U.S. Department of the Interior
National Park Service

Archeology Program

The Goals and Accomplishments of the Federal Archeology Program

The Secretary of the Interior's Report to Congress on the Federal Archeology Program, 1998-2003

Compiled by
Departmental Consulting Archeologist
Archeology Program
National Park Service
Washington, DC

2009

THE SECRETARY OF THE INTERIOR

WASHINGTON

JAN 1 3 2009

The Honorable Jeff Bingaman
Chairman, Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

I am pleased to transmit to you my *Report to Congress on the Federal Archeology Program* as required by the Archaeological Resources Protection Act. America's archeological resources are an important part of our rich and irreplaceable cultural heritage. With proper care and study, they can illuminate the ancient and modern history of the American people. Agencies that manage these resources are responsible to the American people for their appropriate use, preservation, and protection.

The Secretary of the Interior provides leadership and coordination through the National Park Service for Federal archeological activities Government-wide. The enclosed report summarizes data about the archeological activities reported by thirty-two Federal agencies for the period 1998 to 2003. Each agency undertakes archeological activities to fulfill its statutory and regulatory obligations. These statutes ensure that Federal agencies perform their stewardship responsibilities on behalf of all Americans towards the proper care and use of the nation's archeological heritage for future generations.

This first report of the new century outlines the challenges facing Federal agencies in the 21st century. The following recommendations aim to ensure that Federal agencies are able to identify, document, and care for archeological sites, collections, and records, and make information about American archeology available to the public. The Secretary makes six recommendations about Federal archeological activities in the report.

Recommendation 1: Locate, interpret, and document archeological sites to promote resource preservation and inform management decisions.

Recommendation 2: Strengthen relationships between Indian tribes and Federal agencies regarding archeology and archeological resources.

Recommendation 3: Prevent theft of archeological resources through support and training to enforce existing laws.

Recommendation 4: Provide resources to care for Federally-owned and administered archeological collections and records.

Recommendation 5: Share archeological research results for educational, scientific, and cultural purposes.

Recommendation 6: Promote public outreach and education programs about archeology and archeological resources.

An identical letter is being sent to Representative Nick J. Rahall II, Chairman of the Committee on Natural Resources.

Sincerely,

DIRK KEMPTHORNE

Enclosure

THE SECRETARY OF THE INTERIOR

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JAN 1 6 2009

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Chairman, Committee on Natural Resources
United States House of Representatives
Washington, D.C. 20515

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The Secretary of the Interior provides leadership and coordination through the National Park Service for Federal archeological activities government-wide. The enclosed report summarizes data about the archeological activities reported by 32 Federal agencies for the period 1998 to 2003. Each agency undertakes archeological activities to fulfill its statutory and regulatory obligations. These statutes ensure that Federal agencies perform their stewardship responsibilities on behalf of all Americans towards the proper care and use of the nation's archeological heritage for future generations.

This first report of the new century outlines the challenges facing Federal agencies in the 21st century. The following recommendations aim to ensure that Federal agencies are able to identify, document, and care for archeological sites, collections, and records, and make information about American archeology available to the public. The Secretary makes six recommendations about Federal archeological activities in the report.

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EXECUTIVE SUMMARY

American archeological resources are part of America's irreplaceable national heritage and illuminate the ancient and modern history of the people and land encompassed by the United States. Archeological resources include sites, collections, data, and reports associated with important events, individuals, and groups. They have much to tell us about people and their lives, interaction with the environment, and development of communities. Agencies that manage these resources are responsible to the American people for their appropriate use, preservation, and protection. Archeological data provides a unique perspective on research problems from the development of specific ancient and historical events and culture histories to changes associated with global warming.

The Secretary of the Interior provides leadership and coordination through the National Park Service for archeological activities throughout the Federal government. The Secretary reports to Congress on archeological activities as directed by the Archaeological Resources Protection Act and its regulations (ARPA; 16 U.S.C. 470ll; 43 CFR 7.19). The Archeological and Historic Preservation Act of 1974 mandated that the Secretary of the Interior should submit an annual report to Congress on the scope and effectiveness of the program, the specific projects surveyed and the results produced, and the costs incurred by the Federal government. Amendments to the Archaeological Resources Protection Act (ARPA) in 1988 expanded the scope of reporting to include activities carried out under provisions of that Act, as well (Sec. 13; 16 USC 470ll). The Secretary delegated the responsibility of producing the report to the National Park Service, specifically the Departmental Consulting Archeologist (DCA). The DCA coordinates the government-wide collection of information about the Federal Archeology Program through the Archeology Program of the National Park Service.

