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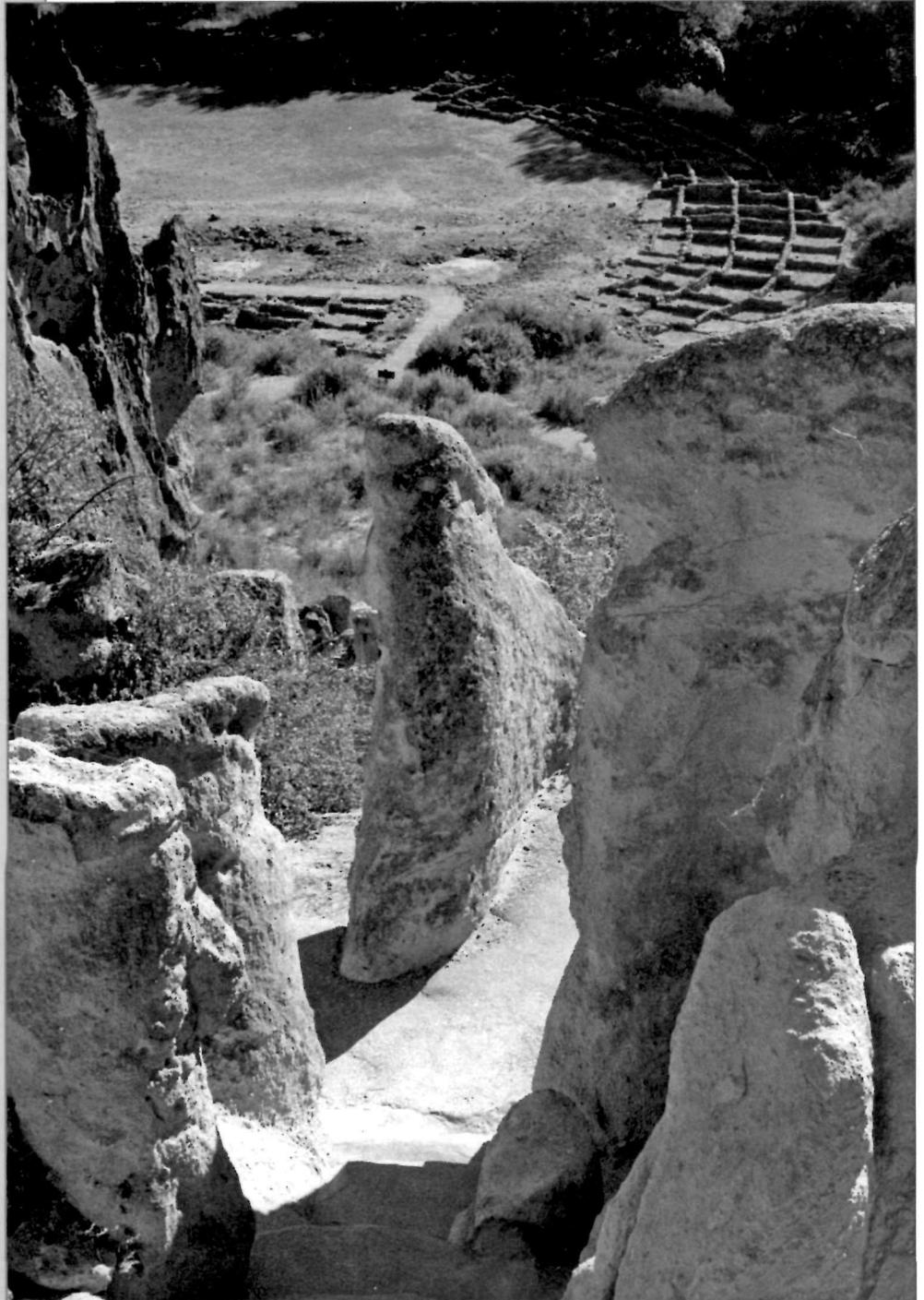
*Thematic
Issue*

Archeology and the Federal Government

Cultural Resources Management
Information for
Parks, Federal Agencies,
Indian Tribes, States, Local
Governments and the
Private Sector



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Managing the Past for the Future

Roger G. Kennedy

The past is not dead; it is in constant use by those of us in the present. We use it to tell stories, to validate actions, to bring to memory past events and people important to us. One of the best ways we come to understand the past is through the scientific investigation of archeological sites, collections, and data. But, in order to seek the counsel of the past through our nation's archeological sites, we must ensure that they are protected and managed effectively.

Although we cannot predict all the problems of coming generations, one thing is certain. In the future, we shall have fewer archeological sites. The remains of the past deteriorate naturally, are pushed aside by modern development, and are wrenched from the ground by those who would use them for private gain.

Those of us concerned about the preservation of archeological resources must be committed to their long-term protection and management. In the future, changes to our understanding of the past and improvements in how we investigate it will enable us to extract

additional information from the archeological record. It is likely that we will be able to learn more, not less, about the past, but only if the sites, collections, and data are preserved for study.

The magnitude of this endeavor is apparent when one considers that only a fraction of the 650 million acres under the Federal government's jurisdiction has been inventoried for archeological sites. The challenge is further increased by the hundreds of thousands of reports and millions of artifacts and bits of data that must be cared for and curated to ensure that these valuable pieces of the past are not destroyed.

Effective management integrates the multiple interests in the archeological record. Sites must be protected even as valuable information about them is made available to the public. Archeologists and managers must reach out and work with the descendants of those whose cultural history they investigate, protect, and manage.

Management decisions that affect archeological resources should be made with awareness that these remains are unique and nonrenewable. Decisions that might deny them to future generations must be taken very seriously. To this end, I encourage managers and others, within existing programs and projects, to redouble their efforts to inventory and evaluate their archeological holdings. The more we know, the better we can plan and preserve.

Roger G. Kennedy is Director of the National Park Service.

A National Strategy for Federal Archeology

Archeological remains allow us to appreciate the superb wood-working skills of the Makah Indians over 800 years ago, the sprawling trade systems at mid-continent during centuries long past, and the Old World ties of Chinese miners in the northern Rockies of the 1880s. The National Strategy for Federal Archeology preserves the voice of the past through a plan encompassing all the areas below (the next section in this issue details initiatives in all of these categories). The Secretary of the Interior issued the strategy in 1991.

Public Education and Participation. Federal and other public agencies should provide more and better public education about and opportunities for the public to participate in archeology—archeology week celebrations, open houses, tours, volunteer programs, films. Federal and other public agencies that conduct archeological investigations or manage archeological sites should include public participation and education activities throughout their projects and programs.

Public Use of the Archeological Paleoenvironmental Record. Federal and other public agencies should provide for public use of the archeological record of thousands of years of human adaptation to changing environments. This identifies the conditions in which people have lived and the changes made in society, technology, and human habits in response to changing climate and natural

resources, and can help us understand and shape our present responses to changing environments.

Fight Looting and Preserve the Archeological Record in Place. Federal and other public agencies should focus attention on archeological site preservation in place, provide increased law enforcement personnel trained in archeological protection, and use the strengthened Archaeological Resources Protection Act to prosecute looters.

Interagency Cooperation in Information Exchange. Federal and other public agencies must work to improve archeological information exchange at the national, state, and local levels.

Site Inventories. Federal agencies need to find the means to undertake archeological inventories of the public lands, and should encourage tribes, states, local governments, private organizations, and individuals to inventory and provide information about the distribution and characteristics of the archeological resources in this country.

Curation of Collections and Records. Federal agencies must systematically preserve the artifacts, other excavated remains, and related records from archeological sites on the public lands they manage or control, and encourage other private and public organizations and individuals to do the same.

The Federal Archeology Program

Jerry L. Rogers
Francis P. McManamon

Every time a Federal highway is laid or a foundation dug, archeologists are consulted to make sure America's heritage is protected. With about a third of the nation's land under government jurisdiction and Federal undertakings constantly in progress, hundreds of archeology projects are underway at any time. But archeology at the Federal level means more than turning spades of soil.

As this issue of *CRM* shows, Federal archeology encompasses the activities of a range of agencies at the national, state, and local levels. All share the program's central purpose: managing the nation's archeological heritage in the interests of the public. Federal archeology is part of the larger National Historical Preservation Program, which operates by authority of various laws.

An agency's involvement depends on its function. Some, such as the Forest Service, oversee land. Others, like the Federal Highway Administration, help other departments or the private sector develop resources or facilities. Whether they manage land or not, agencies must ensure that the developments they facilitate, license, or fund do not destroy the archeological record.

Most carry out a combination of the two functions. The land management agencies also undertake or permit development. Some agencies that primarily do development, such as the Corps of Engineers, also administer recreation lands. Large agencies, especially, perform a range of tasks requiring archeological investigations.

As one might expect, agencies can take very different approaches to meeting their responsibilities. Some, such as the National Park Service, have extensive archeological programs with large professional staffs. Agencies that assist other levels of government, such as the EPA, may pass along their responsibilities to a development project's sponsor. Yet, no matter what their mission, all agencies must meet their statutory and regulatory responsibilities. But they do so in different ways.

Land managing agencies have begun to inventory sites they administer. But the degree of completeness varies widely. Before the 1980s, several agencies had inventory programs, but most were eliminated in the Reagan years. Current efforts come largely from investigations associated with development projects.

Many agencies have overviews of the archeology and history of their lands, which assist in assessing known sites as well as in predicting where sites will likely be found. Most land managing agencies consider archeology in their guidelines for managers, and many provide cultural resources training. Land units such as national forests often have specific directives for dealing with archeological resources.

Land managing agencies also undertake archeological projects themselves, which typically involve excavation, collection, analysis, reporting, and—increasingly—curation of remains and associated records. Development and

regulatory agencies tend to require these projects of their clients and applicants rather than do them with staff. On average, there are over a thousand of these annually.

Increasingly, all Federal archeological projects, whether funded, permitted, or carried out by an agency, include public outreach efforts such as lectures, publications, newspaper articles, and archeology fairs.

This is quite a leap from the Federal program's humble beginnings. The preservation of archeological remains became a concern for the Federal government in the 19th century. But it wasn't until 1892, when President Benjamin Harrison issued an executive order to preserve Arizona's Casa Grande Ruins, that the nation had its first federally protected archeological site.

During the next two and a half decades the concern grew within and outside the government, leading to the Antiquities Act of 1906. This far-reaching statute made Federal officials responsible for protecting sites on lands they administered, while presidents could protect sites by designating them as national monuments.

With that law and the 1935 Historic Sites Act for authority and guidance, Federal activities increased dramatically during the massive public works programs of the 1930s. In the late 1940s, professional and scholarly groups—along with the National Park Service and the Smithsonian Institution—worked with the U.S. Army Corps of Engineers and the Bureau of Reclamation to mitigate damage to sites threatened by the widespread construction of dams and reservoirs.

The National Historic Preservation Act of 1966 embodied the concern for adverse impacts to historic properties of all kinds. In 1974, with amendments to the Reservoir Salvage Act, Congress required that agencies fund archeological activities necessitated by their projects.

The Archaeological Resources Protection Act of 1979 enforced prohibitions against looting and vandalism, stiffened penalties, and prohibited trafficking in illegally removed artifacts. The Act also addressed the custody of collections and called for cooperation among Federal authorities, professional groups, private archeologists, and individuals. Amendments in 1988 improved enforcement and emphasized inventories and public outreach.

In 1990, the Native American Graves Protection and Repatriation Act signalled a new relationship between Indian tribes and the government. Land managing agencies now must consult with Indian tribes and Native Hawaiian groups before archeological investigations that might lead to the excavation or removal of Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony. By law, these kinds of remains and artifacts must be turned over to groups culturally affiliated with them. Similar provisions apply to collections in museums and repositories receiving Federal funds.

Today, it is clear that the past belongs to all Americans. As more and more of the archeological record is uncovered under government auspices, the Federal program looms large as a steward of that heritage.

Jerry L. Rogers is Associate Director, Cultural Resources, National Park Service. Francis P. McManamon is Departmental Consulting Archeologist and Chief, Archeological Assistance Division, National Park Service.

In the Public Interest

There are Indiana Jones movies, Jean Auel books, articles about Mayan ruins in airline magazines, and visits to Mesa Verde National Park. That's what the public sees, but just below the surface archeology has a lot more to offer. Stories about how our ancestors adapted to different climates, different landscapes, different family arrangements. There's a unique association with the past when we stand at the very spot where people lived and laughed and cried centuries ago. The archeological record offers evidence that they were born, solved problems, prospered or declined, and lived through it.

The Historic Sites Act of 1935 declares that "it is a national policy to preserve for *public use* historic sites, buildings and objects of national significance for the inspiration and benefit of the people of the United States" [emphasis added]. But what is public use?

Archeological sites are frozen bits of time from which scientists glean the secrets of the past. For instance, a layered site representing 15 slices of time over the past 12,000 years can be analyzed by a team of archeologists, zoologists, botanists, chemists, and soil scientists to provide data about how the climate varied, how the plants and animals changed, and how the people adapted. This information can be invaluable as we look at coping with today's changing environment. But someone must convert the dry scientific detail into a narrative of everyday language for the public to benefit directly.

In some instances, different uses come into conflict. A site may have more than one public. Native Americans value "medicine wheel" sites for their spiritual values and wish to have them left undisturbed and relatively inaccessible. Scientists, representing the research community, believe that these sites merit investigation. It's up to the private owner or public land manager to decide which use is most appropriate.

However, many uses *are* compatible, particularly the staged excavation and analysis of a site, followed by its stabilization and interpretation for the public. The Shared Beringian Heritage Program, reported in this section, is an excellent example of compatible scientific, socio-cultural, and public use, as is the Fort Huachuca rock art project. The article on the Four Corners Heritage Council

details how the public benefits when the science of archeology supports heritage tourism.

The Bureau of Land Management allocates archeological materials on its lands to scientific, management, sociocultural, and/or public uses. Sites assigned to management use are those that have little important information, or whose information has been recovered. Such sites are used as "guinea pigs" for measuring site erosion or compaction rates.

Peer reviews of archeological projects, such as those performed through the National Park Service departmental consulting archeologist, ensure that the science is being done in the public interest. One article in this section summarizes several of these reviews.

So what is public use? The following articles illustrate.

—Ruthann Knudson
National Park Service

Hands Across the Strait

For years, politics worked to keep the United States and Russia apart. Now, in an exciting multidisciplinary research program, scientists on both sides of the Bering Strait are looking at links between the two nations.

The Shared Beringian Heritage Program is bringing together Russian and American scientists, resource managers, and Native peoples in a long-term study of traditional lifeways, biogeography, and landscape history on the Seward and Chukotka Peninsulas. The geographic focus is an abandoned early 20th century reindeer herders' winter village, Ublasau, located at the Arctic Circle in the Bering Land Bridge National Preserve.

The program's first phase, initiated in 1991, brought together researchers from the Alaska Region of the National Park Service, the University of Alaska at Fairbanks, the Fish & Wildlife Service, and the Institute of Ethnography from the National Academy of Science in Moscow. With the cooperation of the community of Shishmaref, Alaska, the researchers studied the eth-

noarcheology and history of reindeer herding and its effects on the region's lifeways, architecture, and ecology. To understand continuity and change in the local culture, the scientists studied a series of archeological sites linked by geography, time, and oral traditions.

The research represents a completely new direction, says Park Service archeologist Jeanne Schaaf, "by emphasizing not only the history and social effects of reindeer herding but the



Painting by James Kiveteruk Moses, probably based on his childhood experiences in Alaska (photo by F-Stop Photo/courtesy Alaska State Museum, Juneau).



McPhee Pueblo site, part of the Dolores Archaeological Project peer review (courtesy Dolores Archaeological Project).

role of herding in Native human ecology at the local family level.”

For information contact the National Park Service, Alaska Regional Office (Attn: Jeanne Schaaf), 2525 Gambell, Anchorage, AK 99503, ph. 907-257-7663.

Peer Review for the Public

For years, science has regulated itself through review of projects by a scholar’s peers. Over the last decade, in the public interest, the National Park Service has brought the process to Federal archeological projects.

The peer reviews are carried out by the departmental consulting archeologist, chief of archeological assistance division. The DCA’s office reviews projects to aid agency decision-making as well as check the quality of conservation and interpretation.

The review’s primary purpose is to evaluate projects relative to archeological practice and legal compliance. There have been seven reviews since 1981.

The first was the Bureau of Reclamation’s Dolores Archaeological Project in southwestern Colorado, an eight-year, \$8 million effort to recover archeological materials that would be submerged when the McPhee Dam was built across the Dolores River. The Central Arizona Project, another multi-year, multi-million-dollar Bureau of Reclamation project, was the subject of a DCA peer review in 1986.

In 1987 the Bureau requested a review of its Jackson Lake project in Wyoming’s Grand Teton National Park. During reconstruction of a dam across the Snake River, the lake had been drawn down to its pre-1916 level, exposing many archeological sites and scattered artifacts.

The Fish & Wildlife Service, in 1988, asked the DCA to conduct a peer review of an emergency discovery project at its Stillwater Marsh, Nevada, Wildlife Management Area. Four years earlier, flooding by the Humboldt River had inundated the marsh’s National Register district, with its many burial sites. When the waters receded in

1985, many human remains were exposed. The service developed a recovery/reinterment program with the Bureau of Land Management, the Navy, the Fallon Paiute-Shoshone Tribe, the state, and the county that was implemented with the help of contractors. The DCA team commended the memorandum of understanding drawn up by the various parties, but recommended that more attention be paid to deterring looting and vandalism and to letting the public share the valuable research compiled by the project.

The 1989 peer review of the Corps of Engineers Libby Dam project, on the Kootenai River in northwestern Montana, was requested to clarify agency responsibilities under Federal Indian laws. In addition to the Corps, the project involved the Forest Service, the Confederated Salish and Kootenai Tribes of the Flathead Reservation, and the Montana State

Historic Preservation Office. The peer review identified the need for better agency-tribe consultation, and supported the establishment of a tribal curatorial facility.

In 1990, a peer review of the Soil Conservation Service’s Alkalai Creek project, in North Dakota, identified problems in contracting practices and in complying with the National Historic Preservation Act, as well as the need for additional archeological expertise.

This year the Department of Defense requested a peer review of the Central and Northern Great Plains Archaeological Overview, a multi-year compilation and synthesis of archeological information for an 11-state area. The reviewers pointed out the national benefits of such overviews, recommending that others be conducted around the country.

Peer reviews for public archeology will continue to be important for agencies wishing to improve both research and preservation. Additionally, peer reviews can improve the public’s awareness of the valuable contributions these projects make to understanding the archeological record.

For information contact Dr. Francis P. McManamon, Departmental Consulting Archeologist, National Park Service, Archeological Assistance Division, P.O. Box 37127 (Suite 210), Washington, DC 20013-7127, ph. 202-343-4101.

Rock Art for the People

While stone tools, pottery sherds, and bone fragments are the pillars on which archeologists build their arguments about past human behavior, the visual impact of prehistoric rock art speaks more eloquently of Native American culture to the American public. It offers the public insights into the thought processes of Native American artists, how they conceptualized their universe and their spiritual relationship with the environment.

