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Technical Brief 17: Developing an Archeological Site Conservation Database

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Developing an Archeological Site Conservation Database

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Though the conservation and long-term management of archeological sites is now generally accepted wisdom, it wasn't always so. A traditional bias toward excavation and the keeping of only basic site data has had effects that linger on today. Historically, and to the detriment of long-term site care, information has been collected with only fundamental concerns such as location and interpretation in mind. Excavation was favored over in-place conservation, under the assumption that the latter was too complicated and expensive. But the true cost of excavation is often more than anticipated, and often grows as the curation of objects is projected into the future.

What should a resource manager know to compose an effective long-term plan? It goes far beyond a site's age and location. What are the environmental dynamics of the setting? What kind of ground cover grows there? What is the soil type? Is damage being caused by vandals? Cyclical inundation? Timber harvesting? Off-road vehicles? Jet-skis?

This brief addresses the care of archeological sites over time, with accompanying forms to help in planning for a site's future.

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Toward Proactive Management

In the last three decades, the management of archeological resources has slowly shifted from solving site destruction problems as they are discovered to actively identifying and managing resources whether they are being damaged or not. More proactive treatment of cultural resources does not necessarily signal a policy change on the part of land managers. Rather, it may indicate that agencies charged with stewardship are becoming increasingly aware of their mandated responsibilities.

Soon after the passage of the legislation that has proven to be the driving force in resource management—the National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969, and the Archaeological Resources Protection Act of 1979—numerous federal and state agencies found that their cultural resource officers were trained neither in archeology nor any of its allied disciplines. Many managers lacked an understanding of their legislated responsibilities. Many were without the professional staff needed to adequately manage archeological properties. Some simply saw archeological resources as the bane of their existence and only grudgingly committed funding and manpower to identify and protect elements of our national heritage. Other managers, to their credit, worked diligently to protect cultural resources even though they had little understanding of what they were protecting. Site management was only as effective as available expertise and funding allowed it to be.

During the 1970s, when an archeological site was endangered, the most frequently considered management options were data recovery or resource avoidance. Active resource conservation was undertaken only in a few instances, even though it was a preferred mitigation choice in the legislative and regulatory process. Avoidance was viewed as a means of protecting a resource against an immediate adverse effect. While the avoidance approach does constitute a form of conservation that can address a primary impact, it may not consider secondary impacts.

There are a number of reasons why data recovery has traditionally been the preferred option for archeologists:

—Archeologists are generally trained to excavate sites, not to conserve them.
—Managers believe that the data contained in the site is vitally important in answering research questions.
—Few managers know about the variety of techniques available to conserve archeological sites.
—Managers think that conservation, in the long run, is more expensive than recovery; perhaps the most important consideration in determining whether a site would be excavated or conserved.

"Traditionally trained archeologists are often unprepared to provide alternatives for site conservation, which means that resource managers have been forced to accept the recommendations from professionals in other fields."

Traditionally trained archeologists are often unprepared to provide alternatives for site conservation, which means that resource managers have been forced to accept the recommendations from professionals in other fields. As a consequence, most techniques for in-place conservation have followed traditional engineering design. Such methods are most effective in dynamic environments such as coastal shorelines, but they are considerably more expensive than data recovery, particularly when the cost of long-term maintenance is added. In less volatile environments, other techniques can conserve a resource over a long period of time, have a lower initial cost, and require only limited maintenance. Whatever the case, long-term maintenance must be the cornerstone of a conservation plan, regardless of the techniques chosen.

Cost Considerations

Recent changes in the regulatory process have introduced new mandates that will require a careful comparison of long-term conservation costs as opposed to excavation and curation.

Budgeting for excavation, analysis, and report preparation is almost routine, but this is only part of the total project cost. To be truly accurate, budgets should figure in the long-term expense of curation as now mandated. The problem is, the full range of curatorial problems that can arise from an excavation has not been identified, nor have the respective costs. If the cost of curating any single class of artifacts under controlled conditions is not known, no mitigation budget can be complete.

Stone tools, for example, require little care, but consider wooden artifacts that have been in wet environments for hundreds or thousands of years. Once removed, they will deteriorate rapidly unless kept continually wet. Special treatment can slow and in some cases arrest deterioration as these artifacts adjust to the curation environment. But special treatment drives up excavation costs.