The Secretary of the Interior's Report to Congress on the Federal Archeology Program, 1998-2003 collects, summarizes, and analyzes data about the archeological activities reported by thirty-two Federal agencies. Each agency undertakes archeological activities to fulfill its statutory and regulatory obligations. These statutes ensure that Federal agencies will perform their stewardship responsibilities on behalf of all Americans towards the proper care and use of the nation's archeological heritage for future generations.

The following recommendations encapsulate the essential needs to ensure that Federal agencies are able to identify, document, and care for archeological sites, collections, and records, and make information about American archeology available to the public.

Recommendations

Recommendation 1: Survey, locate, interpret, and document archeological sites to promote resource preservation and inform management decisions.

Recommendation 2: Build partnerships to leverage protection resources and share information. Strengthen relationships between Indian tribes and Federal agencies regarding archeology and archeological resources.

Recommendation 3: Prevent theft of archeological resources by providing technical support and training to enforce existing laws and use special technology for detection.

Recommendation 4: Provide resources to care for federally owned and administered archeological collections and records.

Recommendation 5: Share archeological research results for educational, scientific, and cultural purposes.

Recommendation 6: Promote public outreach and education programs about archeology and archeological resources.

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Sherds from Bandelier National Monument, BAND 20. (NPS)

INTRODUCTION

Archeological resources are nonrenewable and irreplaceable elements of Americans' cultural heritage that provide insight on the past and direction for the future. They offer a unique perspective on the history of the people and land of the United States; illuminate times and events for which there is no written record; and tell the stories of peoples whose history cannot be known even through ethnographic research, oral history, or tribal knowledge. Archeological resources reveal the depth and breadth of our diverse cultural heritage, but their fragility and susceptibility to damage make their care a challenging undertaking. Archeological sites on Federal lands are an integral part of the celebration of the American past and the commemoration of its legacy for future generations. The *Secretary of the Interior's Report to Congress on the Federal Archeology Program, 1998-2003* describes the efforts of Federal agencies in preserving and protecting the nation's archeological heritage.

Thomas Jefferson, often credited with being America's first archeologist, conducted one of the earliest scientific investigations in the New World when he excavated a Native American burial mound near his property at Monticello, Virginia, circa 1780. American presidents have since played key roles in preserving America's archeological resources. In 1906, over 125 years after Jefferson's excavation, President Theodore Roosevelt signed "An Act for the Preservation of American Antiquities," known as the Antiquities Act, which gave presidents the power to set aside public lands to preserve important archeological sites and, in turn, to ensure the protection of archeological sites on public lands (Harmon et al. 2006). The Antiquities Act set significant precedents, including the assertion of a broad public interest in archeology on public lands, as well as support for the care and management of archeological sites, collections, and information. Subsequent presidents have utilized the Antiquities Act to establish over forty archeological national monuments, including eighteen between 1998 and 2003. Fourteen of the proclamations specifically mentioned archeological resources and emphasized their value as part of our nation's heritage.

Theodore Roosevelt and John Muir at Yosemite. (NPS)

The same kind of public concern and statutory requirement for the care of American archeological resources that inspired the Antiquities Act is the impetus for this report. *The Secretary of the Interior's Report to Congress on the Federal Archeology Program, 1998-2003* presents data about the archeological activities reported by thirty-two Federal agencies. An annual survey captures the activities of Federal agencies with responsibilities for archeological resources. The collected data is the basis for the Secretary's Report. This report is the seventeenth in a series; the previous sixteen reports and quantitative data for the years 1985-2005 are available on the NPS Archeology Program web site (*National Strategy for Federal Archeology*; www.nps.gov/archeology/src/index.htm).

The Secretary's Reports have several functions. First, they are the most thorough description available of Federal archeological activities in the United States. Second, they are the only reports that collect and report data on Federal archeology activities separately from other cultural resource activities and programs. Third, the Secretary's Reports provide longitudinal and standardized data to assess activities over time and for comparisons between agencies. These data facilitate evaluating the success of agency or department missions, addressing strategic and policy issues, and planning future activities. Fourth, although the Secretary's Report on the Federal Archeology Program is directed by statute to Congress, it provides information about the ways that Federal agencies meet the challenges of archeological resources stewardship to other audiences. For example, the National Trust for Historic Preservation used data from the Secretary's Report of 1999 to assess archeology programs in the Bureau of Land Management and the U.S. Forest Service (Jarvis 2006). During the 1998-2003 period, data was available to the public upon request. As of FY2007, data through 2005 is online through the NPS Archeology Program website at: http://www.nps.gov/archeology/src/index.htm. The Secretary's Report thus provides Congress and other interested parties with information about the activities of the Federal Archeology Program and accounts for the significance of Federal agencies in the preservation of America's archeological heritage.