The Fort Huachuca Rock Art Legacy Project entailed a number of tasks to evaluate, interpret, and conserve two rock art sites in Garden Canyon. Fort Huachuca, located five miles from the Mexican border in southeast Arizona, was built in 1877 to protect mining and ranching interests from the Apache and to ensure an American presence in lands recently acquired from Mexico.

Both of the rock art sites are listed in the National Register of Historic Places. One, surrounded by a chain link fence since the 1970s, has remained graffiti-free. The second, until the legacy project, was covered with charcoal scrawls. With legacy funds, the marks were removed and the pictographs at both sites recorded and photographed. In the process, archeologists discovered that the rock art represents at least two distinct time periods.

Since the project began, over 500 sightseers have toured the sites, most of them school children. This offered an unprecedented opportunity to introduce visitors to archeology.

Thus the project proved highly successful in meeting all of its goals: both sites are restored, recorded, accessible to the public, and protected for the appreciation of future generations.

For information contact Fort Huachuca, U.S. Army Information Systems Command, ASH-EE-B (John Murray), Fort Huachuca, AZ 85613-6000, ph. 602-533-3120.

Putting the Pieces Together

Like a jigsaw puzzle, the Central and Northern Great Plains Archeological Overview Project required all the pieces to fit together before it could be called finished.

The project provides a context for managing archeological sites on land in 11 states between the continental divide and the Great Lakes, the Canadian border and central Kansas. A bioarcheology component is supported by the U.S. military, which has archeological management responsibilities on lands it administers as well as on lands underlying military air space. The support arose from the congressionally mandated legacy resource management program, which is extending the management of Defense cultural resources beyond strict compliance with Federal laws and regulations.

Because of the project's massive scope, regional directors were called upon by the Arkansas Archeological Survey and the Center for Advanced Spatial Technologies at the University of Arkansas to construct syntheses of their areas of responsibility. "Each such synthesis was based on a review of relevant paleoenvironmental, archeological, and bioarcheological data and the history of investigations in that region," says Charles Ewen, sponsored projects director for the Arkansas Archeological Society. "The project concluded with an integration of all the data sets to describe patterns of human use of the regions' resources over time. It provided a basis for evaluating information gaps and, thus, the significance of individual archeological sites found on military lands or otherwise affected by military activities. They can be used to plan archeological

inventory, investigation, and conservation activities anywhere in the U.S. central and northern Great Plains."

Although the overview is designed to assist cultural resource management on Department of Defense-affected properties, its information base, which encompasses all lands within the 11 states, is expected to find wide use beyond the military. The bioarcheology, to be detailed in a separate report, will use site-specific data to delineate past health patterns.

For information contact the U.S. Army Corps of Engineers, Construction Engineering Research Laboratory, Tri-Services Cultural Resources Research Center, P.O. Box 9005 (Dr. John Isaacson), Champaign, IL 61826-1305, ph. 1-800-USA-CERL x6749.

Aligning the Four Corners

The Four Corners region of the American southwest is home to many of the country's most important cultural resources. Until recently, it was also the source of one of the nation's biggest administrative headaches, due to an array of political and land management boundary difficulties.

The Four Corners Governors' Conference, held in June 1990, was instrumental in solving the problems. The conference created a vision for the region, recommending a Four Corners heritage council that would bring together area agencies, Indian tribes, local communities, and private sector interests. The council would establish a comprehensive and coordinated approach to improving cultural resource management, research, public education and involvement, tourism, and cooperation with private landowners.

The governors signed a memorandum of agreement to launch the 12-member council, which consists of three gubernatorial appointments per state comprised of at least one Native American and one private sector representative. Supplemental agreements with the National Park Service and U.S. Forest Service provided for Federal agency representation. The Soil Conservation Service, among other agencies, has now joined.

So far, projects include establishing a heritage site recognition system that includes signage and marketing tools for public involvement and visitation; "Trails of the Ancients Heritage Byway Routes" connecting sites throughout the area; a comprehensive cultural resource interpretation project that includes American Indian perspectives; and a public relations and education plan to improve heritage conservation.

To document visitation at the area's approximately 16,000 sites, a program was initiated to inventory and assess the tourism industry in the region. The objectives are to define the industry, help detail public agency roles, establish partnerships to promote responsible use of sites, enhance the quality of the visitor experience, and promote rural economic development.

The project is being administered by the state of Utah through a grant from the Forest Service. The actual work, to be handled by the National Trust for Historic Preservation, is slated for completion this summer.

For information contact Mike Talcott, President, Four Corners Tourism Council, P.O. Drawer HH, Cortez, CO 81321, ph. 303-565-8227.

Taking Stock of the Past

It is estimated that there are millions of archeological sites in the United States. Archeologists have discovered only a fraction of them, and evaluated even a smaller percentage. Clearly, there is a lot of work to do.

In sites deep or shallow, archeological deposits offer an invaluable glimpse of how people interacted with ecosystems of the past. There is a wide spectrum of evidence—earthen, biological, atmospheric, and sociocultural. But to get the data, the sites have to be found.

There is no hard information on how many deposits are being destroyed by erosion, accidental excavation, or other factors. The inexorable dwindling of the *in situ* archeological record is one reason why site surveys are so important. In order to manage these nonrenewable resources, we need to know how many there are, where they are, what they are, what condition they are in, and why they are important.

To comply with Sections 106 and 110 of the National Historic Preservation Act, Federal agencies are required to evaluate the potential impact of their undertakings on significant archeological sites. For each land-impacting project permitted, an agency must have adequate information to judge its probable impact. The agency, in consultation with the State Historic Preservation Officer and the Advisory Council on Historic Preservation, uses the information to plan for the avoidance or mitigation of damage to the site.

The Minerals Management Service, for example, is answerable for protecting historic shipwrecks and submerged sites on the outer continental shelf. To assist in meeting its obligations under the Act, the Service supports extensive literature surveys and the development of predictive models to identify the probable locations of sites in its jurisdiction.

Frequently there is not enough information available prior to the required consultations, especially for agencies that provide funding or permits for projects on non-Federal lands, such as the Federal Highway



Test excavations at the Missouri-Madison project (photo by Renewable Technologies, Inc./courtesy Montana Power Company).

Administration and the Nuclear Regulatory Commission. Even land-managing agencies often have inadequate information to evaluate large projects. Field survey is a labor-intensive job, and labor costs money. Activities perceived to be less central to an agency's mission often have lower priority in expenditures.

Thus, organizations that need Federal permits—like private construction companies—provide “third party” assistance in collecting and evaluating archeological data, assessing possible impacts to sites, and devising plans for mitigation. These third party projects can be complex, involving several layers of private contractors working with local, state, tribal, and Federal offices. Two examples are reported in this section: the relicensing of dams along the Missouri River and the laying of gas pipeline from British Columbia to California. Integrating archeology into all the layers of management is the only way to ensure that sites in such projects are inventoried and protected.

Few areas in the United States have been surveyed intensively enough to identify all their archeological deposits, much less investigated with high-tech equipment. Yet archeologists make judgment calls every day based on limited information. They have a job to do. The more they know about the resources they manage, the easier that job will be. In the end, we all will benefit.

—Ruthann Knudson
National Park Service

Sleuthing for Sites

It's always worthwhile to know what you have in your coffers. Then you can at least try to use your resources wisely, without frittering them away.

Your bankbook tells you where you stand with creditors, but with most other resources, you need to take frequent inventory and continually reevaluate their worth. Federal agencies try to do that with archeological sites, but the sheer cost of surveying every square kilometer of public ground prohibits it. This despite the laws mandating that these sites be inventoried.

Some creative solutions to the dilemma have been advanced, most of them invoking strategies to characterize, if not every archeological site, at least the kinds, numbers, and probable locations of sites expected to occur on a given tract of land. The Bureau of Land Management's California Desert Plan, for instance, anticipated cultural resources in habitats tested only in part. More recently, the Fish & Wildlife Service, through predictive modeling, pinpointed likely land-use conflicts in Nevada's Stillwater Wildlife Management Area.

The work at Stillwater was predicated on the assumption that some landscapes change slowly and that, despite historic disturbances, it's possible to figure out where people went in the past and where the archeological sites are likely to be. Intermountain Research of Silver City developed a predictive model of Stillwater's site types, relative frequencies, and locations by taking a detailed soil survey of the management area (nearly 1,000 square kilometers), inferring the probable geography of prehistoric plant and animal communities, and calculating the expected human uses of various parts of the landscape. The model was tested by surveying a random sample equivalent to 5 percent of the study area. The model successfully predicted 85 percent of the 259 sites located by the survey.

The model is currently being expanded, with the goal of blanketing the entire territory of local indigenous groups irrespective of modern boundaries. The results should contribute substantially to coordinating agency efforts and help reduce the isolating effects that multiple jurisdictions impose.

For information contact the U.S. Fish & Wildlife Service, Portland Region, Division of Refuges (Attn: Anan Raymond), 1002 N.E. Holladay Street, Portland, OR 97232-4181, ph. 803-231-6214.

One for the Books

Over the past hundred years, the headwaters of the Missouri—a centuries-old water supply on the eastern face of the Rockies in western Montana—have provided power and recreation for millions of people. But the river's dams were last licensed five decades ago, before the National Historic Preservation Act, the National Environmental Policy Act, and other laws. So when the Montana Power Company filed for renewal with the Federal Energy Regulatory Commission, it had zero cultural resource information—now required—to put on the forms. Complicating the process were the overlapping political boundaries along the river's course.

The company's response to the challenge reads like a chapter in a compliance textbook. Not only does the renewal seem certain, but the region's cultural resources are getting the protection they deserve.

Nearly 2,000 acres and over 200 miles of shoreline lie within the company's jurisdiction in a region that people have used for at least 11,000 years. Historic sites dot the terrain—mined heavily in the 19th century—and the archeology and architecture of the earliest hydroelectric plants are significant in their own right.

The first step in relicensing was to thoroughly inventory archeological sites, historic architectural and engineering elements, and traditional cultural properties. The company undertook a broad cultural resource program, following a three-stage process prescribed by the Commission.

In the first stage, the existing literature was reviewed, along with other information on the sites. The company initiated consultation with various Federal, state, and local agencies and tribes, and planned the inventory.

The inventory took place in the second stage. Shoreline sites, which are affected by fluctuating water levels, were studied intensively. The company also consulted with the traditional religious leaders of the Wind River Shoshone, the Salish, the Kootenai, and the Blackfeet. Although no traditional Native American properties were discovered, twenty-two prehistoric and nine historic archeological resources were identified and evaluated for the National Register of Historic Places.

The third stage, not yet started, will recover the resources deemed significant and mitigate the effect of the fluctuating waters.

The project has already spawned nine cultural resource management reports for the pre-draft, draft, and final applications for relicensing. These reports plan continuing cultural resource management activities as part of operating the dams and developing the land. The company is also writing a programmatic agreement to foster cooperative efforts with the Commission, the Advisory Council on Historic Preservation, the Gallatin National Forest, the

Helena National Forest, and the Montana State Historic Preservation Office.

The rich cultural resources uncovered by the inventory will elucidate visitors for generations to come. On top of that, they'll find that the fishing is wonderful!

For information contact the Montana Power Company, Environmental Department (Attn: Jim Shive), 40 E. Broadway, Butte, MT 59701, ph. 406-723-5421 x73154.

Undersea Hunt

The outer continental shelf, nearly two billion acres along the nation's coastline, is strewn with historic shipwrecks and archeological sites. To protect these priceless resources from inadvertent damage, the Minerals Management Service has come up with a way to predict where they probably are in advance of mining projects.

As the agency responsible for leasing mineral rights to the shelf, the Service casts a wide net in compiling data for its computer models, which anticipate where the wrecks and sites will likely turn up.

To look for the ships, Service archeologists feed the computer information on the locations of shoals, capes, and other geographic landmarks. They also plug in data on historic shipping lanes, ports, and harbors and on where known wrecks are concentrated. For archeological sites, they key in the locations of known sites along nearby coastal areas (which often have associated sites offshore). Both models employ information on changes in shelf topography, sea level, and bottom sediment over time.

Before tracts can be leased, areas identified as "archeologically sensitive" require remote sensing surveys with amphibious gear. Potential archeological sites must be further investigated or avoided altogether.

For information contact the Minerals Management Service (Attn: Melanie Stright), 381 Elden Street, Herndon, VA 22070, ph. 703-787-1736.

Atomic Archeology

Although the Nevada Test Site, run by the Department of Energy, is best known for nuclear weapons testing, many kinds of projects take place on this 1,300 square mile tract of land. Since the late 1970s, the Department—in compliance with the National Historic Preservation Act—has required that archeological sites and historic properties be identified and evaluated in advance of any of these operations.

Plans vary depending on the particulars of the work. Projects range from measuring radioactivity in groundwater, to restoring contaminated areas, to installing power lines and taking seismic surveys.

In one of the larger, more complex operations, the Yucca Mountain area was studied as the nation's first potential site for storing high-level nuclear waste. A programmatic agreement between the Department and the Advisory Council on Historic Preservation spelled out how to identify, evaluate, and mitigate the waste's potential effect on cultural resources. (The Nevada historic preservation office was not part of the agreement; for consultations and reviews, the Department works directly with the Council.)

Cultural resources were identified within the 11 square miles directly affected by the project as well as at associated work sites. The Department, through sample surveys,

also studied how the increased traffic might affect other cultural resources in the vicinity.

After meeting with 16 Native American groups and preparing an overview of findings, the Department determined that avoiding the resources altogether was the best way to mitigate damage. The decision requires that the Department work with the Native Americans to monitor the construction's ongoing effects. Meanwhile, in the field, the project office ensures that all work plans, including surveys for historic properties, comply with quality assurance guidelines and incorporate a research design for cultural resources.

Cleaning up contaminated land does not usually demand a programmatic agreement. However, merely complying with the National Historic Preservation Act is a challenge because field workers are subject to various precautions, codified in a safety plan. They must wear anti-contamination suits (with voice-activated recorders), use disposable field equipment, and closely monitor radioactivity. The cleanup often destroys irreversibly contaminated sites and properties, so it is essential that they be surveyed beforehand.

Most of the other programs at the site follow standard compliance procedures under Sections 106 and 110 of the Act. Another programmatic agreement is now being developed for a study on how the site's groundwater may be affecting cultural resources. To promote uniform procedures and evaluations, the Department is preparing a cultural resource management plan that covers all of the site's activities.

For information contact Dr. Lonnie Pippin, Desert Research Institute, Quaternary Sciences Center, P.O. Box 60220, Reno, NV 89506, ph. 702-673-7306.

Managing Complexity

In the late 1980s, the expansion of a natural gas line between British Columbia and southern California posed one of the most complex management challenges for Federal archeologists to date. The project required 800 miles of pipe along a thousand mile right of way through Idaho, Washington, Oregon, and California. All told, the work took five years of planning and construction, the efforts of thousands, and more than 380,000 tons of pipeline. That plus a lot of earth moved—and sifted—in the process.

The project's sponsors, the Pacific Gas Transmission Company and the Pacific Gas & Electric Company, had to secure authorization from numerous agencies before work could proceed. The Federal Energy Regulatory Commission issued a Certificate of Public Convenience and Necessity, the Bureau of Land Management approved an amended right-of-way grant, and the offices of the Bureau of Land Management and Forest Service in three states issued permits under the Archaeological Resources Protection Act.

A programmatic agreement was key to coordinating the treatment of historic properties and archeological sites. In August 1991, an agreement was drawn up among the Commission, the Bureau, the Forest Service, the Advisory Council for Historic Preservation, and the State Historic Preservation Officers of Idaho, Washington, and California, with the two gas companies as concurring parties.

The agreement set forth procedures for identifying and evaluating cultural resources, required the development and implementation of a historic properties treatment plan and monitoring plan for construction, established procedures and schedules for review of archeological reports and related documents, identified curation standards, specified approaches for treating human remains, and outlined procedures to follow for changes in the project.

Archeological work began with a cultural resources overview and sensitivity model for the pipeline's proposed route. In 1989-90, on behalf of the gas companies, INFOTEC Research and its principal subcontractor, BioSystems Analysis, completed an intensive field survey, inventory, and preliminary assessment of 317 cultural resources within the project's "Area of Potential Effects." The findings were documented in a cultural resources assessment report. In 1990-91, work by the two firms led to an archeological testing and evaluation report/historic properties plan.

INFOTEC and another subcontractor, Far Western Anthropological Research Group, tested and excavated sites in 1991 under a contract with Pacific Gas Transmission and then under a subcontract with Bechtel, who laid the pipe, from 1992 through 1994. A second testing and evaluation report/historic properties plan was prepared for investigations after 1990.

From early 1991 through the summer of 1993, as project planning intensified and construction began, INFOTEC and Far Western did supplemental surveys, evaluated and excavated sites, monitored construction, and performed "emergency archeology," that is, for sites discovered during construction. Scores of brief, interim reports on the area's archeology came out of this work.

By the time pipe was laid in October 1993, INFOTEC and its subcontractors had recorded and investigated nearly 700 cultural resources, among them 243 prehistoric sites, 178 historic sites, and 61 sites with both historic and prehistoric components.

For the prehistoric sites, the archeologists studied how hunter-gatherers adapted to the land and environment of the past. The research encompassed a wide range of disciplines and tools: geomorphology, remote sensing, radio-carbon dating, paleobotany, zooarcheology, blood residue analysis, x-ray fluorescence spectrography, obsidian hydration measurement, human osteology, and lithic analysis. The research, which elucidated how the hunter-gatherers subsisted over 10,000 years, advanced knowledge in many localities where the archeological record was not well known.

In examining the historic sites, the archeologists created a picture of rural householders in the late 19th and early 20th centuries. The findings fleshed out how consumer products were distributed, used, and discarded. Studies of single-family farmsteads and communal work camps pointed up discrepancies in the historic record as well as identifying previously unknown occupants of the area.

A five-volume final report, now in preparation, will document the full breadth of the project's archeology, which spans thousands of years along the entire West Coast.

For information contact Dr. Michael Moratto, INFOTEC Research, Inc., 5088 N. Fruit Avenue, Suite 101, Fresno, CA 93711, ph. 209-229-1856.

Caring for Collections

Archeological sites reveal much about America's rich and diverse cultural heritage. But the only way to know the full, vibrant story of a site is if its artifacts, field and lab notes, archival records, and final reports are saved for study, now and in the future.

The legacy of our ancestors lies in various states of ruin—beneath the earth, under the water, or above the ground—until retrieved and interpreted by archeologists. Often these remains are destroyed by development, looters, or natural causes such as erosion. All this makes preserving what's left all the more important to the education of present and future generations.

Laws have been enacted over the years to protect and preserve the thousands of sites on Federal and tribal lands. The enormous number of materials that accumulates as sites are excavated, looters apprehended, and natural disasters cleaned up—artifacts, soil and floral samples, field notebooks, inventory records, and more—makes the task challenging at best. As a result, this record of our history has not fared well.