The non-artifactual portion of an excavation can contain long-term costs as well. The useful life of electronic storage media seems as yet unknown. Some estimates are as little as five years, which raises the question of how often records and reports will have to be replicated. Computers and programs tend to become outdated quickly. Some data sets could conceivably become inaccessible unless the software itself is curated. As curation becomes more demanding, the services of curation facilities will most likely become more expensive.

"While the general management picture has changed dramatically over the last three decades, the collection of baseline archeological data has not met agencies' management needs."

A more recent cost that must be figured into any data recovery program is compliance with the Native American Graves Protection and Repatriation Act. Projects completed prior to NAGPRA approximated the cost of compliance. However, compliance costs have not been accurately documented. As these costs are documented, they will be added to project budgets, and the cost of mitigation by excavation will rise accordingly. In situ conservation of archeological remains (when possible and practical) will eliminate much of the cost associated with mitigation.

Inadequacies of Site Data

As amendments have strengthened cultural resource management laws, agencies have gained experience in managing their resources. Proactive treatment has also become more accepted. An increasing number of non-archeologists are attending archeology management workshops sponsored by the National Park Service, which discuss in situ conservation as well as excavation and curation.

Most land-managing organizations now have either in-house archeologists or contracts for archeological expertise. But while the general management picture has changed dramatically over the last three decades, the collection of baseline archeological data has not met these agencies' management needs. This is not to imply that archeological information was or is not available. Rather, it shows how the traditional purposes for collecting this information are no longer adequate.

All states (and many federal agencies) maintain site location files for the properties they manage. But the focus of most state inventories has been primarily on answering questions as: Where is the site located? When was it occupied? Is it eligible for the National Register? Is it being damaged? By what, or by whom? This information may be more than adequate for site interpretation, but not enough for resource management. Inventories of federal land holdings have been mandated, but have not yet been completed. Land managers must still rely on site location data that was recorded 50 years ago, and data currently being collected may not be adequate 50 years from now.

At many land managing agencies, archeologists are becoming increasingly office bound with dwindling knowledge of the resources in their charge. They must rely on surveys to direct and support their management efforts. In many cases, to supplement what data do exist, an arche-

Archeological Site Management Data

Site number _____ Field site number _____ State _____ County _____

Management agency _____ Site file number _____

Utm zone _____ Utm coordinates: north _____ east _____

Type of site (midden, mound, etc.) _____

_____

_____

_____

Site dimensions: long axis _____ orientation _____ short axis _____ orientation _____ maximum depth _____

Admitted to the National Register ____ Determined eligible for the National Register ____

Describe the location and environmental setting of the site (shoreline, riverbank, field, etc.) _____

_____

_____

_____

Artifact classes in site _____

_____

_____

_____

Is resource loss immminent? ____yes ____no

Estimated immediacy of loss _____

Estimated rate of loss (feet/year, etc.) _____

Percentage and type of ground cover: _____% grasses_____% bushes_____% trees _____other

Causes of adverse impact: _____agricultural_____development _____public use_____sheet erosion ____shoreline erosion

_____vandalism_____looting _____timber harvesting _____off-road vehicles_____jet ski _____cyclical inundation

If agricultural identify primary crops and type of agriculture (row crops, drilled, no till, etc.) _____

_____

_____

_____

If development, describe _____

_____

_____

_____

If public use, describe _____

_____

_____

_____

If sheet erosion, describe ground surface and indicate direction of source of water _____

_____

_____

If shoreline or stream bank erosion, specify:

primary cause of erosion

_____current _____waves

_____primarily wind generated

_____primarily boat generated

_____primarily primary waves

_____combination primary and rebound waves

wave fetch direction _____

length of wave fetch _____

prevailing wind direction _____

estimated equilibrium slope _____

soil type: ____sands

____gravels

____unconsolidated

____clay

____other _____

If vandalism, describe types of activities _____

_____

_____

_____

If looting, describe extent_____

_____

_____

_____

If timber harvesting, identify impacts: timber cutting _____skidder tracks _____staging area _____haul roads_____