Departments and Agencies that Conduct, Sponsor, or License Archeology

USAF United States Air Force
ANG Air National Guard
BIA Bureau of Indian Affairs
BLM Bureau of Land Management
BOP Bureau of Prisons
BOR Bureau of Reclamation
USCG United States Coast Guard
DHS Department of Homeland Security
DOA Department of the Army
DOE Department of Energy
DOI Department of the Interior
EDA Economic Development Administration
EPA Environmental Protection Agency
FAA Federal Aviation Administration
FERC Federal Energy Regulatory Commission
FHA Federal Housing Authority
FHWA Federal Highway Administration
FMHA Farmers Home Administration
FRA Federal Railroad Administration
USFS United States Forest Service
FSA Farm Service Agency
FTA Federal Transportation Administration
USFWS United States Fish and Wildlife Service
GSA General Services Administration
HHS Department of Health and Human Services
HUD Department of Housing and Urban Development
INS Immigration and Naturalization Service
MMS Minerals Management Service
NASA National Aeronautics and Space Administration
NOAA National Oceanic and Atmospheric Administration
NPS National Park Service
NRC Nuclear Regulatory Commission
NRCS Natural Resource Conservation Service
OSM Office of Surface Mining
RUS Rural Utility Service
SI Smithsonian Institution
TVA Tennessee Valley Authority
USACOE United States Army Corps of Engineers
USGS United States Geological Survey
USMG United States Marine Corps
USN United States Navy
USPS United States Postal Service
VA Department of Veteran Affairs

The Federal Archeology Program

Federal agencies have mission-specific stewardship responsibilities for archeological resources. A Federal agency may manage land, provide assistance to development projects, or regulate activities and resource use. Many Federal agencies include staff and programs that conduct or coordinate archeological research, public education, and site and collection protection. Additional entities, such as the Smithsonian Institution and the National Science Foundation, do not contribute data to the Secretary's Report but have archeological responsibilities. Together, these programs, personnel, and activities constitute the Federal Archeology Program.

Since the Antiquities Act, additional Federal laws mandate care and protection of archeological resources. They include the:

- Reservoir Salvage Act (16 U.S.C. 469a-469c),
- Archaeological Resources Protection Act (ARPA; 16 U.S.C. 470aa-470mm),
- National Historic Preservation Act (NHPA; 16 U.S.C. 470 et seq.),
- Abandoned Shipwreck Act (ASA; 43 U.S.C. 2101-2106),
- Native American Graves Protection and Repatriation Act (NAGPRA; 25 U.S.C. 3001-3013), and,
- enabling legislation of Federal agencies, national monuments, and park units.

The Archaeological Resources Protection Act (ARPA) and the National Historic Preservation Act (NHPA) require the Secretary of the Interior and the National Park Service to provide leadership, guidance, and coordination for national archeology and historic preservation programs. ARPA and its regulations (16 U.S.C. 470ll; 43 CFR 7.19) are the main authorization for the Secretary's Report on the Federal Archeology Program.

The National Strategy for Federal Archeology (Figure 1), which developed from recommendations in the 1985-1986 report to Congress (Keel et al. 1989), articulates the goals and objectives for archeological resources management and stewardship. Goals include identifying, assessing, and conserving archeological sites; preventing looting and vandalism; managing archeological collections and records; encouraging public involvement in archeological endeavors; and utilizing and sharing the results of archeological research. These goals are a framework for this report.