Museums and other repositories are often overcrowded, lacking funds to improve even basic needs such as shelving and environmental controls. They frequently do not have an adequate way to inventory their collections—with electronic databases, for example—as well as the resources to preserve their archives. What's more, there is no consistent national policy or set of standards for long-term care.

Fortunately, Federal regulations were recently written to ensure that these collections, records, and reports are preserved and well managed. While this is a significant development, compliance with these regulations demands major initiatives in several areas. These include identifying Federal collections in repositories and museums (Federal and non-Federal), developing policies and standards, creating new repositories and improving existing ones, and providing public access for research and education. Many groups—professional (e.g., the Society for American Archaeology Task Force on Curation), Federal (e.g., the archeological assistance division of the National Park Service), and non-Federal (e.g., numerous state and private museum groups)—are actively trying to remedy these problems.

The volume of Federally owned objects is huge, but often the exact numbers are unknown. When the Department of the Interior found that its museum property was poorly accounted for, it set up an inventory program that ultimately identified well over 50 million artifacts. Other agencies have not even begun to count.

Frequently the scope of a collection is known but the facilities are not adequate to store, conserve, and preserve it. This problem is being dealt with on a number of fronts.

Curation expertise continues to be developed in various Federal agencies, such as at the U.S. Army Corps of

Engineers St. Louis district. From there, SWAT-team-style groups are contracted to assist other agencies. The Bureau of Land Management has supported the building of the Anasazi Heritage Center in order to manage and interpret the huge, multi-agency collections of the Northern San Juan Anasazi. The Department of the Defense, through its legacy program, has funded a number of curation projects such as the one reported here at Warren Air Force Base. Similarly, the Corps of Engineers Portland district has renovated the Bonneville Auditorium, a National Historic Landmark in Washington State, into a curation center.

Establishing a facility is just the beginning. A conservation plan is equally important.

The Fish & Wildlife Service has set an excellent example with its conservation of the 19th century steamboat *Bertrand*. The Service built a visitor center, charted a 10-year plan for the *Bertrand* and its related artifacts, set up a conservation lab supervised by a conservator, and designed several storage chambers tailored to different environmental conditions.

Preserving millions of artifacts is of little benefit if only a few archeologists and curators get to see them. Several of the projects discussed below provide interpretive programs, primarily exhibits and interactive activities, for visitors to their facilities. Many repositories offer even more. The Smithsonian's National Anthropological Archives, for example, has a research room where visitors use finding aids to locate and peruse a whole host of archival records.

With the rise of the electronic age, some facilities have developed database systems so that researchers, curators, and the interested public can dig deep into their collections, without ever handling a fragile object or document. This preserves artifacts even as information about them is made widely available.

Some groups are working to open up this access beyond the confines of individual institutions. From their personal computers, users can call up databases on archeological collections and management worldwide, without leaving their home or office.

Today, curation embraces much more than collecting objects. Collections management, interpretation, conservation, information management, and education are all important. The following articles detail important efforts in all these areas.

—S. Terry Childs
National Park Service

Preserving the Anasazi's Heritage

The Anasazi Heritage Center, a 40,500 square-foot-museum in southwestern Colorado, houses over two million artifacts made by the region's early inhabitants. To manage this enormous collection, the center has installed a system that is setting new standards for the care of archeological artifacts.

The Anasazi, as they are called, began to develop their distinctive culture around AD 1 in the Four Corners area, one of the richest archeological regions in the United States. As agriculture became the mainstay of their economy, they developed into skilled architects and craftspeople, creating fine baskets, pottery, ornaments, woven goods, and tools.



Anasazi Heritage Center (photo by J. Fleetman/courtesy Bureau of Land Management).



Main storage room at the Anasazi Heritage Center (courtesy Bureau of Land Management).

The center, set in a hillside near the remains of the 12th century Escalante and Dominguez ruins, was established to store Anasazi artifacts discovered during construction of a nearby dam by the Bureau of Reclamation. The Dolores River project, the largest archeological contract ever awarded in the United States, brought together archeologists from the University of Colorado, Washington State University, and other institutions. The Bureau of Land Management supplied the staff to manage the artifacts, drawn from the dam project and others on land under the Bureau's jurisdiction.

Today, the center's primary goal is to preserve, manage, display, and interpret the culture of the Northern San Juan Anasazi, who lived in southwestern Colorado—including Mesa Verde and the lower Dolores River Valley—as well as parts of Arizona, New Mexico, and Utah. The center's policy is to accept only those materials that have been systematically collected and professionally documented. Exceptions are cases where unproven material would enhance research, exhibits, education, or outreach to the local community.

In keeping with these priorities, the center has divided its collections into four categories: 1) Research Series, 2) Exhibit Series, 3) Education Series, and 4) Comparative

Series. To control the sprawling collection, the center installed the ARGUS collections management system designed by Questor Systems of Pasadena, California. ARGUS is a relational database system with features designed specifically for large archeological collections. The center also utilizes the Questor Systems SITE FILE data management system. The two programs link the management of collections and archeological resource data, providing a unique service to the center's researchers and other users.

The curation program, defined by a scope of collections statement focused on the Northern San Juan Anasazi, is evolving to ensure compliance with new laws and regulations. For facility staff, the challenge is maintaining the program in the face of the resource and management issues inherent in a multiple-use, public lands agency. For now, the center is at the forefront of Federal curation efforts, helping the Department of the Interior outline a curation policy consistent with the Bureau's many goals.

For information contact the Anasazi Heritage Center, Dolores, CO 81323, ph. 303-882-4811.

A Boatload to Preserve

Who would have thought that preserving one 19th century boat would have to satisfy the standards of two states' historic preservation officers, the President's Advisory Council on Historic Preservation, and the Fish & Wildlife Service?

But then this is no ordinary vessel.

In 1865, the steamboat *Bertrand* sank in the Missouri River. Subsequent changes in the river's route buried it intact until rediscovered and excavated in 1968-69 by two Nebraska businessmen searching for treasure trove under the direction of National Park Service archeologists. Today, the Fish & Wildlife Service maintains a visitor center created specifically to house, preserve, and exhibit the 200,000 objects recovered from the wreckage. The collection provides a telling glimpse of the material culture of the mining and agricultural frontiers of the 1860s.

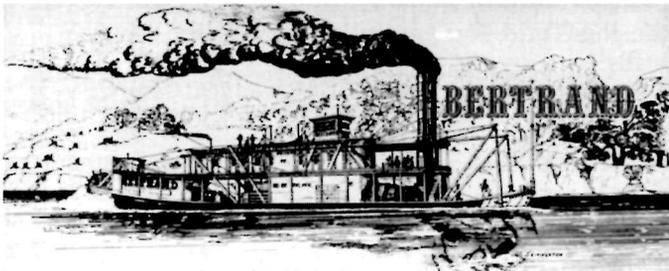
Preservation of the collection follows a 10-year comprehensive conservation plan, developed in 1990. Since the boat and its cargo are on the National Register, this document forms the body of an agreement among the Fish & Wildlife Service, the Advisory Council, and the preservation officers of Iowa and Nebraska, drawn up to satisfy Section 106 of the National Historic Preservation Act.

The staff of the center, located in the DeSoto National Wildlife Refuge, includes a registrar, a museum curator and, more recently, a conservator. Besides exhibits, the facility houses a research library and conservation labs. Artifacts are preserved in three separate storage chambers, each with independently controlled heat and air conditioning units to maintain the diverse environments needed for the mix of organic and inorganic objects. A cooler protects foodstuffs in historic containers from microbial contaminants.

The collection is catalogued according to National Park Service standards developed in the late 1970s. Using dBase IV software and utilizing *The Revised Nomenclature for Museum Cataloging*, a computerized



Excavation of the steamboat *Bertrand* at the DeSoto National Wildlife Refuge in Missouri Valley, Iowa (courtesy *Woodmen of the World* magazine, Omaha, Nebraska).



inventory was recently completed containing registration information on the collection.

For information contact the U.S. Fish & Wildlife Service, DeSoto National Wildlife Refuge (Attn: James O'Barr), Rt. 1, Box 114, Missouri Valley, IA 51555, ph. 712-642-4121.

Classic Facility

The stripped classical style is not often associated with the rustic Pacific Northwest, but the region's premier curation facility just happens to be housed in a prime example of it: the 1934 Bonneville Auditorium.

The Corps of Engineers Portland district converted the building after they found that regional museums could not provide cost-effective, long-term curation for the 630,000 archeological and historic artifacts recovered between 1977 and 1979 at North Bonneville, Washington, on the Bonneville Lock and Dam project.

By installing the center in the basement of the auditorium, a National Historic Landmark, the Corps helped satisfy the Federal mandate that agencies seek to pre-

serve and re-use significant historic buildings. At the same time, they ensured that the artifacts would be preserved for future generations to study.

The Corps upgraded the auditorium's mechanical and electrical systems, renovated 3,400 square feet into three secure rooms with state-of-the-art components, and added computer catalogs for curation and collections management. One room contains a general storage area, another provides climate controlled conditions, and a third serves as a research center. Storage areas utilize custom designed quality, high-density mobile storage units.

The facility places the Corps in the forefront of Federal agencies in the Pacific Northwest as far as meeting mandated responsibilities for the curation of Federally owned archeological collections.

For information contact the U.S. Army Corps of Engineers, North Pacific Division, CENPD-PL-ER (Attn: Dr. William Willingham), P.O. Box 2870, Portland, OR 97208-2870, ph. 503-326-5609.

Managing Interior's Museum Objects

In 1990, the Inspector General reported that there was inadequate accountability for museum collections throughout the Department of the Interior. Today, just four years later, the situation has improved dramatically, thanks to the newly formed Interior Museum Property Program.

Program staff surveyed the entire department, identifying approximately 70 million objects for which Interior is responsible (57 million are archeological). New standards were set for storing artifacts, even as current conditions were studied. Under the program's guidance, all Interior units drafted descriptions of collections to improve their management.

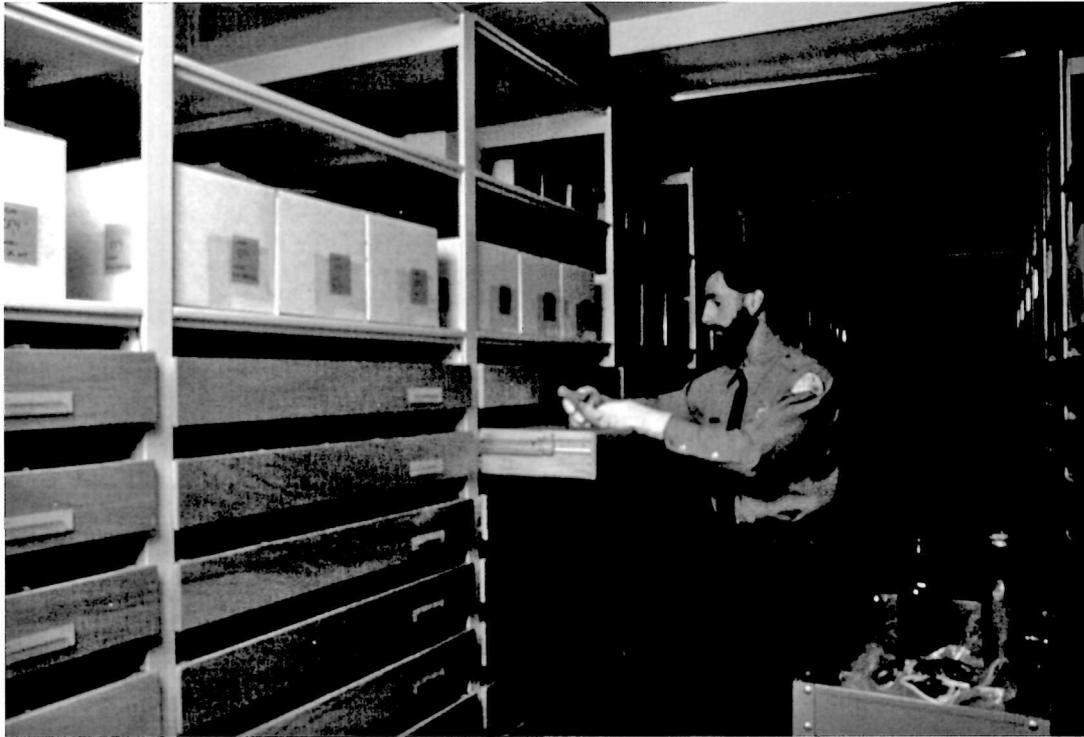
As a result, all of the bureaus at Interior (except the new National Biological Survey) have plans for complying with the standards. In most offices, these efforts mesh with parallel plans for complying with 36 CFR 79, "Curation of Federally-Owned and Administered Archeological Collections," and the Native American Graves Protection and Repatriation Act.

Last January, program staff launched a survey of Federally associated collections in non-Federal institutions, in association with the Interagency Federal Collections Working Group. Mailed to over 12,000 museums and academic departments, the survey is designed to locate collections that Federal agencies may be legally accountable for.

The staff of the program provides data management services, training, and technical assistance to help Interior bureaus achieve and maintain collections standards. For more information, contact program coordinator Ron Wilson, National Park Service, Curatorial Services Division, P.O. Box 37127 (Suite 230), Washington, DC 20013-7127; ph. 202-523-0268.

Archival Legacy

When John Wesley Powell brought the research of several Federal agencies to the Smithsonian 115 years ago, he might not have expected his legacy to endure well into the next century and beyond. The National



Curation of artifacts at the Corps of Engineers Portland district (courtesy U.S. Army Corps of Engineers, Portland district).

The base, originally called Fort D.A. Russell, was founded in 1867 as an Army post to protect Union Pacific Railroad workers and the residents of Cheyenne, about two miles to the east. Renamed Fort F.E. Warren in 1930, it was transferred to the Air Force in 1947. Today the base is a National Historic Landmark, with over 200 historic buildings and an equal number of prehistoric and historic archeological sites.

The engineers divided the bunker's interior into three large fireproof walk-in vaults for storing documents. Legacy funds will be used to accession artifacts and documents from the base. Once these materi-

als are consolidated, the facility will serve as a regional research center for Wyoming and surrounding states.

Meanwhile, the engineers have taken care to preserve perhaps the most telling remains of the bunker's earlier life: the World War I graffiti that covers the tunnel walls.

For information contact Rick Bryant, 90 CES/CEV, 300 Vesle Drive, F.E. Warren AFB, WY 82005-2793, ph. 307-775-3667.

Anthropological Archives, housed in the National Museum of Natural History, continues to thrive.

The official records and manuscript collections housed in the archives currently measure over 6,300 linear feet—more than a mile of paper. Photographic holdings constitute an estimated 350,000 images, including a large series relating to the archeological work of the River Basin surveys as well as portraits of Native American leaders.

The first description of the archives appeared in 1881 and snapshot summaries of individual collections have been issued sporadically since then. But until James R. Glenn published his *Guide to the National Anthropological Archives*, a full overview had not appeared in print. The guide, a picture of the collection as of October 1992, is now available.

For more information, contact the National Anthropological Archives, National Museum of Natural History, MRC 152, Washington, DC 20560, ph. 202-357-1976.

From Edibles to Artifacts

It may seem like a stretch—converting a place for storing vegetables into a state-of-the-art curation center—but actually this project is just one of the inventive ideas underwritten by the Department of Defense legacy program.

For the 90th Civil Engineering Squadron, headquartered at Cheyenne's Warren Air Force Base, the conversion was a natural. The underground storage bunker, reached by a long tunnel dug into a hillside, was perfect for controlling temperature and humidity. Security came courtesy of foot-thick concrete walls and floors—remnants of the bunker's World War I era heritage—covered by several feet of earth.

Engaging the Public

It's Old, It's New, It's the Coolest Thing to Do! The tag line for *ZiNj*—a hip new magazine for readers young and old—just about sums up the profession's enthusiastic public education ventures over the past 10 years. *ZiNj* is one of many initiatives that are literally transforming the way archeologists do their work.

The study of ancient civilizations has always held a romantic fascination for people, but archeologists often left sharing the science to writers, filmmakers, and other interpreters. That has changed dramatically during the last decade. Now, engaging the public is considered one of the ingredients in good science. The process forces archeologists to make their research relevant. If they can't communicate its importance to the public, how can they expect public support?

These efforts span a wide front. In 1990, the Society for American Archaeology established the committee on public education to provide a forum for professionals to share ideas and guide their development. The committee's quarterly newsletter, *Archaeology and Public Education*, has been an invaluable tool for spreading news about success stories, partnerships, events, and research. The National Park Service, in cooperation with other Federal agencies, has distributed over 150,000 copies of "Participate in Archeology," a brochure summarizing the many ways the public can get involved.

All of the agencies have established education programs or initiatives in their heritage divisions. In 1991, Congress established the legacy resource management program for the Department of Defense to enhance the care of its natural and cultural resources. Public education has become an integral part of legacy projects across the country.

The Bureau of Land Management sponsors many events through its Adventures in the Past program, as does the Forest Service through Windows on the Past. Other agencies' initiatives make heritage resources accessible to the public through interpretive sites, publications, opportunities to do field work, and other projects.

Increasingly, public education is going beyond passive interpretation such as site signs, interpretive trails, and living history presentations. In the past, although archeologists collaborated with interpreters in these kinds of projects, they rarely got involved personally with site visitors. These efforts will continue to be important, but times have changed. The public of the '90s wants to be part of the process, not just fed the results. People are fascinated with how the science is done, not just the end product. They want to see archeologists face to face, to ask questions and challenge theories. The demand has led to a proliferation of programs involving the public in ongoing research.

Programs like the Forest Service's Passport in Time give individuals and families the chance to do a variety of tasks, from lab work to stabilizing decaying adobe

structures. While these projects result in valuable research and management accomplishments, the real benefit is increased awareness of the science of archeology.

This translates to public support. More and more, the public sees these opportunities as "learning vacations," a concept that organizations like Earthwatch and the Smithsonian's Expeditions have employed for some time with great success.

Another hallmark of public programs in the '90s are initiatives to reach school children by educating their teachers. The Bureau of Land Management's Project Archeology and Intrigue of the Past focus on building archeology into existing curricula and training teachers to impart not only the subject matter but enthusiasm for the past as well. Teaching with Historic Places, a National Park Service program, makes good use of the 61,000 listings on the National Register, showing students that history happened in real places and letting them experience that sense of place and time. The results of these efforts will multiply as classrooms full of young children come to realize that artifacts are not simply things, but clues to wonderful stories.

Meanwhile, *ZiNj*—a cooperative venture among several Federal agencies and the Utah Interagency Task Force—delivers the message directly, through home and school subscriptions aimed at kids six to thirteen. Like the old "Bullwinkle" show, the magazine has its share of parents and teachers vying for a glimpse over their shoulders.

