists (1991:1-3). It is apparent there are many different types of public outreach materials, programs, and resources, but rather than pat ourselves on the back, we need to step up the effort. Wagner states, "...archaeology and public education [are] alive and well in South Carolina. However, despite the thousands of people we have already reached within the state, we feel we need to reach more" (1991:3).
One way to accomplished this is through programs such as the South Carolina Archaeology Week. The first archaeology week took place in 1992 as a collective effort between SCIAA, SHPO, ASSC, and the state’s professional archaeological council. It is hoped that through such programs many more South Carolinians will hear about, experience, and come to practice the preservation ethic.

THE HERITAGE TRUST PROGRAM

The South Carolina Heritage Trust Program is part of the South Carolina Wildlife and Marine Resources Department. Its Advisory Board consists of one citizen from each of the six congressional districts and the heads of nine state agencies. They meet quarterly to direct a staff that performs the everyday functions of the program.

The Heritage Trust Program identifies and inventories unique features of the natural and cultural landscape. In some cases, properties are purchased or otherwise acquired and held in trust for the citizens of the state to study and enjoy. All are open to the public with some restrictions on specific preserves. As of June 1993, the Program had acquired 40 properties, including four cultural sites: Nipper Creek, Snee Farm, Green’s Shell Enclosure, and the Pacolet River soapstone quarries. Plans are in the works to acquire several others.

The Program gives the archaeological community an opportunity to provide input into the acquisition process, and thus protect some of the more significant or unique archaeological resources of the state. State appropriated funds are supplemented by the "Check for Wildlife" program on the South Carolina State Tax Return and a documentary stamp tax, referred to as a Deed Tax in some states.

THE HERITAGE TRUST SURVEY

To locate additional properties for acquisition, a Statewide Assessment of Cultural Sites was conducted for the South Carolina Heritage Trust Program during five months in 1990 and 1991 (Judge and Smith 1992; Smith and Judge 1992). During this survey numerous examples of site destruction were observed by Heritage Trust staff archaeologists Christopher Judge and James Errante, who visited 87 of the 100 most significant sites known to professional archaeologists working in the state. Many of these sites had not been visited by professionals in many years. Ten types of site destruction/vandalism were noted during the survey:

- pothunting
- graffiti
- erosion
- development
- theft
- fire
- benign neglect
- archaeology
- grave desecration
- site sign or marker damage

Pothunting
"Pothunting" is the term archaeologists apply to any unauthorized search for material remains of the past. The term specifically comes from hunting for whole prehistoric ceramic vessels. The term "pothole" describes the scars left behind by this activity. Typically potholes are found on the surface of a site, while their impact occurs below the surface. Almost always dug haphazardly, only rarely are they square shaped or dug in a systematic fashion as in scientific investigations.

Often a steel probe is used to find solid objects underground. This damages burials and other archaeological features, even if digging doesn’t occur. Whole pots, however, are not the only things that interest collectors. Bone tools, soapstone disks, projectile points, bottles, buckles, buttons, and other artifacts are also searched for in this manner. On historic sites, metal detectors are often used in addition to steel probes.

Potholes were discovered on numerous sites visited by the Heritage Trust team in 1990. On one site, the land manager responsible for protecting the property was unable to recognize pothole damage, highlighting the need for education.

Graffiti
Graffiti damage is caused by deliberately spray painting, carving, or scratching on archaeological or historical resources. The most noticeable examples were at Pinckneyville where the ruins of two late-18th-century structures had been spray painted with "heavy metal" music motifs,
Figure 2 — The Spanish Mount shell midden on Edisto Island, South Carolina, shown eroding into an adjoining tidal creek.

and at several soapstone outcrops in the Piedmont where people have carved their initials and dates. While spray paint can be removed (albeit with difficulty) from the surface of a brick structure, the damage to the soapstone outcrops is permanent.

**Erosion**

Erosion damage is most common, or at least most visible, at the coast but also occurs in other geographic settings. In tidal rivers and creeks along the Atlantic coast and along all major inland rivers and large creeks, erosional processes, both natural and cultural, have impacted archaeological sites.

Natural impacts are extremely difficult to deter, although stabilization provides some protection to threatened sites. Natural impacts along the coast are the result of wave action, tidal fluctuations, wind and weather, and long-term changes in sea-level. All these erode soils away from previously buried archaeological deposits (Figure 2). This causes higher site visibility, which may attract pothunters interested only in the recovery of marketable items. Natural erosion can cause major damage and, in some cases, lead to the total loss of a site. The state's most unique prehistoric resources are possibly the 3,000- to 4,000-year-old shell rings along the coast. These doughnut-shaped features, measuring 300 or more feet in diameter, may have been early village areas. One in particular, the Chesterfield shell ring, is a prime example of the natural destruction of a site. As much as half the ring has eroded into the Broad River, and the surviving portion has had a house built on top of it (Figure 3) (Trinkley 1985:103).