If off road vehicles, describe type of impact and type of vehicles, and frequency of intrusion_____

_____

_____

_____

If cyclical inundation, indicate frequency and maximum depth of water _____

_____

_____

_____

Map site location to scale, including section, township, range, and quad (attach)

Archeological Site Management Data

Site number _____ Field site number _____ State _____ County _____

Management agency _____ Site file number _____

Utm zone _____ Utm coordinates: north _____ east _____

Type of site (midden, mound, etc.) _____

_____

_____

_____

Site dimensions: long axis _____ orientation _____ short axis _____ orientation _____ maximum depth _____

Admitted to the National Register ____ Determined eligible for the National Register ____

Describe the location and environmental setting of the site (shoreline, riverbank, field, etc.) _____

_____

_____

_____

Artifact classes in site _____

_____

_____

_____

Is resource loss immminent? ____yes ____no

Estimated immediacy of loss _____

Estimated rate of loss (feet/year, etc.) _____

Percentage and type of ground cover: _____% grasses_____% bushes_____% trees _____other

Causes of adverse impact: _____

_____

_____

_____

Adverse impact	Comments or description
Agriculture	Identify type of agriculture (row crops, drilled, no till, etc.) and crops

_____

_____

_____

Adverse impact	Comments or description
Development	Describe.
Public use	Describe.
Sheet erosion	Describe ground surface and indicate direction of water source.
Shoreline/streambank erosion	Primary causes _____current _____waves _____primarily wind generated _____primarily boat generated _____primarily primary waves _____combination primary and rebound waves wave fetch direction _____ length of wave fetch _____ prevailing wind direction _____ Estimated equilibrium slope _____ soil type:____sands ____gravels ____unconsolidated ____clay ____other _____
Vandalism	Describe.
Looting	Describe extent.
Timber harvesting	_____timber cutting _____skidder tracks _____staging areas _____haul roads
Off-road vehicles	Describe type of vehicle, impact, and frequency of intrusion.
Jet ski	
Cyclical inundation	Indicate frequency and maximum depth of water.

Map site location to scale, including section, township, range, and quad (attach)

ologist must return to the field to collect information for a management plan. Ideally, the managing archeologist should be able to complete that plan with information already in hand.

Archeological projects guided by a scopes of services usually call for the collecting of management-level information according to professional guidelines. In many cases, however, the guidelines emphasize anthropological value over management concerns.

Archeological sites tend to be dynamic natural settings, since they would have provided the original inhabitants with access to the greatest diversity of resources. Increasingly intense contemporary land use has led to physiographic and topographic alterations that, in turn, intensify the effects of naturally destructive processes. These culturally derived forces affect not only the contents of archeological sites, but their locations as well, and not always in ways that can be anticipated.

Flooding of stream valleys is both expected and predictable. The impact of the 1993 Mississippi flood on archeological resources has not been fully assessed, but some of the results can be predicted. Sites in the crevasses of the levee system are likely to be scoured over their surfaces, with some of their deposits removed. Conversely, sites in areas covered by slowly moving flood waters may have been covered with a film of silts. In either case, the depositional environment of the artifacts would be altered, and the long-term effects on the various classes of artifacts within the site would be difficult to predict.

Post-flood data on the effects of hydraulic forces and standing water can be useful in the future. Pre-flooding site location data may not be sufficient as the basis for assessing impacts.

Improving the Information Base

Most survey projects are recorded in field notes and on various forms. But it is the forms rather than the field notes that usually serve as documentation when devising a management plan for a threatened site. These forms contain an attenuated version of the information from the original field notes, but as noted earlier, this information is usually intended for site location, chronology, and interpretive use, not for management. Therefore, field archeologists should collect more information than usual during their surveys. Having to go back and reassess a site only adds to the cost of management.

The two sample forms in this brief have been devised to encourage the collection of basic management data. They are presented in two formats. While they may not meet all of the needs of every management agency, they can serve as a model for creating appropriate forms. Managers may add or delete classes of data according to their needs.

To abate the protest that will follow the suggestion for more paperwork, every effort has been made to ensure that the information in the recommended data set is necessary for the management of an archeological property. An alternative to the creation of additional forms would be to incorporate some or all of the suggested data categories into existing data collection systems.

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