Whether prompted by a professional image problem, widespread looting, demands from baby boomers for continuing education, or simply the evolution of the sciences (consider astronomy's Carl Sagan), public education in archeology is in full swing. Altruism probably plays a role in the trend. Most archeologists believe that improving our understanding of the past leads to a greater concern for the present and future. This has become even more apparent lately as agencies are having to answer tough questions about ecosystems encompassing the land they manage.

So why all the enthusiasm for public education? Will it curb the rapid disappearance of artifacts at the hands of collectors? Will it lead to stronger laws and better enforcement of current ones? Will it foster the stewardship of the nation's heritage? The answer to all of these questions is yes, to varying degrees, but education alone won't accomplish these things single-handedly. Law enforcement, research, and protection will also be necessary.

But again, the public is key. Whether looking into family genealogy, visiting classical Greek ruins, or participating in an excavation, people are fascinated with the past. That's one reason why laws protecting antiquities were passed in the first place. Public support will be equally critical in the coming years.

Professional archeologists are lucky to be making a living at what is only a romantic fantasy for most. The least they can do is share the excitement. The following programs do just that.

—Jill A. Osborn
U.S. Forest Service

Making a Difference

The Imagination Team is one of the best-kept secrets at the Bureau of Land Management. Assembled in 1991 under the umbrella of the Bureau's Adventures in the Past initiative, the team is coordinating the agency's heritage education program from its home base at the Anasazi Heritage Center in Dolores, Colorado.

Working with the Bureau's state heritage liaisons, people in the field, and the division of cultural heritage, the team develops a wide variety of educational materials, from "Intrigue of the Past" teacher guides and student handbooks, to exhibits, publications, teaching kits, videos, magazine articles, and TV programming. In addition to producing all these products and more, the team provides guidance to the Bureau's state offices and field staff as well as the educational community.

The Bureau of Land Management is the steward of an estimated 5 million archeological and historic properties on almost 270 million acres of public lands in the western United States and Alaska. These lands provide a wealth of cultural resources for the team to draw on to promote stewardship values through education. The projects work to capture the attention of young people at an early age, sustain their attention through hands-on activities, and enhance their skills through increasingly more sophisticated learning experiences.

The Bureau's education effort emphasizes training teachers in archeology, paleontology, and heritage education. Building on research showing that young people learn most readily about things that are tangible and directly accessible to their senses (visual, auditory, tactile, and kinesthetic), the team is helping young people to learn about the rich, but fragile, record of our cultural heritage.

For more information on the Bureau's Heritage Education Program or the Imagination Team, write to Megg Heath, Chief, Heritage Education Project Manager, BLM Imagination Team, PO Box 758, Dolores, CO 81323.

Passport in Time

"I found that a person can pack more living into two weeks than in the other fifty weeks of the year!"

"I learned as much in five days as I would have in several weeks in the classroom!"

"Our students told me that they learned a great deal and had fun in the process—two qualities that lie at the heart of any good education!"

"We went to museums afterwards and the artifacts just came alive!"

These are a few of the enthusiastic responses from volunteers in the Forest Service Passport in Time program. Through PIT, as it's called, individuals and families work with archeologists in national forests across the country. To date, the agency has sponsored over 300 PIT projects. Volunteers have helped stabilize ancient cliff dwellings in New Mexico,



Passport in Time volunteers stabilize an adobe ruin at Camp Rucker, Coronado National Forest (courtesy Coronado National Forest).

excavate a 10,000 year old village site in Minnesota, restore a 19th century hand-hewn log house in Florida, clean vandalized rock art in Colorado, survey sites in the Utah wilderness, restore mansions along the shores of California's Lake Tahoe, and excavate a 19th century Chinese mining site in Oregon.

The projects vary in length from a weekend to a month, or even longer in some cases, and there is no registration fee. *The PIT Traveler*, a free newsletter published in March and September, contains descriptions of current projects and a registration form.

There is no question that the volunteers allow the Forest Service to accomplish much-needed research in how people once interacted with the environment. The PIT travelers also contribute directly to preserving the sites that chronicle this human saga. However, the lasting benefit of PIT is in the public stewardship it fosters. Volunteers not only learn about prehistory and the science of archeology, they develop a sense of ownership and a vested interest in the care of heritage resources.

As PIT grows, volunteers return year after year, sometimes to the same projects, sometimes traveling to new parts of the country, but always bringing incredible enthusiasm and commitment. Such hands-on participation fosters strong allies for managing the nation's heritage.

Information about PIT can be acquired from the PIT Clearinghouse, P.O. Box 18364, Washington, DC 20036, ph. 202-293-0922.



Touch the Past

Step inside a kiosk set up by the Forest Service and the Bureau of Land Management and literally at your fingertips are slides, maps, text, and moving images of archeology throughout the state of Utah. It's all done through the magic of a touch sensitive screen linked to a state-of-the-art laserdisc.

The multimedia program is part of a statewide "Electronic Recreation Opportunity Guide" sponsored by the Forest Service and the Bureau. Each stand-alone kiosk is equipped with a videodisc player, a personal computer, a printer, and a monitor with a special touch-sensitive screen. Up to 55,000 slides and 20 minutes of videotape can be stored on the disc. In some kiosks, phones automatically dial participating businesses and tourist offices for more information.

Visitors select from a menu of program options. Touching the screen moves through sites, artifacts, museums and programs they wish to explore. Information on 44 sites is included; options include paleontology, archeology, history, and museums. A message on site etiquette is also presented.

Touching a point on a map calls up a summary of that location. For places that are too remote, dangerous, and fragile to visit—an Anasazi cliff ruin, for example—a slide and video presentation gives viewers a taste of "being there."

In addition to providing information to the public, the system supplies tourism and land management officials with marketing research on visitor interests. Each screen touch is recorded in a database, documenting how the system is used and what topics and sites the public wants to know about. Officials can use these tallies to plan public programs and improve the system. For example, if only a few users select "paleontology," it may be because they do not understand the term, which can be changed to "dinosaurs."

For information contact the U.S. Forest Service Region 4, Cultural Heritage and Tourism, 324 25th Street, Ogden, UT 84401, ph. 801-625-5170.

Intrigue in Action

Hundreds of teachers have employed the Bureau of Land Management's Intrigue of the Past activity guide in the classroom, with great success. Although the guide is self-contained, teachers often ask to participate directly in archeological research and fieldwork. Last year they got a chance to do just that.

With sponsoring help from the Utah Museum of Natural History, the teachers journeyed to rock art sites on Bureau lands in Mill Creek Canyon near Moab, Utah. There they spent four days in the fierce summer heat documenting the ancient images etched on the canyon walls. Under the direction of Sally Cole, an archeologist and rock art expert, the teachers learned an array of field techniques while they recorded 40 rock art panels and 16 associated sites. In the cool of the evening, around the cook stove, they talked about the canyon's ancient residents and future lesson plans long into the night.

Already, the teachers report being better able to communicate the excitement and importance of archeology to their students. The Bureau will use the information gath-



Recording rock art at an Intrigue of the Past site (courtesy Jeanne Moe).

ered over the four days to help protect these irreplaceable sites on public land. The project was so successful that the Bureau and the museum plan to repeat it this year.

For information contact the Bureau of Land Management, Utah State Office (Attn: Jeanne Moe), P.O. Box 45155, Salt Lake City, UT 84145-0155, ph. 801-539-4060.

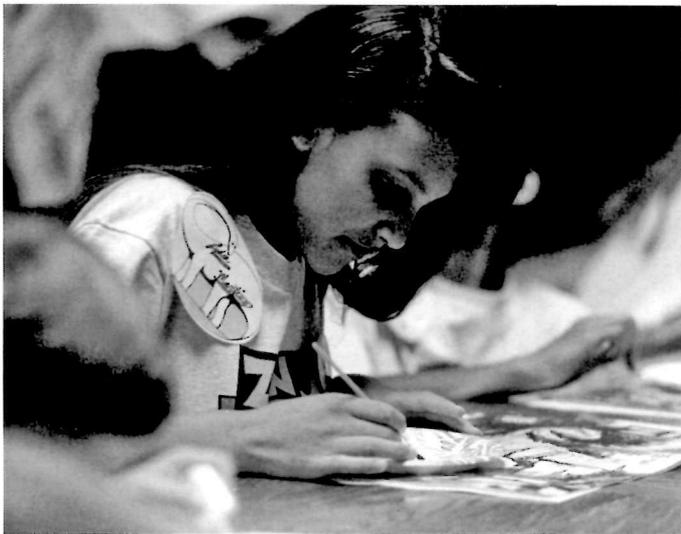
A New Look at Old Stuff

"Hangin' with Dr. Bones," "Children of the Wild West," "Tales from the Site"—the headlines blaze across the pages of *ZiNj*, a kids magazine that's kicking up quite a bit of dust with its striking graphics, stimulating subject matter, and smart attitude.

"*ZiNj* is designed to engage kids on a number of levels," says editor Kevin Jones. "They're involved in all aspects of producing the magazine, from brainstorming about topics to writing, critiquing, and giving input to design. Although scientific advisors ensure accuracy, our 'real' advisory board is made up of kids from seven to fourteen."

The goal is to "share the delights of history and prehistory with kids," he says. "With appreciation and awareness come a sense of ownership, pride, and a desire to protect and preserve our national heritage." The *ZiNj* Education Project, a national science education program, was launched by a consortium of Federal and state agencies (the Utah Division of State History, the National Park Service, the Forest Service, and the Bureau of Land Management) to combat the growing vandalism of cultural resources. Early on, the project partners recognized that special emphasis should be given to educating kids so that the next generation could be part of a long-term solution to the problem. Kids, after all, are fascinated by ancient cultures and other "old stuff," and while it's mainly adults who damage sites, adult education is costly and usually ineffective if individuals are not receptive.

Youngsters, though, are another story. "If the subject is interesting and well-presented, they'll respond," says Jones. Many articles are written by authorities in their fields, not rewritten or diluted. This lends authenticity to the material by taking kids right into the world of real scientists. "We don't want to just know about a discovery, we want to know how it was made, how the research



A "ZiNj kid" at work (courtesy ZiNj magazine).

was conducted, what the personal observations and feelings are of those involved," he says. "We also emphasize what scientists would like to know

but presently don't. This supports open-ended inquiry and demonstrates the scientific method by encouraging kids to think about how we might go about investigating something as yet unknown."

ZiNj invites hands-on involvement through cutouts, collector cards, stickers, and more. Many stories feature outdoor activities, encouraging youngsters to visit museums, parks, and forests. The magazine also broadcasts calls for volunteers on scientific projects.

Speaking of broadcasting, ZiNj will be coming soon to the Saturday morning airwaves via a partnership with TV stations in Salt Lake City and Seattle. The program will have the same commitment to good science, lots of involvement by kids (with a young advisory board), and entertainment. Videos of the show will be made available to schools, museums, government agencies, and other organizations.

Do you know of a project or activity that might interest ZiNj readers? Would you like to contribute an article or idea? Do you know a youngster who'd like to write, send in a photo, or pose a question for Dr. What? Or do you just want to subscribe? If the answer is yes, contact ZiNj, 300 Rio Grande, Salt Lake City, UT 84101.

(By the way, ZiNj is short for *Zinjanthropus*, the name given by the Leakeys to an early hominid fossil found at Africa's Olduvai gorge in the 1960s.)



Teaching with Historic Places

Places can teach! That's the idea behind Teaching with Historic Places, a project launched by the National Park Service and the National Trust for Historic Preservation in 1990. The program uses the National Register of Historic Places—which lists over 62,000 national, state, and local properties—to train educators and produce instructional materials for students. These properties, located throughout the country, reflect nearly every part of our history, including aspects not well represented in textbooks. The information on local communities is especially rich.

At the heart of Teaching with Historic Places is a core of short lesson plans by Fay Metcalf, an experienced and respected teacher and curriculum developer who serves as the series editor. Each plan includes background information, student objectives, copies of maps, photographs, and other primary documents, and activities to help students "put it all together." Designed for those who may never visit the sites, the lessons also make excellent pre- and post-visit units. They are adaptable for upper-elementary through high school grades.

One lesson plan investigates the early life of the Hidatsa and Mandan Indians, who lived in the Knife River villages of North Dakota. Through an activity (included as an insert in CRM 16, Number 2, 1993) students come to understand the relationship between historical and archeological evidence. Another plan, on the 17th century Saugus Iron Works of Massachusetts, guides students through the process of extracting information from photographs of excavated buildings and artifacts.

Other plans featuring archeological components, or whose information comes in part from archeological investigations, focus on Fort Frederica (Georgia), Awatovi Ruins (Arizona), and St. Anthony Falls flour mills (Minnesota). The last is part of an education kit on the theme of work in American history.

Currently thirteen plans can be purchased, with seven more available within the next few months. Nearly thirty more are in development. An "American Work/American Workplaces" kit is scheduled for later this year.

For ordering information, write to the Preservation Press, National Trust for Historic Preservation, 1785 Massachusetts Ave., NW, Washington, DC, 20036, or call toll-free 800-766-6847. For information on the program, or to propose a lesson plan for the series, write to Teaching with Historic Places, National Register of Historic Places, Interagency Resources Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127.



Minneapolis Mill Company Canal, one of the sites used in the Teaching with Historic Places program (courtesy Minnesota Historical Society).

Promoting Communication

Imagine sitting at your desk and having instant access to all the data, reports, and maps you need to complete a project. In this age of advanced computers, it's easy to search library holdings, download data, and exchange information with colleagues—all without leaving your office. Soon, information combining voice, images, and text will be commonplace.

The Federal archeology program has grown to the point that, more and more, researchers and managers must use the electronic highway to avoid duplication of effort and build upon previous work. No one today can fully comprehend the amount of data being produced by archeological investigations, and while computers can help with storage, there is a bigger issue: knowing how to find and access what's needed to get your job done.

Perhaps because field and lab work generates so much information, archeologists were among the first to store and process data with computers. The Intermountain Antiquities Computer System is one example of an early, and continuing, effort to compile and maintain a regional database. Over the past several years, most State Historic Preservation Offices have computerized site records or are in the process of doing so. Although access is restricted—for protection's sake, site locations are often not made public—hard copy can be easily printed up to help archeologists carry out projects.

It's not difficult to describe a site or artifact with data fields that respond to queries. What type of object is it? How old is it? Although the discipline has few descriptive standards, there is some agreement about the information needed to manage a site or collection. However, databases geared to a different purpose—numbers of archeological sites recorded at the state and county level—may not need to access all of the data fields from the original documentation.

Information clearinghouses, like the Listing of Education in Archeological Programs (LEAP), combine database files and word processing programs to manage data and assemble reports of special interest. When maintained in a database, this information can respond to a user's specific questions.

Databases often do not convey the full context of a site. For that, agencies have relied on publication of project results as a way of sharing information. With rising publication costs, many reports have a limited circulation and are not accessible through libraries. Agencies are working hard to overcome this problem.

The U.S. Army Corps of Engineers St. Paul district underwrote a special issue of an archeology journal to share information among U.S. and Canadian researchers. The Corps' southwestern division, the Department of Defense legacy program, and the University of Arkansas are publishing overviews of the archeological literature on a third of the continental United States (bibliographic references from the overviews are being added to the reports portion of the National Archeological Database, which inventories literature about archeological investigations in the United States).

Knowing that a report exists is the first step. Availability is of equal concern. Online search and retrieval of full reports is becoming practical as more and more Federal agencies begin to request electronic versions of reports. As technology advances, it may become possible to convert earlier reports into machine-readable format at current funding levels.

For research and planning, systems that can call up layers of environmental and cultural data are highly desirable. Many agencies are cooperating on geographic information systems that plot "on-the-ground" relationships among cultural resources, land development, and preservation actions. Such systems foster better management by bringing together environmentalists, preservationists, engineers, and planners.

Databases, user groups, electronic bulletin boards, and client-server/information retrieval systems are all increasing exponentially. Some are designed for corporate information sharing. Others are created for individual projects. Some can be accessed only through an agency, while others are available through global research or commercial networks. Directories of these resources are beginning to appear in professional newsletters, such as the *Society for Professional Archaeologists*.

At the national level, the National Archeological Database—established by the National Park Service and operated through a cooperative agreement with the Center for Advanced Spatial Technologies at the University of Arkansas—has become an internationally recognized resource for land managers, educators, researchers, contractors, museum professionals, preservationists, Native Americans, and others. Additional data modules are in the works; demonstration projects, such as the initiative for a World Wide Web interface, point to new capabilities for formatting, embedding pictures, and linking text to other documents. This enhanced sharing of information promises to promote even better stewardship of the nation's archeological resources.

—Veletta Canouts
National Park Service

Digital Antiquities

With well over 50,000 sites on record, the Intermountain Antiquities Computer System—IMACS—boasts one of the largest cultural resources databases in the country.

IMACS grew out of a cooperative effort between the University of Utah and the Bureau of Land Management in the 1970s. Based on this early work, and with the Forest Service joining the team, IMACS was developed in 1981. Sites now in the system include those recorded prior to IMACS and those entered more recently through contracts with the University of Utah, the State Historic Preservation Officers of Idaho and Utah, and the Nevada State Museum.

IMACS is actually a group of database management programs sharing nearly identical data. While the programs cannot interact directly, they can exchange information. Each member institution is responsible for organizing and maintaining its own system. The University of Utah publishes a user's handbook of common codes.

Because users share the same format, cooperative projects are possible. Examples include a major statewide pipeline project and an interagency geographic information system developed to predict looting of sites and artifacts in southeast Utah.

For information contact the U.S. Forest Service, Region 4, Cultural Heritage and Tourism, 324 25th Street, Ogden, UT 84401, ph. 801-625-5172.

Leap in Time

In late 1987, with the help of many Federal agencies, the National Park Service established LEAP, the Listing of Education in Archeological Programs clearinghouse. LEAP summarizes a wide range of public education programs carried out as part of archeological projects sponsored by the Federal government and others.

Descriptions in the clearinghouse are listed by products. Educational products vary from posters, brochures, and exhibits to films, school curricula, and programs enlisting volunteers. Listed under each product, by state, are the sponsoring agency or organization, a contact person, and a summary.

A wide range of sponsors submits information to the clearinghouse: Federal, state, tribal, and other public agencies as well as private museums, companies, and educational organizations. LEAP is intended as a reference to be used by all of these groups as well as tourism bureaus, archeologists, educators, and other individuals.

Summaries of clearinghouse information, published in 1990 and 1992, include all the information collected from 1987 through 1991. The summaries have been distributed to many Federal agencies, Congress, libraries, educators, museums, and other interested individuals.

For information contact the National Park Service, Archeological Assistance Division (Attn: Dan Haas), P.O. Box 37127 (Suite 210), Washington, DC 20013-7127, ph. 202-343-1058.

The LOOT File

LOOT—the Listing of Outlaw Treachery Information Clearinghouse—contains summary information on approximately 250 cases (1967-94) that involve the looting or vandalism of archeological sites nationwide. The LOOT records contain prosecution information on charges,

pleas, judgments, sentences, published legal opinions, and resource damage assessments. They are available to law enforcement personnel, attorneys, judges, and cultural resource managers to guide case preparation, prosecution, and sentencing, and improve agencies' stewardship capabilities toward archeological resources.