Erosion has also taken its toll on the South Appalachian Mississippian mounds. The Wateree River, for example, has eroded away many sites or portions of sites below Camden.

Cultural impacts causing erosion recorded during the Heritage Trust survey included pothunting, development, boat wake, swimming pool construction, and river damming. Fluctuations in water levels caused by hydroelectric
power generation affects sites downriver throughout the state.

Development
Development, particularly along the coast and adjacent to urban centers, impacts sites even more rapidly than pothunting. Often, however, it is easier to focus on pothunters than challenge developers and developments. Although South Carolina has a rich historic past, archaeology is only included for development projects that involve federal money or licensing or when wetlands are affected. Archaeologists should try to establish dialogues with the business community. One publication with this goal is already available in South Carolina (Drucker and Storch 1990). Developers, on the other hand, must become more socially responsible and, ideally, voluntarily fund archaeology when necessary.

Theft
There are many different types of theft—theft of information, theft of objects, theft of human remains. Theft of archaeological and historical objects often makes national news, although usually only if the robbery is particularly daring or the objects are considered "priceless". One can also view the collection of surface materials as theft, especially if conducted on private property while trespassing. Although South Carolina has very little federal land, it is illegal to remove artifacts from these lands. Fines are imposed if people are apprehended. One Oregon woman was fined $100 under the Archaeological Resources Protection Act (ARPA) for surface collecting on federal land (Tahar 1991:21). The most prominent example of theft recorded during the Heritage Trust project was that of a sculptured graveyard gate.

Fire
A prehistoric structure burned accidentally or intentionally usually provides archaeologists with more information than an unburnt structure since the charred remains last far longer than those not carbonized. Historic structures, however, lose
much above-ground integrity. For example, when the circa-1791 storehouse at Pinckneyville was excavated by SCIAA archaeologists in 1971, it was noted that the structure had survived quite well (see photo in Carrillo 1972:22). However, on Easter weekend 1985, this 200-year-old building was destroyed by arsonists (Figure 4).

**Benign Neglect**

"Benign neglect" refers to the deterioration of sites that are not taken care of properly by their owners. These owners can be classified into two types: those who know better, but for whatever reason don’t act on their knowledge; and those who do not know how to care for a significant property and need to be educated. Examples of both categories were observed during the Heritage Trust project.

**Archaeology**

Archaeology itself is a destructive process. In the course of excavation the information a site contains is removed from its context by the act of digging. In the best case scenario, notes are taken, photographs shot, sketches drawn, and a report written. This does not always happen, however, leading to the destruction of a site and the loss of its information. Failure to properly backfill a site can increase its visibility and, thus, make it more accessible to vandals. It can also contribute to the erosion of a site.

**Grave Desecration**

Grave desecration was observed at the Pinckneyville site. A vault cover had been smashed to pieces and it appeared that someone had looted the grave. In another incident, a 26-year-old man was apprehended looting the Nipper Creek Heritage Preserve—one of four cultural properties acquired by the Heritage Trust program. The desecration of three 19th-century graves was also noted. The man was charged with one count of grave desecration (a felony in South Carolina that, upon conviction, carries penalties of up to 10 years in jail and a $2,000 fine) and with the removal of artifacts from a heritage preserve (a

Figure 4 — The ruins of the Pinckneyville storehouse. Constructed around 1791, it was burned in 1985 by arsonists.
misdemeanor in South Carolina with a potential penalty of 30 days in jail and a $100 fine). The man received Pre-Trial Intervention, a program for first-time offenders that attempts to educate them and keep a felony off their records. The program requires a visit to the state’s Central Correctional Institution in Columbia to talk with inmates; numerous counseling sessions; and 100 hours of community service. The latter phase was conducted at the SCIAA under my supervision. Hopefully this program changed the young man’s view without making an enemy of him. It is certainly a better approach to rehabilitation than a jail term or heavy fine.

**Site Sign or Marker Damage**

While this category of destruction may not impact the archaeological or historic resources of a site, it does detract from its visible aesthetic. Many commemorative markers damaged by theft or graffiti were recorded during the survey. The marker placed at the Pinckneyville site by the Daughters of the American Revolution was of particular note. It had been covered by graffiti and used as a beer bottle throwing target. Another sign, placed by a federal agency asking visitors not to disturb or deface a nearby plantation cemetery, had bullet holes in it.

**CONCLUSIONS**

Many factors contribute to the rampant site destruction in South Carolina. Strong state legislation and local ordinances should be enacted to keep up with the pace of development as well as vandalism. More and better public education programs must be created and implemented. To do this requires working with agencies, companies, universities and colleges, museums, and individuals. Yes, we currently do a lot, but we must do more. The archaeology community’s continued support for the South Carolina Heritage Trust Program will ensure that major archaeological and historic sites are preserved in perpetuity for the citizens of South Carolina.