Federal Archeology in the Public Interest

Federal archeological resources belong to all Americans, and Americans believe that archeology is important. A primary goal of the Federal Archeology Program is to work in the public's interest so that archeological knowledge may be shared and learned. Public outreach is part of the National Strategy for the Federal Archeology Program and reflects efforts since the 1980s to make archeology part of the public interest (e.g., Society for American Archaeology 1990; Herscher and McManamon 1995; Messenger 1995). Such efforts are working. A nationwide public opinion poll sponsored by Federal agencies and archeological partner organizations in 1999 found that most Americans think archeology is essential for understanding, protecting, and celebrating the rich cultural and historic heritage of the United States (Ramos and Duganne 2000). The results are clear:

- 90 percent believe that students should learn about archeology as part of the school curriculum beginning in elementary school;
- 96 percent agree that there should be laws to protect archeological resources; and
- 80 percent agree that public funds should be used to protect archeological sites.

Such statistics offer compelling reasons to encourage Federal archeology as a means to reach all Americans in areas such as education, recreation, and policy. The poll is discussed in greater depth later in this report.

The next chapter summarizes some of the important developments in the management, preservation, protection, and study of archeological resources by Federal agencies. The subsequent four chapters focus on the archeological activities reported by Federal agencies, including:

- the preservation and protection of archeological sites;
- the conservation and care of archeological collections, records, and data;
- the utilization and sharing of archeological data and research results; and,
- public outreach and participation in Federal archeology.

Each chapter provides recommendations regarding the topics and activities discussed therein.

THE SECRETARY OF THE INTERIOR

WASHINGTON

The National Strategy for Federal Archeology

The stewardship of America's archeological heritage is a well-established policy and function of the Federal government. Beginning in 1892 when Casa Grande Ruins were set aside for preservation, Federal agencies have paid special attention to the archeological resources on their lands, or that their activities affect. Interagency cooperation and partnerships are fundamental to this mission. Archeological resources - sites, collections, and records - are unique and fragile. They must be used wisely and protected for future generations. In 1990 Secretary of the Interior Manuel Lujan, Jr., identified activities and programs for special emphasis by Federal agencies undertaking or funding archeology. In 1999 the National Strategy was updated and affirmed as official governmental policy.

Preserve and Protect Archeological Sites in Place

- Identify, evaluate, and document sites
- Increase our understanding of the past and improve preservation through well-designed research
- Assess and document threats to sites and monitor their condition
- Prevent or slow deterioration of sites by stabilization and other means
- Fight looting with public awareness programs and effective legal strategies among archeologists, law enforcement officers, and public prosecutors

Conserve Archeological Collections and Records

- Locate collections and records, assess their condition, and conserve appropriately
- Identify actions needed to ensure long-term care of and access to collection and records
- Undertake, facilitate, and promote research using collections and records to better understand the past

Utilize and Share Archeological Research Results

- Synthesize research results, particularly from limited-distribution, technical reports, to advance scientific knowledge, further preservation, and better inform the public
- Facilitate use of archeological databases by managers and researchers
- Develop data standards to better share research results

Increase Outreach and Participation in Public Archeology

- Establish education programs as a regular agency function
- Interpret archeological research for the public in a way that is accurate and understandable
- Consider the views of diverse cultural groups when interpreting the past
- Engage the public in archeology through professionally directed volunteer programs

Figure 1. National Strategy for Federal Archeology.

Petroglyph at Agua Fria National Monument. (BLM)

DEVELOPMENTS IN ARCHEOLOGICAL RESOURCES MANAGEMENT

Major developments, some of them due to activities by Federal agencies, others related to Congressional or Executive Branch actions, affected the management, protection, and treatment of Federal archeological resources between 1998 and 2003.

Renewal of the National Strategy for Federal Archeology

The National Strategy for Federal Archeology was first affirmed in 1990 as a policy statement to focus the attention of Federal agencies on activities necessary for effective archeological resources management. Secretary Manuel Lujan directed bureau chiefs within the Department of the Interior to use the National Strategy to ensure the wise use and preservation of archeological sites, collections, and associated records managed or affected by their programs. Secretary Lujan asked other U.S. Cabinet secretaries to do the same regarding the activities of their departments. Since then, Federal agencies have used the National Strategy as a foundation and a guide for development of numerous specific archeological projects and programs.

Updates to the National Strategy reaffirm its principles as they guide the Federal Archeology Program. In 1999, the Secretary of the Interior updated and affirmed the National Strategy for Federal Archeology as an important statement of national policy (Babbitt, McManamon, Kintigh 1999). In 2003, the strategy was updated and circulated again to Federal agencies throughout the government. In her memorandum transmitting the document, (then) NPS Director Fran Mainella noted the important topics covered by the National Strategy and urged emphasis on preservation, protection, research, and interpretation to coordinate archeological activities by and among public agencies and other organizations. Renewal of the National Strategy underscores the role of the Federal government as steward of the nation's archeological resources.