Federal, state, and local agencies, as well as individual archeologists, submit cases voluntarily to the clearinghouse. The case studies help track the nature and scope of archeological looting and vandalism in the United States, provide a comparative body of data for improved case-work, and further the understanding of situations and conditions where resource violations occur. Such information exchange among law enforcement and cultural resource professionals is also a goal of the Secretary of the Interior's National Strategy for Federal Archeology.

The information, maintained in a secured database, is protected from disclosure under the Freedom of Information Act. When necessary and appropriate, prosecutors, solicitors, law enforcement personnel, land managers, and specified others, on a need-to-know basis, can query the database for more detailed information. In addition, summary statistics are available for general use.

The LOOT Clearinghouse served as a primary source for the *Archeological Resources Protection: Federal Prosecution Sourcebook*, co-published with the Department of Justice, which serves as a principal technical reference for U.S. attorneys and departmental solicitors. LOOT also has been used as a reference for archeological protection training.

For information contact the National Park Service, Archeological Assistance Division (Attn: Richard Waldbauer), P.O. Box 37127 (Suite 210), Washington, DC 20013-7127, ph. 202-343-4113.

A Database of Databases

NADB is a "database of databases," an interrelated set of data modules on archeological activities in the United States. Each module focuses on a particular concern for archeologists, related professionals, and others.

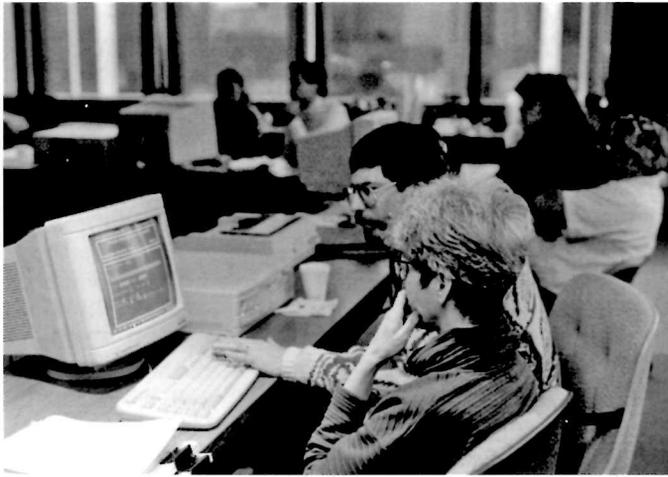
Two modules, NADB-Reports and NADB-NAGPRA, are accessible through the Internet or by modem hook-up. Two more modules, NADB-Permits and NADB-MAPS, will be online in early 1995. Still others are in the planning stage.

NADB is a model for cooperation as well as for information exchange. The system's growing success is largely due to agreements between the National Park Service archeological assistance division—which supervises NADB—and a nationwide network of sponsoring organizations. For example, the system is maintained and operated by the Center for Advanced Spatial Technologies (CAST) at the University of Arkansas under a cooperative agreement with the Park Service.

Impressive trends are already apparent since CAST began monitoring log-ons in late 1993. By spring 1994, the number of monthly users had more than doubled, from 460 to over 1,000. The broadening range of users now includes professors, librarians, and students at U.S. and foreign universities; Federal, state, and local archeologists; members of tribal groups; museum curators and managers; consultants; private companies; high school teachers; and librarians.



The Listing of Education in Archeological Projects offers information on programs such as archeology camps for kids (photo by Roger Friedman/courtesy National Park Service).



Participants at NADB regional coordinators meeting.

These are the modules that make up NADB:

NADB-REPORTS is a bibliographic inventory of reports, mostly of limited circulation, about archeological investigations in the United States. The database is interactive and can be queried by publication, geographic information, keywords, and other subject fields. NADB-Reports is updated annually; 30,000 records were added in 1994 bringing the total to 130,000.

Local data providers, usually the State Historic Preservation Offices, send new or revised records to one of five NADB regional coordinators in the National Park Service. The five regional databases are compiled at the archeological assistance division office in Washington, DC, and then transferred to the online system.

NADB-NAGPRA focuses on the Native American Graves Protection and Repatriation Act, passed in 1990. It is presently a text-oriented database that provides the full Act as well as information on regulations and guidance. Minutes of NAGPRA review committee meetings and notices published in the Federal Register, also provided, are updated periodically. NADB-NAGPRA identifies contacts for tribes and Federal agencies as well.

Some parts of the module are being designed for interactive use. Information on NAGPRA summaries and inventories will also be available on the NADB Network.

NADB-PERMITS, scheduled to be online in early 1995, will provide standardized data for some 5,000 permits for archeological and paleontological projects conducted on Federal and Indian lands under the Antiquities Act of 1906 and the Archaeological Resources Protection Act of 1979. The permits archives are presently housed at the archeological assistance division office of the National Park Service and at the Smithsonian's National Anthropological Archives.

Users will be able to query the permit records according to: 1) descriptive information about an archeological activity; 2) administrative information for tracking the permit process; and 3) information on identifying individuals and institutions associated with an activity.

NADB-MAPS (Multiple Attribute Presentation System) will also come online in 1995. This module will enable users to display maps of the United States showing archeological and environmental data at the state and county levels. This library of national maps can be down-

loaded for a variety of purposes. An interactive system for constructing maps based on database queries is being designed for future implementation.

NADB is evolving; other data modules will be implemented as opportunity and funding permit. In addition to these four modules, recent planning sessions between the Park Service and CAST have identified additional modules and the underlying support needed for implementation. These include 1) a NADB bulletin board, which is now operating as a prototype at CAST (Note: there has been discussion of a Federal archeology listserver [FEDARCH-L] as well); 2) a NADB-AMC (Archives, Manuscripts, and Collections) module to assist computerization of records with the goal of online access for collections information (Note: NAGPRA is a specific portion of such information); 3) a NADB-LOST (Listing of Stolen Things) module for information on thefts of archeological and ethnographic objects, with special reference to items covered by NAGPRA (Note: this project would be coordinated with the International Foundation for Art Research and the FBI, who maintain databases on stolen art and artifacts); and 4) conversion of NADB-LEAP (Listing of Education in Archeological Programs), which already exists in a stand-alone version (Note: some or all aspects of the program might be made available online or coordinated with ERIC).

Summary data collected for the Secretary's Report to Congress on the status of the Federal archeology program will also be made available under a NADB-SRC data module. Needless to say, all of the modules involve substantial organizational and data gathering efforts before they will be ready for online access.

For information contact the National Park Service, Archeological Assistance Division (Attn: Dr. Veletta Canouts), P.O. Box 37127 (Suite 210), Washington, DC 20017-7127, ph. 202-343-4101.

Border Exchange

In 1988, the Corps of Engineers St. Paul district—in advance of a project to control flooding in the Souris River basin—was planning to study the area's cultural resources. The project required that Canada, which shares land along the river, store water in its upstream reservoirs during heavy rains. During an early consultation, the North Dakota State Historic Preservation Officer remarked that both Canadians and Americans should benefit from the research. The remark spawned a special publication.

The journal of the North Dakota Archeological Association issued a separate volume sponsored by the Corps; Virginia Gnasasik of the St. Paul district acted as volume editor. Articles solicited from U.S. and Canadian researchers focused on the archeology, history, and geomorphology of sites along the river in both countries. Nearly 1,500 copies of the journal were ultimately printed by the St. Paul district and provided to members of the association and others.

For information contact the U.S. Army Corps of Engineers, St. Paul District, CENCS-PD-ER (Dr. John Anfinson), 1421 USPO and Custom House, St. Paul, MN 55101-1479, ph. 612-220-0260.

Protecting the Resource

As the nation's archeological sites continue to be plundered, their protection becomes ever more crucial to future research and public appreciation. Despite major strides in law enforcement, widespread looting and vandalism are robbing America's citizens of these valuable, but non-renewable, resources.

Federal agencies, who are moving toward comprehensive program management, must continue to extend their efforts. Although there have been major improvements in law enforcement, information sharing, public education, and land management planning, resource protection remains a never-ending battle.

Law enforcement has made significant strides in criminal prosecutions, information exchange, training, and interagency coordination and partnerships. The protection crisis, detailed in 1987 by a General Accounting Office study on looting in the Four Corners area, stimulated congressional concern about Federal efforts.

Congressional action, reinforced by data on archeological vandalism from the Secretary of the Interior's Report to Congress, led to the 1988 amendments of the Archeological Resources Protection Act, which expanded prohibited acts and lowered the felony threshold to \$500, helping tremendously with criminal prosecutions.

Successful casework is strengthening the Act. A recent case, *United States v. Austin*, upheld the Act's constitutionality when the U.S. Supreme Court denied Austin's petition for *writ of certiorari*. In *United States v. Gerber*, the defendant was indicted under Section 6(c) of the Act, which prohibits the interstate trafficking of archeological resources removed in violation of state or local law. The case was the first successful application of ARPA Section 6(c) and the convictions were upheld on appeal. Also of significance are initiatives by Federal agencies and tribes to employ the Act's civil penalties section, which provides a cost-effective and efficient method of prosecution. Civil penalties and rewards need to be actively pursued in the future.

Other meaningful legislation recently passed includes the Abandoned Shipwreck Act and the Native American Graves Protection and Repatriation Act. The former law protects abandoned shipwrecks and associated cargo on submerged lands. The U.S. Court of Appeals affirmed the constitutionality of the Act in *Zych v. Unidentified, Wrecked and Abandoned Vessel*.

Many Federal personnel have been exposed to the protection issue through training programs for managers, law enforcement personnel, and archeologists. Attendance in these courses, particularly by employees of land management agencies, has increased substantially over the last five years, indicating a growing concern and commitment. The 40-hour course offered by the Federal Law Enforcement Training Center (now available in shorter, regionalized versions) provides the most intensive training in field investigation.

Protection issues are becoming integrated into other cultural resource training courses—such as the

"Archeology for Managers" course sponsored by the National Park Service—that are designed for agency use or interagency participation. Training is now available for attorneys and solicitors, as is the *Archeological Resources Protection: Federal Prosecution Sourcebook*, copublished by the National Park Service and the Department of Justice. All of the training and education initiatives intend to encourage a team approach among law enforcement officers, archeologists, and attorneys.

Interagency cooperation is key to improving law enforcement. Cooperative agreements have been developed among Federal, state, and local law enforcement agencies for monitoring, surveillance, and patrolling efforts. Organizations such as the Interagency Mobilization to Protect Against Cultural Theft, organized by the Bureau of Land Management, and the Interagency Archeological Protection Working Group, coordinated by the National Park Service, combine the efforts of several agencies. More agencies are contributing information to the LOOT Clearinghouse, which serves as a principal source of data about ARPA prosecutions. Looting has no agency boundaries, nor should the efforts to combat the problem.

It also is vital to keep the public informed. Congress clearly recognized that need with the 1988 amendments to ARPA. Archeologists, especially those working for public agencies, have come to recognize that the public is essential to preservation. Not surprisingly, most land managing agencies now sponsor outreach programs and are active participants in state archeology weeks. The Bureau of Land Management has played a strong role through initiatives such as Project Archeology, an innovative educational program.

Unfortunately, many agencies, when pressed with cutbacks, continue to view outreach as a "nice to do" activity with little tangible result. It will take persistent, proactive efforts from supporters of public education to keep these projects healthy.

One way to reach the public is through volunteer programs, which result in productive work and provide participants with an enjoyable learning experience. The volunteer is left with a sense of responsibility for resources on public land. The success of the Forest Service program Passport in Time (see article under "Engaging the Public") demonstrates the growing demand and popularity of these programs. Avocational societies, particularly, should be enlisted in them.

Interpretation, the traditional medium for informing the public, is a growing component in programs of land management agencies, particularly through tourism and rural economic development. When protection is part of the message, the impact is far-reaching; for example, the National Park Service brochure "Participate in Archeology" has reached over 200,000 readers.

Agency archeologists know the frustration of "crisis management" and so realize the importance of long-range planning. Planning is a required aspect of program development because it provides a comprehensive strategy for identifying, evaluating, registering, treating, and protecting archeological resources. The land management planning process utilized by the Forest Service is an excellent example. The Department of Defense, as well, is extensively involved with preservation plans for its installations. Most importantly, these planning efforts require full public participation.

As Federal curation facilities near capacity, it is more important than ever to preserve sites in place. The Corps of Engineers has taken the lead in studying curation issues and in developing site conservation practices.

Equally important is sustaining the existing form and condition of sites. Site conservation is a growing research area. The University of Mississippi Center for Archaeological Research, in partnership with Federal agencies, has developed and distributed numerous guidelines on conservation and maintains a clearing-house of project report information. The Corps of Engineers Waterway Experiment Station has also taken a leading role in site stabilization.

The papers to follow illustrate the wide range of protection methods employed by agencies and organizations. The Bikini Atoll article exemplifies interagency cooperation and in-place protection and management of sunken ships. The two pieces on the Corps demonstrate interdisciplinary technical studies in conservation planning. The article on ivory protection in Alaska illustrates the use of public outreach to combat a serious artifact trafficking problem. The Soil Conservation Service piece is an exciting example of a Federal/state/private partnership to protect a site on a North Carolina farm. The ARPA task force article shows the value of pooling technical expertise to improve casework, training, and education. The piece on the Boundary Waters Canoe Area Wilderness underscores the need for aggressive attention to deteriorating sites in "no touch" areas. These are just a few examples of the resource protection strategies in the Federal archeology program.

—Dan Haas
National Park Service

Down on the Farm

Wheat is a vital source of income for many farmers in North Carolina. But on one two-acre plot near Hunting Creek, what was below the surface proved just as important as what was above.

While plowing new land for planting, the plot's owner started turning up artifacts. Realizing he had uncovered an archeological site, the farmer contacted the state archeologist, who enlisted the help of the Soil Conservation Service. A preliminary investigation revealed a Late Woodland Indian settlement and burial complex dating from ca. AD 900-1500.

Once the site was found to be significant, the landowner worked with the state and the Service to prevent further disturbance while continuing to farm. In a unique cooperative effort, the government agencies provided resources to investigate the site and the farmer switched to growing hay, which requires no plowing and provides a soil-stabilizing cover. The plan allowed archeologists to excavate a 1,500-square-foot area.

The excavations turned up numerous artifacts crafted and used by the ancestors of the Eastern Siouan Indians. This type of site, from the Uwharrie culture, was a particularly significant find as only a few have been discovered in the area.

Many of the artifacts, including handcrafted stone tools such as a hoe, notched arrow points, and implements for grinding foods, were in good condition. Shells from the Atlantic Ocean indicated extensive trade or travel networks, and decorative ceramic shards gave hints as to the time of settlement. Additional studies are underway on stone tools whose function is unclear to archeologists.

Soil stains—marking human burials and trash disposal pits—were among the most important finds. Also of interest were pits containing two turkey skeletons. While the purpose of the animal interments is not certain, they may suggest ceremonial or ritual activity.

The cooperative spirit in this case allowed for the recovery of important information for scholars and the public on North Carolina's past. For the Soil Conservation Service, the site provided not only a unique challenge in archeological resource protection, but—as a backdrop for a training video—an opportunity to train field employees. The landowner, for his part, had a chance to witness a discovery about which little was previously known. Thanks to his cooperation and the partnership of the involved agencies, the Hunting Creek site has been excavated for information, stabilized from further erosion, protected from further mechanical damage, and preserved in place for future generations.

For information contact the Soil Conservation Service, Economics and Social Sciences Division (Attn: Michael Kaczor), P.O. Box 2890, Washington, DC 20013, ph. 202-720-6360.

Resources of the Wilderness

Early European immigrants viewed the entire nation as wilderness, with all its connotations of "wildness, fear, howling, dismal and terrible," in the words of one colonial settler. To native occupants, it was simply home to them and their ancestors for at least 12,000 years.

Times change. Now overuse threatens America's wild places—particularly in the East—along with their valuable cultural resources.



Crocodile Lake, Boundary Waters Canoe Area Wilderness, Minnesota (courtesy Superior National Forest).

Minnesota's Boundary Waters Canoe Area Wilderness faces an unusual dilemma in dealing with the problem. Visitors are limited to the same canoe landings, camping areas, and portages that people have favored for hundreds or even thousands of years. Damage has taken its toll; at least 41 percent of known cultural resource sites are too badly deteriorated to merit further protection.

Wilderness areas are generally not managed in compliance with preservation laws requiring that cultural resources be inventoried, evaluated, and protected. Inventories are costly. Wilderness designation circumscribes how they can be done, and many regions are difficult to access.

Boundary Waters, managed by the Forest Service, is one of the few places to meet the challenge. Archeologists have developed an active inventory plan as part of a broad effort to protect the area.

Boundary Waters has numerous sites dating as far back as 10,000 BC, when Paleoindians exploited the region's rich natural resources. Subsequent cultures also used the area, including Archaic peoples whose sites are mostly submerged due to increasing water levels during the past 2,000 years. Woodland and historic Native American settlements—including campsites, villages, cemeteries, and places of spiritual and traditional importance—are distributed heavily along major travel routes, such as the lakes along the U.S.-Canada border. Conversely, sites are less common on smaller lakes isolated from major thoroughfares.

Boundary Waters also contains evidence of historic European activities, from fur trading to early Forest Service buildings that are still in use. These sites include mines, homesteads, logging camps, fisheries, resorts, and recreational cabins.

Research into the location, nature, and physical condition of Boundary Waters cultural resource sites has been ongoing since 1982. Each site is individually examined for its significance, and a decision is made whether it merits protection based on potential eligibility for the National Register of Historic Places. If the site is badly disturbed, no protective measures are taken.

Of the approximately 90 percent of sites inventoried as of 1993, 40 percent contain cultural resources. This means that nearly half have been used for the same purpose for centuries. The bulk of known sites may still be undisturbed enough to qualify them for National Register protection, but they require further formal evaluation to prioritize the urgency required to avoid further damage.

Archeologists are developing ways to balance wilderness use and site protection. The staff at Boundary Waters has developed a plan that offers six different alternatives for managing archeological and historical sites. These range from limiting party size, to reducing parties allowed to enter, to redistributing visitors to other areas, to allowing unrestricted camping in primitive conditions.

Wilderness managers are becoming aware of their responsibilities to identify, protect, and manage cultural resources. Opportunities to increase stewardship values for wilderness users and local communities exist through interpretation of a wilderness area's historic uses. These efforts can build bridges between local and national environmental groups.

While protecting cultural resources in non-wilderness areas continues to compete with other priorities, most in



Trapper's cabin, ca. 1900, in Minnesota's Boundary Waters Canoe Area Wilderness (courtesy Superior National Forest).

wilderness will be allocated to "quiet protection." Many will survive for future generations if proactive inventory and protective plans are initiated in the near future.

For information contact Gordon Peters, Superior National Forest, Box 338, Duluth, MN 55801, ph. 218-720-5679.