**ACKNOWLEDGEMENTS**

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INTRODUCTION

Goethe’s comments, misconstrued, might justify the philosophical position adopted by some museums, collectors, and especially pothunters intent upon ravaging the archaeological landscape in the name of "preserving" cultural heritage.

Looting and the resulting illicit trade in antiquities are big business, closely rivaling trafficking in illegal drugs. During the past two decades, an estimated billion dollars of illegally excavated ancient Greek and Roman antiquities have flowed virtually unimpeded through the smugglers’ "pipelines". As early as 1980, an estimated 75 percent of the antiquities in the Italian market got there illegally. And, as interest in pre-Columbian artifacts intensifies, so does the threat to even the most remote sites scattered throughout the Americas.

The problem is that no systematic effort has been made to measure both the incidence of looting and its geometric progression worldwide. Thus, we have provided a framework for a simple, effective survey approach that, when adapted regionally via the use of specialized question formats ("overlays"), can be used to monitor global looting. More important, the resulting data establish a benchmark and encourage discussion of broad-ranging legal and educational reforms.

THE NATURE OF THE PROBLEM

It takes little effort and virtually no field experience to approximate the damages occurring from site vandalism and pothunting.

- Between 1985 and 1987 reported incidents of looting on National Park Service lands increased by 53 percent, from about 425 to over 650 (King 1991:85).

- A congressional subcommittee estimates that between 50 and 90 percent of the known sites in the American Southwest, probably around 660,000, have been looted (Subcommittee on General Oversight and Investigations 1988).

- The Bureau of Indian Affairs estimates that looting has increased by 100 percent between 1980 and 1987 (Subcommittee on General Oversight and Investigations 1988).

- The September 1991 issue of Lost Treasure: The Treasure Hunter’s Guide to Adventure and Fortune provides a four-page article entitled "South Carolina Treasures" listing potential sources of relics across the state.

- At one site alone in El Salvador, researchers
counted over 5,000 holes. Every known site in the vicinity has been plundered, and over 30,000 artifacts have been introduced into the marketplace (Herscher 1989:68).


- Estimates of the multibillion-dollar-a-year antiquities market suggest that the bulk of the materials come from 27 countries and find their way to six: the United States, the Vatican, the United Kingdom, France, Italy, and what was formerly West Germany (Greenfield 1989:Map 1).

- There are over 265 major auction houses in the world engaged in the legal or quasi-legal distribution of cultural resources. Of these, 178 (67 percent) are found in four countries: Germany, Switzerland, Italy, and the United States. Germany alone has 77 (Greenfield 1989).

We could go on, but these few statistics and accounts illustrate the seriousness of the problem. It has even been suggested that the illegal antiquities trade rivals and perhaps surpasses the illicit drug trade (Stille 1988). While here in the Southeast we may see Civil War artifacts selling from as little as 25¢ (Keel 1991) to as much as $10,000 (Lost Treasures, September 1991, p.59), and Mississippian head pots for upwards of $20,000, some items of cultural heritage can trade for five- and six-digit sums. Simply put, the looting, buying, selling, and trading of our cultural heritage is big business.

None of the statistics, stories, or studies, however, tell us exactly how big the business is or what exactly the loss is to the public. Like body counts from Vietnam or estimates of the drug trade, the figures are hazy and inexact, sometimes downright misleading. Part of the problem is that no one agency is responsible for tracking the worldwide antiquities market. In the United States, no agency has developed a mechanism to understand or translate for the public the magnitude of our losses.

This lapse of quantifying zeal may be attributed to budgetary limits or even to a tacit belief that more stringent quantification would provide little benefit for the labor involved. And certainly, when the issue is elevated to a global perspective, there are additional political problems, particularly when dishonest and corrupt public officials engage in the illicit trade of their own country's antiquities (Alexander 1990). There are also issues, still unresolved, regarding the ethics and morality of professionals dealing with looters (Alexander 1990; Messenger 1989).

IDENTIFYING THE PROBLEM

Whatever our differences may be regarding such issues as the use of looted collections, we assume that all professionals denounce looting as both morally and ethically indefensible and as destructive of our finite cultural heritage. Keeping this common ground in mind, it is generally agreed that education and laws are two appropriate tools to curb looting (King 1991).

When we professionals visit legislators (as those of us with Chicora Foundation have been doing), the inevitable question is "Can you tell me exactly how bad the problem is right here in my state?" With the currently available data, we can only speculate or speak from personal experience, neither of which is likely to win many arguments. It is much more powerful to be able to tell a legislator that in his home district x number of sites have been looted and that y number of sites in his state have been damaged.

As archaeologists, most if not all of us have been trying to educate the public about the looting problem for years. Looting statistics suggest that we haven't been doing a very good job. Yet, we are looking at the issue not only using flawed data, but also from a gross perspective. Can we say that, for example, an intensive educational campaign in one localized area might not reduce looting? Frankly, we believe that education, especially the education of children in their formative years, between the ages of two and 14, has the greatest potential to discourage the "hobby collector" (McAllister 1991) and to
curb looting in the Southeast. Yet without a good data base operating over several decades, there is no way to determine which way the fight to save our heritage is going. We may be spinning our educational wheels, getting nowhere; we may find out too late that our educational programs should have been revamped entirely.