Law, Policy, and Procedure

Between 1998 and 2003, several developments in the areas of law, policy, and procedure have strengthened Federal archeology. Amendments and new regulations to key laws enable Federal archeology to work more efficiently and with more cultural sensitivity, as well as seek out opportunities for partnerships with local and private organizations. New sentencing guidelines emphasize the value of archeology with language to determine loss in the calculation of damages. The addition of archeology to the Farm Bill provides an additional tool for site protection. Together, these developments help the Federal Archeology Program to manage and preserve archeological resources more effectively while working in the public's interest.

National Historic Preservation Act (NHPA)

The 1992 amendments to the National Historic Preservation Act (NHPA) and the regulations implementing them affect the planning, organization, and execution of Federal agency archeological projects by incorporating consultation with Indian tribes or Native Hawaiian organizations into the process. Consultation is required when certain conditions are met. Section 101 of the amended NHPA requires that "… a Federal agency shall consult with any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to properties …" (Sec. 101(d)(6)(B)). Section 106 regulations for conducting reviews for all Federal undertakings require that Federal agency officials engage in consultation with Indian tribes that provides a "reasonable opportunity" to Indian tribes to identify the concerns they have about historic properties (including archeological sites) that Federal agencies' undertakings might affect (36 CFR 800.2(c)(2)(ii)). Such consultation typically involves a level of outreach effort that was not common before the regulations became effective following the 1992 amendments.

The 1992 amendments to the National Historic Preservation Act of 1966 (NHPA) made a number of key changes to this foundational cultural preservation law. Most relevant here are the amendments that expanded the opportunities for Indian tribes to participate in historic preservation decision-making and broadened their ability to participate as consulting parties in Section 106 reviews of public agency undertakings. The amendments also authorized the creation of Tribal Historic Preservation Offices, which are designated by federally recognized tribes to assume the functions of State Historic Preservation Offices on tribal lands. Finally, the amendments, and their implementing regulations, provided greater opportunities for Federal agencies to develop programmatic agreements with the Advisory Council on Historic Preservation to provide more effective and efficient management of archeological resources. The effects of both NAGPRA and NHPA are discussed in a later section on developments in consultation procedures.

The NHPA 1992 amendments and subsequently developed regulations (in particular, 36 CFR 800.14(b)) provided more information and encouragement for Federal agencies to develop programmatic agreements (PMOA) for a range of planning, development, or operational undertakings.

Bureau of Land Management (BLM) 1997 Programmatic Agreement

The Bureau of Land Management (BLM), the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers (NCSHPO) signed a national Programmatic Memorandum of Agreement in 1997. It allows BLM offices throughout the country greater flexibility in compliance with Section 106 of the NHPA. The agreement focuses on the common goal of planning for and managing historic properties, including archeological resources, on BLM land. It gave the BLM a broader authority for determining the need for archeological survey and excavations as part of undertakings, and for determining site eligibility for the National Register of Historic Places (National Register). The BLM, which manages the largest amount of land of any Federal agency, followed other agencies that have used similar programmatic agreements with the ACHP and NCSHPO to streamline compliance with the NHPA. As part of its commitment to the provisions of the agreement, the BLM established an agency preservation board, revised its procedural manual, and conducted a skills inventory to ensure that a proper level of expertise on archeological resources was in place (Common Ground 1997).

The amendments and regulations thereby offered agencies the opportunity to avoid the often time-consuming procedures for the review of individual undertakings.

Native American Graves Protection and Repatriation Act (NAGPRA)

The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) marked a watershed in the long and often troubled relationship between Indian tribes and educational institutions, museums, and public agencies. NAGPRA provides a process to resolve claims of lineal descendants, Native American tribes, and Native Hawaiian organizations to human remains, funerary objects, sacred objects, and objects of cultural patrimony that are in museums or Federal agency collections, or when they are exhumed on Federal or Indian land.