Inroads in the Northwest

Until recently, the magnitude of artifact theft in the Southwest overshadowed that of other regions, including the Pacific Northwest. However, successful casework in Oregon and Washington over the last decade, including three felony convictions under the Archaeological Resources Protection Act, has led to greater public awareness of site looting there.

The Pacific Northwest Region of the Forest Service has published a monograph detailing the progress. *Antiquities Violations and Site Protection Efforts on National Forests in Oregon and Washington*, by Carl Davis with contributions by Tom Russell and Carola Stoney, summarizes all prosecuted antiquities violations that occurred on national forest lands in Oregon and Washington from 1978 through 1992.

The book also describes current initiatives to protect the region's sites and highlights the programs and tools available to national forests to extend the effort. By providing such information, the report seeks to help archeologists, law enforcement and justice personnel, and land managers to realize the deterrent effect of efficient casework.

A task force was chiefly responsible for the success, formed in 1986 as a result of requests from the field for forensic and investigatory guidance specifically tailored to the looting problem. The task force serves as an information clearinghouse and assists in antiquities casework while helping several national forests complete site condition studies.

The task force also sponsors a 40-hour field training course for agency personnel and American Indian representatives. For the public, it has developed the popular "Thieves of Time" brochure and videotapes including "Vanishing Legacy" and "Gus Finds an Arrowhead" for children.

For information contact Carl Davis, Willamette National Forest, Box 10607, Eugene, OR 97440, ph. 503-687-6521.

Waterside Research

Along the shores of the Mississippi lies the Corps of Engineers Waterways Experiment Station, a six-laboratory research, development, and testing complex charged in part with supporting cultural resource management. To further its mission, the Corps recently opened the Center for Cultural Site Preservation Technology at the station, in Vicksburg, Mississippi, to facilitate scientific and engineering site work, training, and interagency coordination as well as serve as an information clearinghouse.

Since 1984, the Corps has researched and developed many techniques for protecting and preserving prehistoric sites. This work, sponsored by the Corps'



Severe erosion along the middle Missouri River (courtesy U.S. Army Corps of Engineers).

Environmental Impact Research Program, was based at the station. Results were distributed to Corps field offices, other Federal and state agencies, and private industry through numerous technical reports.

The station's guidance on site stabilization and protection technology encompasses a range of subjects: evaluating adverse impacts to sites; selecting solutions to problems; budgeting, scheduling, and coordinating projects; and monitoring sites. In assembling this guidance, the station has investigated conventional engineering techniques as well as emerging technologies like filter fabrics, biostabilization, and intentional site burial. The causes and patterns of site vandalism have also been examined, along with the effectiveness of methods to control it.

The center taps the diverse interdisciplinary expertise found in the station's labs, which together make up one of the world's largest research and development facilities. These disciplines include geotechnical engineering, environmental sciences, natural resources management, earth/structure systems and material properties, automated information technology, coastal engineering, and physical and mathematical modeling. The center also draws on the expertise at other Corps labs, such as the Construction Engineering Research Laboratory and the Cold Regions Research and Engineering Laboratory.

The center primarily serves the Corps civil works program and Department of Defense projects, but can also assist other agencies and, under certain circumstances, private industry.

For information contact the U.S. Army Corps of Engineers Waterways Experiment Station, CEWES-EE-R (Dr. Fred Briuer), P.O. Box 631, 3909 Halls Ferry Road, Vicksburg, MS 39180-0631, ph. 601-634-4204.

Artifacts for Sale

Digging archeological sites to obtain ivory artifacts for sale is a long tradition in Alaska. In the 1800s and the early part of this century, institutions and private collectors encouraged the pillaging of sites to fill museums, often paying local people to do the work.

Today the story has a new twist. Sites are being mined to obtain fossil ivory to make jewelry, scrimshaw, and other carved items. From archeological artifacts to unmodified chunks of walrus tusks carried to a site by the original inhabitants, Alaska's ivory is disappearing.

Extremely profitable, the fossil ivory business has grown tremendously in the last five years. It will continue to grow with Alaska's tourism boom, further threatening undisturbed archeological sites.

At least one archeological National Historic Landmark on private land has already been so severely damaged by mining for artifacts and ivory that it had to be de-designated by the Secretary of Interior. Two other National Historic Landmarks, also privately owned, may soon meet the same fate. The damage is beginning to spread to sites on Federal lands as well.

To deal with the problem, the Alaska office of the archeological assistance program is preparing a brochure to educate the public about the illegal ivory trade and the destruction of sites. For more information, call Susan Morton, Chief, Archeological Assistance Program, National Park Service, Alaska Regional Office, 2525 Gambell, Anchorage, AK 99503, ph. 907-257-2559.

Saving Sites in St. Paul

From alluvial fan sites to prehistoric cemeteries, the Corps of Engineers has been busy protecting archeological resources in its St. Paul district.

In December of 1989, University of Wisconsin-La Crosse archeologists—sponsored by the Corps—located a prehistoric archeological site near the center of a proposed disposal area for a state road project in La Crosse. Although previous surveys had not identified them, nearly 45 burials were located by the end of the project's first week in June 1990.

During the winter, the St. Paul district, the project's local sponsor, and the property owner, along with the Wisconsin Burial Office, the Winnebago Tribe, and the Bureau of Indian Affairs, met to determine the fate of the burials. The group concluded that the burials should be covered with a 3-4 foot buffer of fill to preserve them.

More recently, under contract by the Corps, the underwater program of the Wisconsin state archeologist's office completed a study of historic shipwrecks along the upper Mississippi between the Twin Cities and Guttenberg, Iowa. In addition to identifying historic wreck locations, the study developed an historic context for upper Mississippi River vessels, which were the backbone of the early commerce on the river. The St. Paul district intends to use the report as a management tool for future river projects that could adversely impact these resources.

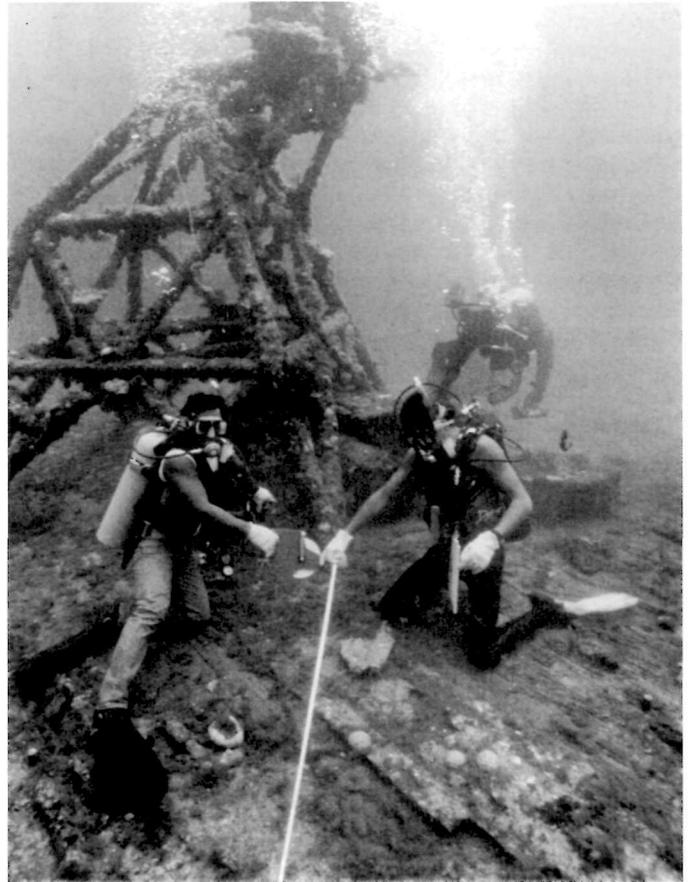
In another project, a survey around Lake Pepin, a glacial lake near the upper Mississippi, confirmed the hypothesis that the river delta has shifted downstream about 5 to 6 meters a year. While the survey did not locate any archeological sites on the islands between Redwing, Minnesota, and the head of the lake 11 kilometers to the south, sites were found on small alluvial fans extending into the flood plain from the mainland. A radiocarbon sample of clays from the lake bottom suggests that the adjacent islands formed in the last 700 years, and that this site was associated with the environments of Lake Pepin rather than the Mississippi River.

And in yet another project, over 30 small sites dating back 12,000 years were found during the survey of a prairie-wetland complex. The large scale of this project provided the Corps and the State Historic Preservation Office with an opportunity to investigate the prehistoric use of prairie-wetland environments. Detailed environmental reconstruction allowed Dr. David Overstreet of the Great Lakes Archaeological Research Center to correlate the locations of PaleoIndian through Late Woodland sites with presettlement vegetation and to develop better investigation methods for future studies in southeastern Wisconsin.

For information contact the U.S. Army Corps of Engineers, St. Paul District CENCS-PD-ER (Dr. John Anfinson), 1421 USPO and Custom House, St. Paul, MN 55101-1479, ph. 612-220-0260.

The Bomb's Pacific Legacy

At the bottom of a Pacific lagoon lies a fateful reminder of the atomic fury visited on Bikini Atoll in 1946. The *Arkansas*...the *Saratoga*...the *Pilotfish*—among many battle-scarred veterans of World War II—nestle in the deep of once-radioactive waters. Today, the image of an atomic



Taking measurements aboard the *Saratoga* (courtesy National Park Service).

tidal wave lofting the fleet skyward still haunts American TV screens.

Divers from the Navy and the National Park Service surveyed the vessels sacrificed to test the might of the new weapon. The project, funded by the Department of Energy (which now oversees nuclear tests), may lead to a marine park managed by the residents of Bikini, finally returning to their homeland decades after being displaced. Marine parks are the forté of the Park Service submerged cultural resources unit, whose divers joined the project.

A report issued in 1991 evaluated the ships as historical, archeological, and recreational resources. Researchers studied the vessels in minute detail—their specifications, why they were used in the tests, and how they went down. Scale drawings of ordnance and radar equipment were gleaned from Navy manuals. Archeologists Dan Lenihan and Dan Murphy, along with historian James Delgado, swam through the site, recording their observations on video and in notes after the dive.

The study concentrated on the *Arkansas* and the *Saratoga*, the two ships closest to ground zero in the Bikini blast. The *Prinz Eugen*, the *Pilotfish*, the *Nagato*, the *Gilliam*, and smaller unnamed vessels were also surveyed during underwater reconnaissance. The results included graphics, photographs, and site descriptions as well as several hours of video footage.

For information contact the National Park Service, Southwest Regional Office, Underwater Archeology Unit (Attn: Dan Lenihan), P.O. Box 728, Santa Fe, NM 87501, ph. 505-988-6750.

Organization of the Federal Archeology Program

The Federal archeology program is based on laws and executive orders enacted by Congress and the president and regulations, guidelines, and standards to carry them out. Compliance with these directives is effected through Federal agency cultural resource and archeological experts in coordination with the historic preservation officer in each state and the Advisory Council on Historic Preservation. The 1974 amendments to the Reservoir Salvage Act and the Archaeological Resources Protection Act of 1979 assigned the Secretary of the Interior a special role in providing guidance, coordination, and oversight for the Federal archeology program, a role that has evolved over the last century.

Archeology became a government concern in the late 1800s. In 1879, Congress authorized the Bureau of Ethnology, later the Bureau of American Ethnology, within the Smithsonian Institution. Archeology was one of the Bureau's areas of focus.

Over the next 25 years, warnings from individuals and professional organizations such as the American Association for the Advancement of Science, the Anthropological Society of Washington, and the Archaeological Institute of America increased public awareness of the destruction of archeological ruins, especially in the Southwest, leading to the passage of the Antiquities Act in 1906. The law authorized the president to protect significant resources on Federal lands, an authority several chief executives used to establish national monuments.

That legislation, along with the 1935 Historic Sites Act, fostered the growth of Federal archeology to serve the public works projects of the 1930s. Following World War II, the program grew along with the country itself, as a massive program of dam and reservoir construction was planned and carried out. The National Park Service and the Smithsonian, along with professional and scholarly groups, assisted the U.S. Army Corps of Engineers and the Bureau of Reclamation—sponsors of the construction—to mitigate damage to archeological sites through the River Basin Archeological Salvage program.

The Federal program evolved further with the National Historic Preservation Act of 1966, which brought together archeologists and those concerned with preserving historic structures in a broader-based national historic preservation program. Additional important laws were passed during the 1970s, including the Archeological and Historic Preservation Act and the Archaeological Resources Protection Act. Today, with the 1990 Native American Graves Protection and Repatriation Act establishing a new relationship between the Federal government and Native Americans, the program is poised once again to meet the demands of a changing nation.

Role of the Secretary of the Interior and the National Park Service

The laws mentioned above give the Secretary of the Interior broad responsibilities and duties relating to archeology and historic preservation conducted by the Federal government. These laws encompass responsibilities for administering and/or promulgating regulations for a variety of archeological and historic preservation activities. They include maintaining the National Register of Historic Places, managing grants-in-aid programs for state and tribal historic preservation, developing standards for state historic preservation programs and archeological permitting and collections management, and providing technical advice, to name a few.

The secretary, in turn, has delegated general responsibilities for Federal archeology to the director of the

National Park Service. The associate director for cultural resources administers the program through the departmental consulting archeologist, who is also chief of the archeological assistance division—the DCA's staff for carrying out these functions. The DCA fulfills the secretary's responsibilities for providing technical guidance, leadership, coordination, and oversight of the Federal archeology program.

Role of Departments and Agencies

Each department and agency is responsible for ensuring that its actions, or those it permits, licenses, or funds, do not destroy significant archeological properties without mitigation of the adverse impacts. The specific means various agencies employ to meet this responsibility are detailed in the section on the role of Federal agencies.

Role of the Advisory Council on Historic Preservation

The National Historic Preservation Act of 1966 directed the Advisory Council on Historic Preservation to provide advice to the president and Congress on historic preservation matters, and to review Federal and Federally assisted activities that affect historic properties. Section 106 of the Act requires that Federal agencies take into account the effect of their projects on properties that may be eligible for the National Register of Historic Places and to allow the Council to comment on those activities. Section 110 of the Act requires that Federal agencies identify, evaluate, and nominate to the National Register all significant archeological resources under agency control or jurisdiction. The Council's regulations (36 CFR 800) outline the process for Federal agencies to comply with Section 106.

Role of Federal, Tribal, and State Historic Preservation Officers

Each Federal agency, state, territory, and freely associated government has an official designated as the historic preservation officer in compliance with the National Historic Preservation Act. Similarly, tribes that choose to manage the NHPA-authorized program on their land have preservation officers. As part of administering historic preservation programs, these officers perform archeological management. The officer plays a key role in consultation between the Advisory Council and Federal agencies and assists in determining National Register eligibility and the effects of agency actions on eligible properties.

Role of the Council on Environmental Quality

The National Environmental Protection Act of 1969 calls for improved Federal planning to discourage environmental damage and to "assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings." The interdisciplinary Council on Environmental Quality recommends policies to the president for improving the environment, which—under regulations implementing the Act—includes archeological resources. The president, through the Council, reports annually to Congress on the environmental state of the nation.

The Act's impact assessment process supplements other legislation designed to protect archeological resources, chiefly the National Historic

Preservation Act, and supports archeological management in the broader context of biological, earthen, atmospheric, and social resource conservation.

Role of Federal Research Organizations

A few Federal agencies have primary research missions that directly or indirectly include archeology but have minimal land management responsibilities. The National Science Foundation, Smithsonian Institution, and the National Endowment for the Humanities directly fund archeological research throughout the United States and overseas.

Staff at the U. S. Geological Survey, National Aeronautics and Space Administration, and Smithsonian Institution also do research with archeological materials and sites. The National Oceanic and Atmospheric Administration supports research on submerged archeological resources in addition to managing marine sanctuaries. Agencies that support archeological research, but which are less well known for it, include the U. S. Public Health Service, National Institutes of Health, and National Institute of Standards and Technology.

Role of Private Archeological and Preservation Organizations

Private archeological and historic preservation organizations offer Federal agencies an opportunity to expand programs, provide public education, and activate large numbers of citizens. These private groups make their memberships available as active constituents in areas such as public participation, lobbying efforts, resource conservation, and professional communications.

American Anthropological Association

The AAA is a professional organization of anthropologists, educators, students, and others interested in the discipline of anthropology. AAA has an external affairs department that includes government affairs, education, minority affairs, a congressional fellowship program, and outreach. The department of information services administers the placement service, newsletter, speakers bureau, surveys, and other programs. The association, which includes physical anthropology and archeology divisions, organizes scholarly meetings and conferences, publishes journals and other publications, and administers grants.

American Society for Conservation Archaeology

ASCA is a group of professional archeologists committed to advancing the conservation ethic and ensuring proper treatment of archeological sites and collections. The society also serves as a forum to keep members informed about legislative and regulatory developments or issues.

Archaeological Conservancy

The conservancy is an organization of citizens concerned with the preservation of prehistoric and historic sites for interpretive or research purposes. The conservancy, through donation or purchase, acquires sites throughout the country for permanent preservation. The organization has a quarterly newsletter and sponsors tours of archeological sites.

Archaeological Institute of America

The AIA, consisting of 85 societies throughout the United States and Canada, promotes a general interest in archeology. Local societies sponsor the AIA lecture program, which brings professional archeologists to the community to lecture on recent discoveries and research.

National Association of State Archaeologists

NASA was established to facilitate communication among state archeologists and thereby contribute to the conservation of cultural resources and the solution of professional archeological problems. NASA develops consensus views on archeological issues and communicates these to government agencies and other organizations involved in the management of cultural resources.

National Trust

The National Trust for Historic Preservation is a private, non-profit organization chartered by Congress. It has a wide range of responsibilities including encouraging public participation in the preservation of sites, buildings, and culturally and historically significant objects as well as advocating preservation policies in legislative, judicial, administrative, and private forums. The trust owns a number of historical properties throughout the United States.

Preservation Action

Preservation Action is a national grassroots organization of state and local preservation organizations and individuals. The group lobbies for a range of historic preservation issues, from obtaining appropriations for the historic preservation fund to developing tax policies that promote preservation of his-

toric properties. The annual meeting in Washington, DC, is in the spring.

Society for American Archaeology

The SAA is an international scholarly and professional association of both professional and avocational archeologists concerned about the discovery, interpretation, and protection of the archeological heritage of America. The SAA office of government relations represents the society in public affairs, focusing on congressional and Federal agency issues. The "Save the Past for the Future" project shows the SAA's commitment to public education and participation.

Society for Archaeological Sciences

The SAS is an organization of archeologists and physical scientists concerned about applications of natural science techniques in archeology to both prehistoric and historic resources. The SAS publishes a quarterly bulletin and holds annual meetings, usually in conjunction with the SAA annual meeting.

Society for Historical Archaeology

The SHA was established to bring archeologists, anthropologists, ethnohistorians, historians, and other interested institutions and individuals together in order to study the period beginning with European contact of non-European areas and the Western Hemisphere in general. The society offers a broad range of publications to its members and the public.