Related to this issue is the perception that more funding is required to fight the extensive looting occurring in the Southeast and, increasingly, the Americas. Education, law enforcement, lobbying for stricter protection, all seemingly need larger budgets. Yet we have little, if any, data to support such arguments.

Finally, when we evaluate the significance of sites, particularly those frequently looted—Civil War camps, Mississippian mounds, Early Archaic sites—we frequently operate in a vacuum. We may have a vague idea of how many similar sites exist, but we have no idea how many have been looted or how badly. This data is essential if we are to "manage" our cultural resources.

TRACING MECHANISMS: THE NEED
The National Park Service LOOT Clearinghouse is designed to track court actions resulting from looting incidents; however, it does not track the incidents themselves. So that those involved in the protection of our global cultural heritage might not only understand the problem but control it, there must be a mechanism to track looting and its associated site destruction and loss of cultural resources. Such a mechanism should:

- be a tool in the public relations battle to develop additional anti-looting legislation and thus curb traffic of cultural heritage items;
- provide a reliable tool for evaluating the progress of the educational or judicial methods used to curb looting;
- provide reliable data with which to argue for increased funding for agencies responsible for cultural heritage protection; and
- allow us, as professionals, to better gauge the data base with which we have to work.

These interrelated benefits form the foundation of our survey technique.

POSSIBLE PITFALLS
Archaeologists, as the result of specialization, tend to be very good at some things and not very good at others. We can manipulate edge angles and determine mean occupation dates, but we have little experience in developing baseline data for subjects such as looting.

This became painfully evident during the preparation of this article. Occasionally, we found studies that provided exceptional data on looting behavior, for example, the behavioral study by DesJean and Wilson (1990) and the compilation of vandalism practices by Williams (1978). But, in general, survey methodology was crudely formulated, often unarticulated, rarely reported, and of little interpretive validity.

Clearly the technology exists for accurate, unbiased survey studies. Unfortunately, archaeologists, as scientists, are preoccupied with quantifying virtually everything within an appreciable degree of certainty. Surveys, even the best, can do little more than serve as indicators. The reasons are complex, but essentially boil down to trade-offs—sacrificing precision or control or generalizability in favor of one or the other. In our survey the problem is further complicated when we ask researchers to give "best guesses", for example, on the amount of soil disturbed.

This is where we are taking an unusual position. We are prepared to sacrifice some accuracy as a trade-off for participation. If we construct and pretest an omnibus questionnaire—one with literally dozens of questions and hundreds of potential responses—we introduce three factors that are fatal to survey results: fatigue, response bias, and self-fulfilling prophecies.

- People get tired filling out lengthy surveys. First, there is a learning curve for using the instrument: the more difficult, the greater the curve. Result? Initial data get skewed. Response categories become confused. Worse, after a number of uses, respondents tend to "hit the highlights" and skip questions. So much for precision.
Response bias is a murky issue. If one is looking for incidents of "rampant looting", an extremely detailed questionnaire will artificially help one find it. Erosion and animal activity take on new meaning when a person has many blanks and the inclination to fill them in.

Self-fulfilling prophecy is much the same. Unless a survey is neutrally worded and properly pretested, error can insidiously be introduced with disastrous effects.

These points are, by design, overstated. If a survey researcher really wishes to confuse matters, he or she need only apply the most powerful statistics to a problem like looting, which, at best, is difficult to quantify.

The better, more sane approach is to create an instrument that is easy to use, easy to understand, simple to tabulate, and capable of providing good "rough-and-tumble" numbers that policymakers can understand. Hopefully, such an instrument will also allow us to make timely conclusions about threats to cultural resources.

**A MODEL QUESTIONNAIRE**

There are many parameters for appropriate survey research, some statistical (such as the use of open-ended questions and redundancy for reducing dishonest answers). Our approach, however, has emphasized one very simple starting point: It is imperative that the instrument have a high-use rate. This is essential, at least in trend analysis, if the results of a looting questionnaire are to be representative. We are approaching this study from the perspective of trends rather than point-specific data because we believe that trend studies are not only more useful, but are going to be more predictive. With this in mind, the survey must:

- be simple, straightforward, easy to complete, and minimize the opportunity for narrative answers; and
- be broadly applicable to all cultural resources.

Failure to meet these two requirements will result in the use rate of the study falling to be adequate for accurate trend studies. To avoid this, we have developed a questionnaire that can be completed in under ten minutes (the average time is five minutes, especially if the looted site has been previously reported and the UTM coordinates are already known). The questions are almost entirely multiple choice and sufficiently broad so that the questionnaire can be used anywhere in the United States. An example of this form, named ILIAD (International Looting Inventory Archaeology Database), as adapted for the southeastern United States, follows the References Cited on pages 93 through 95.