During the 1998-2003 period, significant developments occurred with respect to the implementation of NAGPRA. From 1990 to 2000, NAGPRA was implemented by the National Park Service's (NPS) Archeological Assistance

Division, which became the Archeology and Ethnography Program. In 2000, the NPS established the National NAGPRA Program as a separate unit to carry out the Secretary of the Interior's government-wide responsibilities under the statute. Responsibility for NPS compliance with the law was retained by the Archeology and Ethnography Program. This organizational change emphasizes the Federal government's commitment to working with lineal descendants, tribes, and Native organizations. Accomplishments in the first ten years of NAGPRA include bi-annual meetings of the NAGPRA Review Committee, a Federal advisory committee that assisted in the law's implementation; the promulgation of the uniform regulations to the Act, as well as a provisional rule on civil penalty enforcement; the first six years of a grant program to assist tribes and museums to implement responsibilities under the statute and cover the costs of repatriation activities; the publication of notices essential to the process; the development of policy; and numerous training sessions.

Sentencing Guideline for Federal Crimes Involving Archeological Resources and "Archaeological Value" Standards

In 2002, the U.S. Sentencing Commission approved a guideline for Federal judges to use in determining appropriate sentences for crimes affecting "cultural heritage resources," including archeological resources. The guideline, entitled "Theft of, Damage to, or Destruction of Cultural Heritage Resources; Unlawful Sale, Purchase, Exchange, Transportation, or Receipt of Cultural Heritage Resources" (United States Sentencing Commission, 2002; B1.5), incorporates into the definition of "cultural heritage resource" a broad range of existing Federal statutory terms and definitions for various archeological, historical, and cultural items, including items protected by NAGPRA.

The 2002 guideline is a major development for Federal archeology because it specifically advocates the statutorily prescribed measure of "archaeological value" to determine loss in Archaeological Resources Protection Act (ARPA) offenses. ARPA remains the principal Federal statute protecting archeological resources in the United States. Criminal prosecutions and the assessment of civil penalties under ARPA now require the formal and systematic determination of "archaeological value" (16 U.S.C. 470ee and 470ff). This determination is critical in ARPA prosecutions to establish the level of offense, particularly whether or not the offense is a felony. Prior to the 2002 guideline, Federal judges did not have specific directions regarding cultural heritage resources that they could use to develop sentences. Archeological resources and historic properties were regarded as any other category of property, resulting in a base offense punishment level that was the lowest in the general sentencing guidelines. As a result of the 2002 guideline, misconduct involving archeological resources carries a base offense level for sentencing that is approximately 25 percent greater than for general property crimes. The 2002 guideline identifies six aggravating factors which require proportionate increases in the offense level and, ultimately, the sentence. By providing enhancements for aggravating factors, the guideline deliberately seeks to insure that harm is adequately reflected in the penalties for crimes affecting archeological, historical, and cultural resources. The current status of the sentencing guidelines, as well as a more detailed history of their development, can be found in Desio (2004).

Following the U.S. Sentencing Commission's guideline, the National Park Service and the Society for American Archaeology (SAA) organized and funded an interagency task force of archeologists, law enforcement officers, and government attorneys to develop a set of professional standards for making determinations of "archaeological value." The SAA governing board endorsed the draft standards developed by the task force in 2003, thereby establishing professional standards for the determination of "archaeological value" according to ARPA.

Archeologist Tim Canaday documenting seized artifacts. (USFS)

Archeological Resources Preservation Included in 2002 Farm Bill

The 2002 Farm Bill included new provisions that improved archeological preservation activities within the U.S. Department of Agriculture. The bill included new provisions in several easement grant programs for protecting archeological resources on private lands. One significant provision involves the Farm and Ranchlands Protection Program (FRPP), administered by the Natural Resources Conservation Service, U.S. Department of Agriculture, which provides matching funds to help acquire conservation easements from landowners. For the first time, the 2002 bill made archeological resources listed on the National Register eligible for the FRPP. Hundreds of archeological resources on private land have been protected through the program.

Combating Looting and Vandalism

A number of important Archaeological Resources Protection Act (ARPA) prosecutions of individuals who damaged, destroyed, looted, and/or trafficked in archeological resources were concluded during the 1998-2003 period. Among the cases were the largest civil penalty, the largest restitution and fine, and longest jail time for an offender. A detailed, statistical analysis of cultural resource damage on the public lands can be found in Swain (2007). A ten year review of Federal prosecutions under ARPA, 1996-2005, may be found in Palmer (2007).