Society for Industrial Archaeology

The SIA is dedicated to creating an awareness of the need to preserve industrial heritage including the study, preservation, and adaptive re-use of industrial sites. Quarterly newsletters, a semi-annual journal, occasional publications, and a yearly conference enable members to pursue this interest.

Society of Professional Archaeologists

SOPA is an organization of professional archeologists whose goal is to build and define professionalism among archeologists; provide a measure against which to evaluate archeological actions and research; establish certification standards; and demonstrate to other archeologists and the public the nature of professional archeology.

The International Role

The Federal government participates in worldwide archeology efforts as a member of the United Nations Educational, Scientific, and Cultural Organization. UNESCO was a chief

sponsor of the 1970 World Heritage Convention, which called for greater international support of significant sites and structures. Following the conference, the National Historic Preservation Act of 1966 was amended to add nominating properties for the World Heritage List to the Secretary of Interior's responsibilities, and to make available training opportunities and information concerning professional conservation methods.

Carrying out the Secretary's responsibilities, the National Park Service, in conjunction with the Advisory Council on Historic Preservation, nominates sites of international importance to the World Heritage List. Examples include Mesa Verde in Arizona and the remains of the 12th-16th century fortress and associated city of Nan Madol, located on the island of Pohnpei, part of the Freely Associated States of Micronesia.

Since 1971, the United States has actively participated as a member of the International Centre for the Study of Preservation and Restoration of Cultural Property; it also encourages professional training in cultural resources management through the International Center for Conservation in Rome. The National Park Service office of international affairs fields over 200 requests annually from foreign countries for assistance in planning, interpretation, training, historic preservation, tourism, and natural and cultural resource management.

The Park Service has also conducted an archeological survey of sites in India. Since 1989, planning teams have prepared development concept plans for the Taj Mahal, Agra Fort, and Fatehpur Sikri as well as for four significant religious sites. Other recent projects have included conservation assistance for former republics of the Soviet Union.

In response to the depletion of artifacts by the lucrative international art market, UNESCO called for adoption of the International Institute for the Unification of Private Law at its 1970 Convention on the Protection of Cultural Property, banning the export or import of stolen archeological goods, and mandating the return of items to the country of origin. Approved by President Nixon in 1970, Congress adopted a watered-down version of the stipulations in 1983. Since then, the law has been utilized in at least six situations with varied success. Cooperation with the FBI and customs officials has led to the return of stolen goods, contributing to the reduction of the value of artifacts as a commodity in the international art market.

Departments and Agencies

The complex workings of the Federal government are reflected in the diversity of departments and agencies and their multitude of individual missions, from managing natural resources to defense. Dozens of departments and agencies carry out their jobs with various types of organizations, funding, and personnel levels.

Archeology is one of the few Federal activities that truly cuts across departmental boundaries and agency missions. Legislation and regulations apply equally. Yet each department and agency meets these mandates in a manner adapted to its own mission. The examples presented here illustrate the diversity and commonality of programs.

Air Force

A. L. Clark

As part of its worldwide historic preservation program, the Air Force currently has surveys in progress at several installations to discover and inventory archeological sites and other historic properties. The Air Force has seven national historic landmarks, two landmark nominations being considered by the Secretary of the Interior, and 17 other National Register properties.

The Air Force gives full consideration to the effects of its activities on historic properties in accordance with the National Historic Preservation Act and the Advisory Council on Historic Preservation's implementing regulations. Archaeological Resources Protection Act permits are issued by headquarters in accordance with the Act's requirements. The Secretary of the Interior's standards for the treatment of historic properties and the advice of State Historic Preservation Officers and the Advisory Council are also frequently used in protecting Air Force historic properties.

Each base and each major command has a designated historic preservation officer. An aggressive training program—including an annual week-long historic preservation workshop, an accredited two-week summer course in historic preservation at Northern Arizona University, a two-week archeological law enforcement course, and the Advisory Council's two-day course on historic preservation law—is provided for these personnel.

Army

Constance Werner Ramirez

Nearly the entire spectrum of cultural history can be found on the 12 million acres occupied by U.S. Army installations. And since many bases are in isolated areas, archeological sites are often well preserved.

To take advantage of these conditions, the Army has developed an archeological management program to preserve and interpret the cultural history of the sites. In the short term, archeological

activities are dictated by the intensity of the Army's impact on sites and the need for site data to evaluate and interpret the archeological record being impacted.

On each installation, the archeological program must ensure that historic places are protected to the extent possible without jeopardizing military missions. In cases involving either historic buildings or archeological sites, the proper preservation treatment must reflect prudent use of public funds and be feasible within the constraints of the military.

The Army's program has been evolving since the early 1970s to achieve several goals including preservation of places associated with the history of the Army and the United States and integration of plans for historic and archeological resources with long-term management. To make good management decisions, Army installations have had to undertake extensive archeological research programs and impact studies. The research has included overviews of roughly seven million acres, field surveys of approximately three million acres, and extensive analytical work, including the use of geographical information systems combined with multivariate statistical analysis programs on more than 10,000 sites.

The Army tries to limit excavation to those sites with a high probability of finding important data and/or data that will increase the knowledge of other sites. The Army encourages installations to provide information to the public in leaflets, exhibits, and technical reports.

As a consequence of the Army's program, the history and prehistory of large parts of several states have been rewritten, making an important contribution to the preservation plans for each state.

Army Corps of Engineers

Larry Banks

Less than 20 years ago, the Corps of Engineers had an archeological staff of one. The formal archeological program began in 1970 as an outgrowth of the National Environmental Policy Act of 1969. As a direct result of the 1974

amendment to the Reservoir Salvage Act of 1960, the real growth of archeological staffing in the corps began.

Since then, the Corps has grown to approximately 70 positions. Major archeological investigations are primarily conducted through contract administration, while small projects (local flood protection and regulatory permit actions) are often performed by in-house staff.

In addition to project-specific activities, the Corps is conducting an overview that may become a model Corps-wide. One of the current research efforts concerns impacts to archeological sites and attempts to preserve them in place.

Bureau of Indian Affairs

Donald Sutherland

The Bureau of Indian Affairs is the principal agent carrying out the government-to-government relationship with federally recognized Indian tribes. The Bureau also carries out responsibilities for property it holds in trust for federally recognized tribes and individual Indians. In doing so, the Bureau seeks to utilize the skills and capabilities of Indian and Alaskan Native people in the direction and management of programs for their benefit.

The Bureau's trust responsibilities encompass 488 federally recognized tribes and some 53 million acres of land. Actions are carried out through a network of 12 area offices and 84 agencies that, as a whole, handle up to 70,000 Federal undertakings per year. A substantial number have the potential to affect archeological resources.

In response, the Bureau maintains full-time professional archeologists and temporary or seasonal assistants at most of its area offices. Day to day archeological resources management is handled at the area level through a combination of in-house staff, competitive contracts and, unique to trust lands, contracts under the Indian Self-Determination and Education Assistant Acts. These are non-competitive contracts under which tribes may assume responsibility for services, such as archeological surveys, otherwise Federally provided. General policymaking and conflict resolution are handled by a professional archeologist at BIA headquarters in Washington, DC.

Consistent with overall Bureau policy, the future role of archeologists within the BIA is more likely to be that of assisting Indians and Alaskan Native people to become directly involved in the management of trust lands.

Bureau of Land Management

Richard Brook

The Bureau of Land Management is responsible for the Federal government's largest and most varied population of cultural resources. Although the Bureau has inventoried only about 4 percent of its lands in the dozen years or so since launching a cultural resource management program, about 150,000 archeological and historic properties have been recorded. Estimates would put probable totals well into the millions.

The Bureau's policy for managing these fragile and non-renewable cultural resources is based on the Federal Land Policy and Management Act of 1976 and numerous other Federal laws and executive orders. Under these directives, the policy is to: 1) ensure that cultural resources are given full consideration in all land-use planning and management decisions; 2) manage cultural resources so that scientific and sociocultural values are maintained and enhanced; 3) avoid inadvertent damage to cultural resources; and 4) protect and preserve representative samples for the sake of scientific use and sociocultural benefits of present and future generations.

The Bureau is also responsible for the management of public lands in the interest of the American people. Management is based upon the principles of multiple use and sustained yield, a combination of uses that takes into account the needs of future generations for renewable and non-renewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness and natural, scenic, scientific and cultural resources.

Bureau of Reclamation

Ed Friedman

The Bureau of Reclamation is responsible for developing and conserving the nation's water resources in the western United States. The Bureau's original purpose, "to provide for the reclamation of arid and semiarid lands in the West," today covers a wide range of interrelated functions. These include providing municipal and industrial water supplies, hydroelectric power generation, agricultural irrigation, water quality improvement, flood control, outdoor recreation, and research on water-related design, construction, materials, atmospheric management, and wind and solar power.

The Bureau's programs most frequently result from close cooperation with Congress, Federal agencies, states,

local governments, academic institutions, water user organizations, and other concerned groups. Because most of the mission is accomplished through construction, many of the archeological properties that the Bureau is responsible for managing are located and evaluated during building and land-altering projects.

To the extent possible, the policy is to preserve these properties and avoid affecting them. Yet, when it is determined that a project's public benefit overrides the policy, the Bureau will carry out measures to mitigate the effects to the properties through excavation and other means. Through careful planning and a sensitivity to regional research, these efforts lead to positive contributions to archeological knowledge rather than mere data collection.

Interestingly, many features of early Bureau projects have themselves become significant cultural properties in the history of water development technology. When these properties are altered or modified for current technological reasons, historical archeological methods are often employed to document them.

The Bureau maintains a small permanent staff to carry out its archeological/cultural resource management responsibilities. Reclamation's senior archeologist/preservation officer is located at the Engineering and Research Center in Denver and provides overall policy and guidance for the program. Responsibility for carrying out the program is delegated to six regional archeologists. As Reclamation's staff numbers only 20, most work—inventory and excavation as well as curation of recovered artifacts—is accomplished through contracts with universities, museums, and private consultants as well as through agreements with other agencies.

Department of Energy

Lois Thompson

With roughly 2.5 million acres of land to manage, the Department of Energy has its hands full protecting cultural resources on its properties.

A comprehensive program is being developed to integrate cultural resources into the department's nationwide environmental and land management responsibilities. The program's goals are to assure compliance with statutory and regulatory requirements related to cultural resources management, including archeology; meet stewardship responsibilities; enhance managers' awareness and appreciation of cultural resource

preservation and effectiveness of their decision making; promote outreach with Native American tribes and other traditional peoples with interests in the local natural and cultural resources; and endorse the Federal program.

Working towards those goals, the Department has recently issued a departmental American Indian policy, nominated several properties to the National Register of Historic Places, held archeology programs for the public at DOE facilities, and issued guidance memoranda and briefs to personnel to increase awareness of cultural resource issues.

A key provision of the department's program is the development of cultural resource preparation guidelines for management plans for each DOE facility or program. Utilizing a range of outside input, the cultural resource management plan will document strategies designed to identify, evaluate, and manage cultural resources. Plans will identify short- and long-term resource management goals and the procedures to achieve them.

Department of Energy, Western Area Power Administration

Sue Froeschle

Western Area Power Administration was established as a power marketing agency within the Department of Energy in 1977. Western is responsible for the Federal electric power marketing and transmission function in 15 central and western states encompassing a 1.3 million-square-mile geographic area. Power is sold to more than 550 customers consisting of cooperatives, municipalities, public utility districts, private utilities, Federal and state agencies, irrigation districts, and project use customers. The wholesale power customers, in turn, provide service to millions of retail customers. Responsibilities include the operation and maintenance of over 16,000 miles of transmission lines, more than 225 substations, and related power facilities. Western also plans for construction, operation, and maintenance of additional Federal transmission facilities that may be authorized in the future.

In carrying out its responsibilities, Western considers the effect its efforts have on cultural resources as directed by the National Historic Preservation Act of 1966, as amended, and as implemented by the Advisory Council on Historic Preservation regulations, 36 CFR 800. Undertakings range from minor enlargements of a substation area to major interstate transmission line construction.

Typically, Western's five area offices initiate consultation with the State Historic Preservation Officer when an archeological site is identified. A letter is sent to the officer as soon as planning for a proposed project is far enough along to provide adequate information concerning action. All areas affected by undertakings and all Western owned or acquired lands, or lands in which Western acquires an interest, are evaluated.

Cultural resource responsibilities are considered fully in planning, construction, operation, and maintenance. It is Western's policy to avoid cultural resources, where feasible. In assessing future energy needs, proposed or existing transmission lines have been re-routed to avoid cultural resources. In addition, wooden transmission poles in areas identified as eligible for the National Register have been removed or topped.

When alternatives are not possible a mitigation plan is developed to address the project's impact. Western's historic preservation officer initiates consultation with the SHPO and the Advisory Council on Historic Preservation. Compliance activities outlined in the plan are then carried out and reported to the SHPO and the Council.

Department of Veterans Affairs

Karen Ronne Tupek

As part of its responsibilities for managing facilities, the Department of Veterans Affairs conducts archeological surveys, with further investigations as necessary, to identify and assess potential resources in the early planning phases of proposed construction and land development. Projects are planned or sited to avoid known resources.

The VA conducts surveys in one of two ways: as part of the environmental impact statement/consultant contract before land acquisition for new national cemeteries, such as recently done near Saratoga Battlefield in Albany; or as part of architect or engineer contracts for comprehensive, individual historic preservation plans for medical centers.

Environmental Protection Agency

John Gerba

The Environmental Protection Agency incorporates responsibilities for archeological cultural resource management issues under the Archeological and Historic Preservation Act and Executive Order 11593, "Protection and Enhancement of the Cultural Environment," as codified in Subpart C, 40 CFR Part 6,

"Procedures for Implementing the Requirements of the Council on Environmental Quality on the National Environmental Protection Act."

Generally, compliance with these authorities, as well as with 12 other environmentally related statutes, is accomplished as a normal activity in complying with NEPA. The vehicle used is the Section 106 consultation process with appropriate State Historic Preservation Offices and the Advisory Council on Historic Preservation under the National Historic Preservation Act.

Currently, the agency is studying its obligations under the Native American Graves Protection and Repatriation Act. The agency has established a "National Indian Workgroup" to consult and coordinate EPA's programmatic and statutory obligations with these tribes.

Federal Bureau of Prisons

John Sprinkle, Louis Berger & Associates

As part of its nationwide program to identify sites for development of new Federal correctional institutions, the Federal Bureau of Prisons has undertaken 23 surveys in over 20 states during the last four years.

Consideration of archeological resources is integrated in the Bureau's site selection process as is consultation with the appropriate State Historic Preservation Office. During reconnaissance, the Bureau often examines project areas that are larger than needed for development so that cultural resources can influence the project area's design constraints. Intensive surveys are then conducted in areas where cultural resources sensitivity and potential impacts overlap. After further design review, testing, and data recovery, excavations are conducted on significant archeological resources.

During a survey of a proposed facility in Allenwood, Pennsylvania, for example, twenty-three sites were identified; all but six were avoided through redesign. Subsequent investigations at a related facility resulted in data recovery excavations at a stratified, multi-component prehistoric site along the floodplain of the Susquehanna River.

Federal Energy Regulatory Commission

Richard Hoffman

The Federal Energy Regulatory Commission is an independent, five-member commission within the Department of Energy, responsible for

setting rates and charges of power sources including hydroelectric power.

Applicants applying for a FERC certificate to construct natural gas facilities combine state-of-the-art technology with traditional archeological methods and techniques to analyze past cultures. Opportunities exist for landowners and the public to participate. FERC encourages avoiding archeological resources by realigning or constricting pipeline rights-of-way and by boring or directional drilling beneath sites.

Federal Highway Administration

Bruce Eberle

The Department of Transportation's Federal Highway Administration is concerned with the total operation and environment of highway systems, giving full consideration to the impact of highway development and travel on historic architectural and archeological resources.

Working closely with state departments of transportation, the administration ensures that resources are identified and evaluated for each project alternative through the Environmental Impact Review and Section 106 processes. Some state departments maintain sufficient staff to perform the necessary investigations and field work to locate and evaluate resources that are, or may be, eligible for the National Register of Historic Places. Contractors also perform this work.

The majority of important archeological resources are avoided through project redesign or relocation. FHWA and the state departments seek to develop treatment plans that interpret resources so the public can gain a greater appreciation for national history and prehistory. When archeological resources cannot be avoided, they are mitigated through planned excavation and publication.

Fish & Wildlife Service

Kevin Kilcullen

The nearly 90 million acres managed by the Fish & Wildlife Service are geographically diverse, ranging from the north slope of Alaska to the islands of the Caribbean. The Service is the nation's primary agency for managing wildlife and their habitat. It administers the extensive holdings of the National Wildlife Refuge System, conducts wildlife research, and provides technical and scientific assistance to other Federal agencies, state governments, and private organizations.

Consistent with overall objectives, the Service's cultural resource program

identifies and protects many outstanding examples of our history, prehistory, and architecture. This spectrum is represented by sites associated with maritime history, such as lighthouses and shipwrecks, as well as prehistoric evidence of what may be some of the New World's earliest inhabitants in Alaska.

Efforts to identify and protect cultural resources are primarily coordinated by the regional offices. Because of the widespread distribution of a large number of refuges and other facilities, a regional historic preservation officer is generally responsible for seeing that agency activities meet historic preservation requirements and standards. The officer also provides technical advice. Overall program coordination is monitored by the agency's Federal preservation officer and Service archeologist in Washington, DC.

Forest Service

Evan DeBloois

The Forest Service was established by Congress in 1905 to manage forests on public lands throughout the United States. Its job is to manage the National Forest System, conduct research, and assist the management of state and private forest land for today's consumers as well as future generations.

In the Forest Service, cultural resource management, including management of archeological resources, began in the early 1970s. It has two major concerns: 1) cultural resource management in support of other resource actions, and 2) cultural resource management to identify, evaluate, protect, and enhance the resource in the public interest.

In the first instance, a number of activities are carried out to identify and protect cultural properties from various development activities proposed by the agency or its permittees. These follow the basic procedures outlined in 36 CFR 800. The second group of activities involves identifying important cultural properties and implementing plans to conserve, interpret, stabilize, and provide public access to the resources and/or the information they contain.

The Forest Service is a "line-staff" organization with four levels of administrative authority and responsibility. Cultural resource specialists are located at each level with the majority at the forest supervisor's office.

General Services Administration

Thomas F. King

Recent construction of new Federal facilities around the country has involved the General Service

Administration in archeology more than ever before. Discoveries like a colonial-era African burial ground at Foley Square in Manhattan and a 19th century Chinese-American neighborhood in Portland have made it necessary to retain a senior professional archeologist at headquarters to help ensure that archeological resources are properly addressed in planning.

GSA is primarily responsible for constructing and managing Federal facilities around the country. The Administration addresses archeology through compliance with Section 106 of the National Historic Preservation Act. Archeological resources are identified during Section 106 identification, and preservation in place or data recovery is carried out pursuant to Section 106 memoranda of agreements.