The questionnaire is designed to collect data not only on the presence of looting, but on the type of looting, the nature of the artifacts being looted, the extent of the looting and accompanying damage, the location of the site relative to access, and the response taken to the looting.

An important aspect of the study is that we are not asking land managers or archaeologists to guess at disturbance; we are asking them to complete this questionnaire whenever a looted site is found. We are avoiding issues such as the costs of site stabilization or the value of the artifacts lost, both of which will result in ambiguous and largely insupportable statements. The primary question now becomes, how can this questionnaire be implemented?

Following a formal pretest (not described here), the revised questionnaire ideally should become as ubiquitous as a site form. In the best possible scenario, it becomes part of the site form. That is, it accompanies site forms for newly identified sites; is completed for all revisited sites; and is used when a site is known to have suffered from looting.

The Southeast is an excellent area for pretesting the instrument and engaging in a pilot study. Human occupation can be traced back at least 12,000 years and archaeological sites include Paleoindian and Archaic camps, Woodland villages, burial and temple mounds, evidence of the earliest Spanish settlements in North America, large urban sites dating from the eighteenth and nineteenth centuries, a variety of Civil War
battlefields and camps, and a wealth of industrial sites. There is site looting of lithic specimens, such as Hardaway and Dalton points, looting of privies in urban settings for unique bottles and ceramics, looting of Civil War sites for relics, and looting of Native American sites for burial remains and trade goods.

Following pretesting, what happens once the survey is conducted? One possible scenario is a cooperative agreement between federal and state agencies—the National Park Service, the Army Corps of Engineers, State Historic Preservation Offices, the State Archaeologists' offices, for example—and the Chicora Foundation. The various agencies could require their contractors to complete the ILIAD form, and the information would be passed on to the Foundation. Chicora would not only provide periodic reports on data interpretation to the agencies, but assure the confidentiality of the records.

Our survey, with only slight modification, can also be used throughout the world to begin the same process of quantification and data interpretation. This type of project would be ideally suited to the World Monument Fund or similar international organizations.

Within five years, if the survey system were accepted, it would be possible to see general trends regarding site looting and its impact on our heritage. More importantly, we would possess useful data to begin an assessment of strategies for curbing these losses.

We began with Goethe railing against the static museum with its "ghostly and funereal air". Yet, in his Italian Journey, he adopted a viewpoint that is resoundingly modern when applied to the issue of looting: "For where works of art are rare, rarity itself is a value; it is only where they are common, as they are here, that one can learn their intrinsic worth."

It is this commonality of artifacts and heritage that makes looting a scourge and the preservation of the past so paramount.

* This discussion is not intended to deal with the broad ethical issues involved in site looting on either a local or global scale. Other authors, such as Greenfield (1989) and Messenger (1989), provide very cogent discussions. International organizations, such as ICOM (International Council of Museums), have developed ethical principles regarding antiquities. The AAM (American Association of Museums) Code of Ethics for Museums, approved on May 18, 1991, does not simply prohibit the "illicit trade" of antiquities but also stipulates that all collecting be conducted "in a manner that respects the protection and preservation of natural and cultural resources." This statement is much more inclusive, prohibiting actions that might potentially encourage looting or even be perceived as offering encouragement.

Chicora Foundation's position in the matter is simple: any activities that encourage or may be perceived as encouraging the looting of our cultural heritage represent inappropriate behavior and should be avoided. This includes purchasing collections and utilizing looted collections for research.
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Stille, A.  

Subcommittee on General Oversight and Investigations  

Williams, L.R.  
INTERNATIONAL LOOTING INVENTORY ARCHAEOLOGY DATABASE (ILIAD)
NORTH AMERICA

Your site has been looted by "pothunters."

By filling out and returning this brief survey, you help us verify and moni

Your answers will be used for statistical purposes only.

The location of your site, its archaeological significance, and the names of you and your agency will be kept strictly confidential.

Thank you for your help.

Directions: Fill in, or check the blank(s) which best describe your site and its condition.

1) Agency __________________________
   Project __________________________

2) Country ________________________

3) State ________ Territory ________________ Protectorate

4) Site Number and/or Name ________________

5) UTM: Zone ________ Easting ________________ Northing ________________

6) Investigator __________________________ Title __________________________
   Affiliation __________________________
   Address __________________________
   City __________________________
   State __________ Postal Code __________ Tele. # (____) ________

7) Date of Incident Discovery __________ Date of This Report __________

8) Site Ownership: _____ Federal _____ State _____ Municipal _____ Private
9) Approx. Age of Site: ____________________ Cultural Affiliation: ____________________

10) Type of Site: ___ Prehistoric/Pre-Columbian ___ Contact/Historic

Site Types:

___ ceramic scatter ___ adobe architecture
___ earthwork (non-mound) ___ bridge/road/trans.
___ kill/butchering ___ cemetery
___ lithic scatter ___ historic scatter
___ mound ___ industrial/manufacturer
___ pictograph ___ military
___ quarry site ___ plantation
___ rock shelter ___ quarry site
___ shell midden/ring ___ standing structure
___ underwater ___ structural ruins
___ village ___ tabby architecture
___ other ___ underwater
( specify: __________ ) ___ urban *
( specify: __________ ) ___ other
( specify: __________ ) ___ other

11) Site Size:

____ meters/feet by ____ meters/feet OR ____ hectares/ acres

For Rock Shelters: Opening Lengths of ___ 1-20m ___ 21-50m ___ >50m

12) Significance of Site: ____________________

13) Nature of Disturbance:

___ “pot holes” (shovel dug) ___ “chalking” of rock art
___ probe holes ___ casting/rubbing of artwork
___ metal detection ___ dredging (underwater)
___ removal of petroglyphs ___ surface collecting
___ removal of human remains ___ shooting at structure/site
___ chipping of rock/tabby/brick ___ breaking & entering
___ excavations ___ structural damage
___ rearrangement of resource ___ removal of architectural details
___ graffiti ___ arson
___ other (specify: __________ ) ___ other (specify: __________ ) ___ other

14) Evidence of Disturbance:

___ scatter of artifacts ___ refuse from looters (beer cans, etc.)
___ holes or other human dist. ___ other (specify: __________ )
___ tire tracks ___ other (specify: __________ )

15) Amount of Disturbance:

Number of Holes

Weight of Scattered Artifacts Recovered

Number of Known Looting Instances at this Site

Estimate the total square footage disturbed using this rough guideline:
One metal detector “footprint” = 1 ft.²
One pothole “footprint” = 16 ft.²

This site has NEW disturbances of ___ < 10 ft.² ___ 1001-2000 ft.²
___ 10-500 ft.² ___ >2000 ft.²
___ 501-1000 ft.²

16) Attach Locational Map for Reference (Use USGS & Mark Location)

Map Used: ____________________
17) Scope of Looting:

Last Time Site Observed:  __ Yesterday  __ Last Week  __ Last Month  __ Last Year  __ Longer/Unknown  __ New Site

Previous Reports of Damage Filed?  __ Yes  __ No  __ Don't Know

If Previous Report, Date:

To Whom Reported:

Estimate Increase in Damage Since Previous Report:

- 0-25% increase  __ 26-50% increase  __ 51-75% increase
- 76-100% increase  __ 101-200% increase  __ >200% increase

18) Distance to Nearest Access Point and Type:

- Less than 1 km./0.5 mi.  __ Hiking Trail(s)
- 1 km./0.5 mi. to 3 km./2 mi.  __ Horse/Jeep Trail(s)
- More than 3 km./2 mi.  __ "Paved" Road
- Navigable Waterway
- Remote Area

19) Efforts Taken to "Stabilize" Site, After Discovery of Looting/Disturbance:

- Looting Holes Backfilled  __ Area Fenced
- Artifacts Collected for Curation  __ Roads/Access to Area Closed
- Reinterment of Human Remains  __ Graffiti Removed
- Recordation and Salvage  __ Other Stabilization: Describe:
- Area Re-Sodded
- Area Posted
- Area Under Surveillance

20) Will Looting Be Reported?  __ Yes  __ No

If Yes: To Whom:

Will Drawings/Photographs be Included?  __ Yes  __ No

Can Photocopies Be Provided to Chicora for ILIAD?  __ Yes  __ No

If Not Reported, Why:

21) Please Add Any Additional Comments:

THANK YOU FOR YOUR HELP! PLEASE RETURN THIS COMPLETED FORM TO:

Dr. Michael Trinkley
ILIAD PROJECT
Chicora Foundation, Inc.
PO Box 8664
Columbia, SC 29202-8664 USA
803/787-6910
What delineates the past, the present, and the future depends on who you ask. The answer, a matter of cultural focus, plays a critical role in how we manage, protect, or safeguard what diverse groups view as our national patrimony. Roger Anyon's (1991) discussion of nonlinear Indian world views versus those of the dominant society provides an interesting wrinkle in our efforts to "protect the past" from site destruction. Fundamental, though cogent, differences in the understanding of time dimensions exist between the "majority" and Indian and other ethnic minorities. These differences highlight the intellectual ethnocentricities that dominate people's attitudes nationwide.

Cumbersome bureaucracies; uninformed administrators, resource managers, and staff; and a responsibility-denying public often look on erosion, urban development, or silviculture with an air of superior indifference. The prevailing arrogant attitude appears to be that there is little to be learned from mounds of shell, fortification ditches, and abandoned buildings, for example, when weighed against operational directives, quotas, allotments, political expediencies, and/or the nefarious bottom line. Damage to archaeological sites unwittingly squandered by this inappropriate reasoning is enormous, and, consequently, "with little notice, more vast archives of knowledge...are spilling into oblivion, leaving humanity in danger of losing its past and perhaps jeopardizing its future as well" (Linden 1991:46).