Minerals Management Service

Melanie Stright

The Minerals Management Service was established in 1982 as the Bureau within the Department of Interior responsible for managing resources of the outer continental shelf. As a result of legislation, the Service is charged with balancing the expeditious and orderly leasing, exploration, and development of Federal offshore lands with protecting human, marine, and coastal environments while ensuring the public fair and equitable return on these resources.

The primary tool of the archeology program is the regional predictive model, or baseline study, aimed at identifying areas of the shelf that are expected to contain significant archeological resources. The basic premise for a baseline study is that submerged archeological sites are not randomly distributed on the sea bottom. Prehistoric sites are expected to occur in a manner related to the shelf's paleogeography while shipwrecks are expected to occur in relation to present and past seaports, sea routes, and hazards to navigation.

For a lease sale, the Service does an in-house update of the appropriate baseline study. These updates, for both prehistoric and historic resources, are part of the environmental review process and are used to determine whether to require archeological resource reports of the lease tract.

The archeological survey, if necessary, is conducted in conjunction with a geohazards survey, required for all oil and gas exploration. The lease tract is surveyed by remote sensing techniques using high resolution geophysical sys-

tems. The data generated by these surveys are interpreted by a geophysicist and an archeologist and then reviewed. As part of the review process mitigation is developed by the Service in consultation with the appropriate State Historic Preservation Officer, to provide protection for the resources.

National Oceanic and Atmospheric Administration

Bruce G. Terrell

The mission of NOAA, formed in 1970, is to explore and chart the oceans and manage and conserve their resources. The Administration conducts an integrated program of management, research, and services related to the protection and use of marine resources and their habitats, natural and cultural resources, and the nation's coastal zone.

NOAA's national marine sanctuary program includes active cultural resource management committed to stewardship responsibilities for the sanctuaries' prehistoric and historic shipwrecks. The marine archeology and maritime history unit is inventorying the submerged archeological resources on the seabed of the 13 national marine sanctuaries. To that end, the Administration is developing an interactive computerized database and GIS system to record and locate documented prehistoric and shipwreck archeological sites.

An historical context study of the sanctuaries is nearing completion as well. NOAA is also developing guidelines and standards to regulate archeological research permits for research within the sanctuaries in accordance with the Federal archeological program as recommended by the National Park Service.

National Park Service (The National Park System Archeological Program)

Craig W. Davis and Douglas H. Scovill

The National Park Service was established by Congress on August 25, 1916, to conserve the scenery, natural and historic objects, and wildlife within parks, monuments, and reservations and provide for the public enjoyment of these resources so as to leave them unimpaired for future generations.

Today, the National Park System includes over 340 areas, totaling approximately 80 million acres. About 60 percent of the units in the system were established in whole, or in part, for their cultural resources. Surveys have

revealed that these areas contain numerous significant prehistoric and historic resources.

The National Park System is renowned for its archeological areas: Alaska's Cape Krusenstern National Monument, Colorado's Mesa Verde National Park (a World Heritage Site), Iowa's Effigy Mounds National Monument, Hawaii's Pu'uhonua o Honaunau National Historical Park on the island of Kona, Georgia's Ocmulgee National Monument, and numerous others. The preservation, protection, and public interpretation of these nationally significant archeological resources form a cornerstone of the park program and contribute to the public's perception of the need to conserve the nation's archeological patrimony.

The majority of archeologists supporting park programs are located in the service's ten regional offices and four archeological centers. Approximately ten parks have resident archeologists. These specialists provide park archeological and historical resources identification, evaluation, treatment, and interpretation services, and support park and regional protection efforts. They carry out activities to provide compliance with the provisions of environmental and historic preservation laws and regulations.

Staff in the archeological centers conduct special studies, apply state-of-the-art technologies servicewide, and provide special facilities for analysis, conservation, and curation of archeological materials and records. The Santa Fe center hosts the submerged cultural resources unit, which supports all regions in the identification, evaluation, protection, and interpretation of submerged resources such as prehistoric sites and shipwrecks. Archeologists also work out of the Denver service center, which supports, under regional oversight, park construction projects.

The anthropology division develops servicewide archeological program policies, guidelines, and standards applying to the units of the park system, and monitors program execution by field offices and parks. The archeology program is closely coordinated with parallel programs in history, historic architecture, and curation of collections, and with the new ethnography program currently under development.

The archeological function is concerned with preservation, protection, and visitor use activities related to the archeological aspects of the cultural resources in the National Park System.

Activities of the National Park Service's departmental consulting archeologist and archeological assistance division are discussed in another section.

Navy/Marine Corps

John Bernard Murphy

The Navy and Marine Corps are not only charged with protecting the nation, but also the nation's heritage. This mission began in the 1870s when the War Department was given responsibility for protecting Yellowstone, the nation's first national park. Now all Federal agencies, including the Navy and the Marine Corps, are required by law and executive order to take measures to identify, preserve, and protect historic and prehistoric properties.

An extensive Hawaii burial ground, located beneath Kaneoche Marine Corps Air Station in Oahu, is composed of sand dunes in which Hawaiians buried their dead. Over 1,000 burials have been documented at the site since its discovery in 1921. The Navy and Marine Corps considers it important to preserve the subsurface integrity of the site.

Another unique historic property maintained by the Navy is the battleship USS *Missouri*, which fought during World War II and Korea. This ship—built in the Brooklyn Naval Shipyard and commissioned on June 11, 1944—was the scene of the signing of the formal instruments of Japan's surrender in Tokyo Bay on September 2, 1945. It was retrofitted and reactivated in 1986.

Office of Surface Mining, Reclamation, and Enforcement

Susan Hudak

The Office of Surface Mining, Reclamation, and Enforcement is responsible for implementing the Surface Mining Control and Reclamation Act of 1977. This law establishes a program to protect society and the environment, including archeological resources, from the adverse effects of surface coal mining while assuring the coal supply essential to the nation. The law further specifies that, to the extent feasible, these programs should be carried out by the states, under state laws and programs reviewed annually by the Office.

Because the Office is a regulatory authority that carries out most of its activities through state programs, the basis of its historic resource responsibilities and activities differ from situation to situation. In some cases, the Office functions as the regulatory authority in the permitting of surface coal mining opera-

tions. This occurs in states that have not developed their own regulatory programs, on Federal lands in states with their own programs but which have not been granted authority to regulate Federal lands, and on Indian lands. In these situations, permits issued by the Office are direct Federal actions or undertakings subject to the requirements of Section 106.

Rural Electrification Administration

Jennifer Corwin

Established in 1935, the Rural Electrification Administration is a credit agency of the Department of Agriculture that assists rural electric and telephone utilities in obtaining financing.

When it is determined that proposed construction will affect an archeological site, the Administration consults with the State Historic Preservation Officer and other interested parties to assess levels of impact and examine alternative plans and mitigation measures. Often a proposed project, such as an overhead utility line, can avoid an archeological site by spanning it. However, if avoidance is not possible, the Administration will ensure that a qualified archeological consultant is hired to perform surveys, conduct excavations, and monitor project construction as needed.

Soil Conservation Service

Michael Kaczor

The Soil Conservation Service, an agency in the Department of Agriculture, provides technical, and in some cases financial, assistance to protect the nation's soil, water, and related resources. It assists the public through nearly 3,000 locally organized and run conservation districts, which generally follow county boundaries.

The Service's cultural resources program has three objectives: 1) to help protect archeological sites from erosion; 2) to ensure that significant cultural resources are not inadvertently destroyed by conservation activities carried out with Service assistance; and 3) to help scientists obtain valuable environmental information from sites.

To protect sites from erosion, the Service usually works with other Federal agencies, State Historic Preservation Officers, and local governments. Recently, the Service provided erosion control assistance to the Grand Village of Natchez, a national historic landmark in Mitchell, South Dakota, and to a number of prehistoric and historic archeological

sites in St. Mary's City, a national historic landmark in southern Maryland.

To ensure that significant cultural resources are not inadvertently destroyed by its assistance activities, the Service conducts review, survey, and, if necessary, mitigation activities. A recent highlight was the completion of data recovery on the Pilcher Creek archeological site in eastern Oregon. The site, located in a Service watershed project area, was excavated under contract by Oregon State University. It is the first upland Windust site (ca. 8-10,000 years ago) in the Pacific Northwest and has three meters of stratified deposits.

In conducting cultural resource studies, the Service tries to obtain information important to other scientific disciplines. For example, soil information was obtained as part of the archeological data recovery of the Effigy Rabbit site in Tennessee.

Tennessee Valley Authority

J. Bennett Graham

The Tennessee Valley Authority was established as an independent corporate Federal agency by Congress in 1933 to provide flood control, improve navigation, produce electric power, and provide planning for the Tennessee Valley—an area long devastated by flooding, soil erosion, and widespread poverty. Along with its role as one of the nation's largest

electric power producers, TVA continues to be a regional development and resource managing agency.

Through a cultural resources program operating out of the office of natural resources and economic development, TVA seeks to identify and protect significant cultural resources on its lands. It considers effects of TVA projects and seeks comments from state agencies and the Advisory Council on Historic Preservation on appropriate strategies to avoid or mitigate potential damage.

The office carries out cultural resource inventories of TVA property and determines when resources should be nominated to the National Register of Historic Places. It also prepares management, development, and protection plans in cooperation with the TVA office having custody of the property and is responsible for issuing permits for archeological research on TVA lands. Finally, the office recommends provisions for protection of significant cultural resources for inclusion in deeds or other documents conveying TVA lands or land rights.

A series of monographs resulting from archeological surveys of its major projects over the past 60 years outlines the archeological commitment of the TVA. Surveys continue today as a part of the comprehensive archeological inventory of TVA properties across the region.

Government, the Public, and the Law

Reflecting the interests and concerns of the American public, the Federal government's support of archeology has led to an array of laws, regulations, and executive orders designed to protect archeological sites and resources. Although Federal agencies take different approaches to their legal responsibilities regarding archeological resources to meet their individual directives, the Federal government has developed a national program based on legislation to manage and protect historic and prehistoric sites on lands administered by the Federal government or associated with Federally assisted or licensed projects.

The Antiquities Act of 1906 (P.L. 59-209, 16 U.S.C. 431-433) was the first general law providing protection for archeological resources. It protects all historic and prehistoric sites on Federal lands and prohibits excavation or destruction of such antiquities without the permission (antiquities permit) of the secretary of the department having jurisdiction. It also authorizes the president to declare areas of public lands as national monu-

ments and to reserve or accept private lands for that purpose. Applicable regulation: 43 CFR 3, Antiquities Act of 1906.

The National Park Service Organic Act of 1916 (P.L. 64-235) states that the parks are "...to conserve the scenery and the natural and historic objects, and the wildlife and to provide for the enjoyment of the same in such a manner and by such means as will leave them unim-

paired for the enjoyment of future generations.”

The Historic Sites Act of 1935 (P.L. 74-292) (P.L. 74-292, 16 U.S.C. 461-467) declares as national policy the preservation for public use of historic sites, buildings, objects, and properties of national significance. It gives the Secretary of the Interior authority to make historic surveys, to secure and preserve data on historic sites, and to acquire and preserve archeological and historic sites. Subsequently, this authority allowed the establishment of the River Basin Survey, which surveyed and excavated hundreds of sites in advance of large water development projects in the major river basins of the Midwest.

This Act also establishes the National Historic Landmarks program for designating properties having exceptional value in commemorating or illustrating the history of the United States. It gives the Secretary of Interior broad powers to protect nationally significant historic properties, including the Secretary's authority to establish and acquire nationally significant historic sites. Applicable regulations: 36 CFR 65, National Historic Landmarks and 36 CFR 68, DOI Standards for Historic Preservation.

The Federal-Aid Highway Act of 1956 (P.L. 91-605), because of public concern about the destruction of archeological sites as a result of highway construction, included a provision prohibiting the use of historic lands unless there was no feasible alternative. This is the first act to recognize that archeological sites are important for their data content, and to provide a source of funding for collecting archeological data.

The Department of Transportation Act of 1966 (P.L. 89-670, 79 U.S.C. 1651-59) directs the Secretary of Transportation not to approve any program or project that requires the use of land from a historic site of national, state, or local significance unless there is no feasible and prudent alternative to use such lands and such program includes all possible planning to minimize harm to such historic properties. Section 7f of the Act requires as national policy to make a special effort to enhance natural beauty and historic sites along transportation routes. This applies to the Federal Highway Administration, Federal Aviation Administration, the Urban Mass Transportation Administration, and the U.S. Coast Guard.

The National Historic Preservation Act of 1966 as amended (P.L. 95-515)

(P.L. 102-575, 16 U.S.C. 470-470t) establishes as Federal policy the protection of historic sites and values in cooperation with other nations, states, and local governments. It establishes a program of grants-in-aid to states for historic preservation activities. Subsequent amendments designated the State Historic Preservation Officer as the individual responsible for administering programs in the states.

The Act also created the President's Advisory Council on Historic Preservation. Federal agencies are required to consider the effects of their undertakings on historic resources, and to give the Advisory Council a reasonable opportunity to comment on those undertakings. Applicable regulations: 36 CFR 60, National Register of Historic Places; 36 CFR 65, National Historic Landmarks; 36 CFR 800, "Protection of Historic Properties" (Advisory Council on Historic Preservation); 36 CFR 801, "Urban Development Action Grant Program - Historic Preservation Requirements"; 36 CFR 61, Procedures for Approved State and Local Government Programs; and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.

In 1980, amendments were passed to codify portions of **Executive Order 11593**, requiring an inventory of Federal resources and Federal agency programs to protect historic resources; clarify Federal agency inventory considerations and evaluation of resources to be excluded from the 1% fund limit under the 1974 act (only actual data recovery activities must be included within the 1%); and authorize Federal agencies to charge reasonable costs for protection activities to Federal permittees and licenses. This last provision resolved a controversy about whether private interests could be required to pay costs of protecting archeological and historic resources that would otherwise be destroyed by those activities.

The amendments also established policies and authorities for national historic preservation programs. Among these are the National Register of Historic Places; the Advisory Council on Historic Preservation including, under section 106, the Council's powers to review Federal undertakings that affect historic properties; and a partnership with State Historic Preservation Offices and, subsequently, certified local governments. It also created the Historic Preservation Fund with matching grants

to SHPOs and the National Trust for Historic Preservation.

Amendments passed in 1992, commonly known as the Fowler Bill, broadened historic preservation issues to include Native American and other indigenous American people, as well as to bring about greater cooperation with state governments and non-profit organizations.

The National Environmental Policy Act of 1969 (P.L. 91-190, 40 U.S. 1500-17.7, 42 U.S.C. 4321-61) requires Federal agencies to prepare an environmental impact statement for every major Federal action that affects the quality of the human environment, including both natural and cultural resources. The act offered procedural protection from Federal action for natural and cultural resources of the human environment. It can be used to apply for cultural resources not found to be eligible for listing on the National Register for Historic Places (and therefore under the purview of NHPA). Finally, it also created the Council on Environmental Quality.

The Reservoir Salvage Act (P.L. 86-523) requires Federal agencies to provide notice to the Secretary of the Interior of any dam constructions and, if archeological resources are found, for recovery or salvage of them. The law was amended in 1974 to become the **Archeological and Historic Preservation Act** (P.L. 93-291, 16 U.S.C. 469-469c), commonly known as the "Moss-Bennett Act." The amended law applies to any agency whenever it received information that a direct or federally assisted activity could cause irreparable harm to prehistorical, historical, or archeological data; up to 1% of project funds could be used to pay for salvage work. The NHPA authorizes additional funding for this purpose.

The Act extended the provisions to all Federal construction activities and all Federally licensed or assisted activities that will cause loss of scientific, prehistoric, or archeological data. It requires the Secretary of the Interior to coordinate this effort, and to report annually to Congress on the program. It permits agencies either to undertake necessary protection activities on their own or to transfer to the secretary up to 1% of the total authorized for expenditure on a Federal or Federally assisted or licensed project to enable the secretary to undertake the necessary protection activities.

The American Indian Religious Freedom Act of 1978 (P.L. 95-341) makes it a policy of the government to protect and preserve for American Indians,

Eskimos, Aleuts, and Native Hawaiians their inherent right of freedom to believe, express, and exercise their traditional religions. It allows them access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rights. It further directs various Federal departments, agencies, and other instrumentalities responsible for administering relevant laws to evaluate their policies and procedures in consultation with Native traditional religious leaders to determine changes necessary to protect and preserve Native American cultural and religious practices. Applicable regulation: 43 CFR 7, ARPA Permitting.

The Archaeological Resources Protection Act of 1979 (P.L. 96-95, 16 U.S.C. 470aa-470ll) supplements the provisions of the 1906 Antiquities Act. The law makes it illegal to excavate or remove from Federal or Indian lands any archeological resources without a permit from the land manager. Permits may be issued only to educational or scientific institutions, and only if the resulting activities will increase knowledge about archeological resources. Major penalties for violating the law, both fines and imprisonment, are included. The Act authorizes the Secretary of the Interior to promulgate regulations for the ultimate disposition of materials recovered as a result of permitted activities. Permits for archeological work on tribal lands cannot be issued without the consent of the tribe. The Act also regulates the taking of archeological resources on Federal lands, contains a permit system for excavating or remov-

ing archeological resources, and places prohibitions on the sale, purchase, transport or entry into interstate commerce of items taken in violation of the Act. (P.L.100-555; 100-588)

Two amendments have been made to ARPA since it was enacted. P.L. 100-555 requires Federal agencies to develop plans for surveying lands not scheduled for projects and develop and implement a uniform system for reporting and recording archeological violations. P.L. 100-588 lowers the felony threshold to \$500, adding attempts to loot or vandalize as a crime and requiring Federal land managers to develop public awareness programs.

The Abandoned Shipwreck Act of 1987 (P.L. 100-298), signed into law April 28, 1988, transfers to states title to abandoned shipwrecks that are on or eligible for the National Register of Historic Places or in protected coral formations (except wrecks on Federal or Indian lands). It also clarifies the definition of "embedded," requires the Secretary of Interior to prepare guidelines to help states and Federal agencies, and encourages states to create underwater parks.

The Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3048, 25 USC 3001 note.), signed into law on November 16, 1990, requires Federal agencies and museums to inventory human remains and associated funerary objects and to provide culturally affiliated tribes with the inventory of collections. The Act requires repatriation, on request, to the culturally affiliated tribes and establishes a grant program within the

Department of the Interior to assist tribes and Native Hawaiian organizations in repatriation and to assist museums in preparing the inventories and collections summaries. It also makes the sale or purchase of Native American human remains, whether or not they derive from Federal or Indian lands, illegal.

The Legacy Resource Management Program was established by Congress through the Department of Defense Appropriations Act, Section 8120 of 1991, to help the Department of Defense enhance its cultural and natural resource stewardship of more than 25 million acres of land under its jurisdiction. Legacy activities integrate the management of these resources with the DOD mission and the public interest. Archeological resource preservation, conservation, and management are important elements in this program.



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