Whose "past" are we saving? Who are we saving it for? And why are we worried about site destruction anyway? Judith Bense (1991) points out that the average American considers archaeological sites in Egypt or Mexico to be significant, but believes there is little important archaeology at home. I would venture to say that we could raise more money in Atlanta to fund preservation of an Egyptian pyramid than to stabilize Mulberry Mounds (this volume: Wagner, Gillam) or protect the Chew Mill Swamp site (this volume: Sassaman). "Why bother at all?" someone asks. "It ain't my past; they ain't my people." That a great portion of archaeology in this country is concerned with native North Americans is a circumstance of geography and is irrelevant to the question. Archaeologists are not inclined to protect sites just because they embody, for example, a Woodland-period occupation, a Civil War battery, or a Mayan tomb. We seek to contain all forms of site destruction because such loss diminishes the fragile record of our existence as a life form on this planet. Why do we engage in this altruistic behavior? Perhaps because it is an archaeologist's norm for discerning what is "right" or "wrong".

It is not news that the average American doesn't know much about the plight of archaeological resources. The articles in this book continue to support the notion that we archaeologists must elevate our views and change our tactics if we are to effectively resolve site preservation and destruction issues. Harvey Shields (1991:167) effectively argues that resource protection is a product that must be sold to the general public as well as to those who make decisions concerning the welfare of archaeological properties. We have done a poor job of "selling our product". We must demonstrate to the public and the resource management community that protection of our collective heritage is something they need.

This need is vividly illustrated in Michael Trinkley and William Vartorella's article (this
And David Pokotylo (1991:9) kicks the door wide open on why we have had such limited success in reaching the public with our message. We have been using the wrong techniques; we have been selling the wrong product. For the past two decades we have written books, given lectures, and printed flyers and posters to gain the public’s attention; all this time America has been watching television. In this age of visual learning, Julia Elmendorf gives a clear example of what the tenor of our marketing strategies must entail:

An Archaic period burial with a small family group interring a female relation was staged. In the voice-over, aspects of the woman’s life, what she died from, and the artifacts she was buried with—a conch-dipper and a shell necklace—were explained. She was wrapped in a dog-fur blanket of her own making and sprinkled with red ocher. This sad but gentle scene suddenly shifts to a scene of large potholes. The voice-over explains how pothunters probe for burial pits, dig them out strewing the bones, and then sell the items found, such as shell necklaces. Next, the...narrator and an...archaeologist are shown walking through a landscape filled with potholes...discussing how many people participate in this destruction without fully realizing that they are robbing graves....It is much better to watch than hear about....This seemed the best way to make our message appropriate for television without hopelessly twisting it." (1990)

Finally, and without doubt, we must educate. Christopher Judge’s article on the South Carolina Heritage Trust Program confirms, once again, that education is the keystone in the drive to protect archaeological properties. This will be a monumental task and we must be prepared for a long struggle at every level of instruction. Preschool is not too early to start. Hirsch aptly states that "school is the traditional place for accelerating children into our national life" (1987). Unfortunately, it takes little inquiry to correlate the fragmentation of our present-day educational system with the lack of appreciation for and understanding of our heritage. Presently, the majority of young students believe our nation’s history began with Columbus in 1492, and "twelve millennia or more of human habitation of North America are dismissed in a few introductory pages" (Kehoe 1989). At the same time, the cultural worth of the nation is increasingly taught in an ever-expanding series of culturally segregated educational vignettes. The results are predictable and, without question, a principal cause of young people’s alienation with a national or global heritage. Benjamin J. Stein said it best when he observed that "society does not basically understand itself well enough to value it" (1983).

At the high school or college level, the teaching of such concepts as tradition, heritage, or loss of knowledge of the past seems to fail because it does not connect to the experiences of the student. Elmendorf’s television program vividly shows how we can and must use everyday backgrounds and experiences. It is the visual learning lesson that makes it possible for uninformed students to understand the phenomena of archaeological resource loss in a real, present-day context. Visual learning gives life to an issue; it provides a third dimension to education. The power of a graphic medium lies in its facility to evoke personal experiences. I have seen firsthand how this results in a learning experience that transcends the limitations of the actual material presented.

My own techniques are patterned after the views of Beardsley Rumi who eloquently observed in his World Trade and Peace Address in 1945 that "it takes only a period of about a dozen years to implant a basic culture in the mind of man—the period between the age of two and the age of fourteen. In a psychobiological sense, history, tradition, and custom are only about 12 years old."

Therefore, my challenge is to bring site preservation, heritage, and an appreciation and understanding of other cultures into focus for children’s minds. They view the world differently; to reach them, one must try to see and think as a child (Ehrenhard and Ehrenhard 1988:16).
I'll never forget this central idea. Once, while talking to a class of first graders at Ruth Hill Elementary School about appreciating how other groups of people procured their food, I showed a short video clip featuring salmon fishing on the northwest coast. As part of the presentation, I had made a barbed gaff to demonstrate this efficient fishing tool. My illustrative "salmon" was a large cucumber that I "swam" around the room. An authoritative first grader piped up, "Won't work, jus' won't work. My daddy never caught no fish that way...you gotta have a line an' a worm or sompten."

I laid my "salmon" on the floor and had the young doubting Thomas come spear the prey. Thirty pair of questioning eyes focused on the "salmon" as the fish spear caught the green vegetable firmly in its grasp. An uproar of approval followed. "Whoa!" trumpeted the little spear fisherman. "I gotta make me one of these 'cause this will catch me some fish. Wait till I tell my daddy."

A bell rang and the class bolted toward the door, eager for their recess period. As I packed up my materials to leave, the young boy who had assisted in my demonstration came darting back into the room and tugged at my coat sleeve. "Mr. Archerologist, that was pretty neat, but I gotta tell ya sompten...that cucumber wern't no salmon; it was a bass!"

This book has been a cooperative endeavor by people dedicated to providing information concerning various archaeological resource protection issues in order to increase the awareness of and appreciation for our nation's heritage. The authors have all contributed to the principle that we are all archivists of the Nation. These articles and those found in the first volume of the Readings in Archeological Resource Protection series show us that administrators, managers, visitors, and the general public need to feel morally responsible for our heritage in its broadest sense. Through education, people's awareness of resource destruction can be elevated and, perhaps indirectly, their indifferent or ignorant attitudes regarding proactive cultural resource protection can be modified.

As you put this book on the shelf, remember that each of us does have an ethical responsibility to educate our fellow brothers and sisters and provide them with a viable framework for understanding and protecting our portion of the human experience. Site Destruction in Georgia and the Carolinas gives us reason to be optimistic about getting a handle on identification of and education about archaeological resource loss. But, we must not lose sight of the enormity of the problem. As Vine Deloria, Jr. reminds us:

There is an undefined expectation in American society that once a problem is defined, no matter how, and understood by a significant number of people who have some relation to the problem, there is no problem any more. (1969)

We know otherwise.

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Linden, Eugene

Pokotylo, David L. and Andrew R. Mason

Shields, Harvey M.

Stein, Benjamin J.
CONTRIBUTORS

Amer, Christopher F.
Deputy State Archaeologist for Underwater
South Carolina Institute of Archaeology & Anthropology
1321 Pendleton Street
Columbia, South Carolina 29208-0071

Anderson, David G., Archeologist
Interagency Archeological Services Division
National Park Service
75 Spring Street, S.W.
Atlanta, Georgia 30303

DePratter, Chester B., Archaeologist
South Carolina Institute of Archaeology & Anthropology
1321 Pendleton Street
Columbia, South Carolina 29208-0071

Ehrenhard, John E., Chief
Interagency Archeological Services Division
National Park Service
75 Spring Street, S.W.
Atlanta, Georgia 30303

Gillam, J. Christopher
Department of Anthropology
University of Arkansas
Fayetteville, Arkansas 72701

Horak, Virginia, Public Affairs Specialist
Interagency Archeological Services Division
National Park Service
75 Spring Street, S.W.
Atlanta, Georgia 30303

Judge, Christopher
Heritage Trust Archaeologist
South Carolina Wildlife & Marine Resources Dept.
Rembert C. Dennis Building — P.O. Box 167
Columbia, South Carolina 29202

Mathis, Mark A.
Office of State Archaeology
Archaeology and Historic Preservation Section
Division of Archives and History
North Carolina Department of Cultural Resources
Raleigh, North Carolina 27601-2807

Morgan, Robert T.
Forest Archeologist
Francis Marion & Sumter National Forest
P.O. Box 788
McClellanville, South Carolina 29458

Sassaman, Kenneth E.
Savannah River Archaeological Research Program
South Carolina Institute of Archaeology & Anthropology
University of South Carolina
P.O. Drawer 600
New Ellenton, South Carolina 29809

Snow, Frankie
Science/Math Division
South Georgia College
Douglas, Georgia 31533

Stephenson, Keith
Savannah River Archaeological Research Program
South Carolina Institute of Archaeology & Anthropology
University of South Carolina
P.O. Drawer 600
New Ellenton, South Carolina 29809

Stine, Linda France
Rust International GIS Laboratories
Sanford University
Box 2234
Birmingham, Alabama 35229-2229

Trinkley, Michael
Chicora Foundation, Inc.
P.O. Box 8664
861 Arbutus Drive
Columbia, South Carolina 29202

Vartorella, William
P.O. Box 1376
Camden, South Carolina 29020

Wagner, Gail E.
Department of Anthropology
University of South Carolina
Columbia, South Carolina 29208