Two cases in particular affect ARPA prosecutions. In 2000, *U.S. v. Lynch* addressed the element of intent for the prosecution of ARPA cases. In 1997, Ian Lynch removed human remains from U.S. Forest Service land on Heceta Island in southeastern Alaska. He pled guilty to a felony violation of 16 U.S.C. 470ee(a). On appeal, the defendant asserted that the government had not proven his intent, or *mens rea*, to remove an archeological resource. The U.S. Court of Appeals for the Ninth Circuit held that picking up an object from the ground is an innocent act unless the individual knows it is an archeological resource (Forsyth and Tarler 2006). As a result of *U.S. v. Lynch*, in order to prosecute ARPA violations the Federal government must prove that the defendant knowingly picked up an archeological artifact.

In *U.S. v. Hunter*, the court did not include the archeological value of the harmed sites in the calculation of loss for sentencing purposes. Hunter and two other individuals dug, damaged, and defaced the Santa Clara River Gorge Site in the Dixie National Forest, Utah. They were charged with ARPA violations occurring in 1993, 1997, and 1998. Although archeologists calculated the archeological value of the site as $34,000, the Tenth Circuit Court of Appeals calculated Hunter's fine as $2,000 in addition to the costs of restoration and repair. The U.S. Tenth Circuit Court of Appeals found that the site damage assessment lacked sufficient reliability to be used for sentencing and that archeological value was a superfluous calculation (Hutt 2006). The effects of such cases remains to be seen, but they make clear the need for continued education about archeological resources within the judiciary.

Other cases demonstrate the breadth of ARPA offenses. In 1999, officials at the Gila River National Forest, New Mexico, became aware that over two miles of unauthorized road construction had occurred. Without seeking Federal authorization for the activity, a private citizen improved the road to his inholding in the national forest. Investigation of the incident revealed that three ancient Native American archeological sites had been damaged by the road work. The land owner and the bulldozer operator were both charged under the civil penalties section of ARPA for destruction of the archeological sites. They reached a settlement with the U.S. Forest Service in which they agreed to pay civil penalties amounting to $80,000. It is one of the largest settlements under the civil penalties section of ARPA to date.

In 2000, a relic hunter dug more than one hundred holes in Pea Ridge National Military Park, Arkansas, just months before a major archeological survey was scheduled in the same area. A search of his home found 120 artifacts from the 1862 Civil War battle at Pea Ridge. The perpetrator was sentenced to four months in Federal prison, ordered to perform 400 hours of community service, and to pay $16,508 in restitution to the park.

In 2001, two suspects were caught while illegally collecting artifacts in Death Valley National Park, California and Nevada. Subsequent investigations were undertaken by agents from several Federal agencies, including the Bureau of Land Management, U.S. Fish and Wildlife Service and National Park Service, as well as Federal entities such as Nellis Air Force Base and three U.S. Attorneys' offices. Their efforts revealed that five individuals had extensively looted ancient and historic sites on Federal lands in Nevada, California, Arizona, and Utah over a five-year period. As part of the investigation, known as "Operation Indian Rocks," over 11,100 artifacts, notes, maps and other records were seized. Archeologists from Federal agencies worked collaboratively with investigators to determine that at least fifty sites on Federal lands were looted, causing damages assessed at over $400,000. Each of the five defendants pled guilty to felony ARPA charges. One defendant pled guilty to $518,309 in damages, and was sentenced to thirty-seven months in prison. It was the longest sentence ever for a first offence of ARPA, and the second longest prison sentence in the history of ARPA at the time of sentencing. "Operation Indian Rocks" demonstrates the effectiveness of inter-agency cooperation in working to preserve archeological resources.

NPS, FWS and BLM Special Agents and archeologists working together in the field.

The Kennewick Man Case

The human skeletal remains that have come to be referred to as the "Kennewick Man", or the "Ancient One", were found in July, 1996 below the surface of Lake Wallula, a section of the Columbia River pooled behind McNary Dam in Kennewick, Washington. Almost immediately controversy developed regarding who was responsible for determining what would be done with the remains. Claims were made by Indian tribes, local officials, and some members of the scientific community. The U.S. Army Corps of Engineers (USCOE), the agency responsible for the land where the remains were recovered, took possession of the human remains. Its actions, following the Native American Graves Protection and Repatriation Act (NAGPRA), to resolve the situation were challenged in Federal court. The case was resolved by a Federal court decision in 2004.

Initial examination of the remains, particularly the shape of the cranium, suggested that the man was a European American. Further study, however, yielded a radiocarbon date of 8,400 years before the present. An Archaic point embedded in the man's hip further dated the remains. The USACOE determined based on age alone that the human remains were Native American and culturally affiliated with local Indian tribes. Before the transfer could occur, a group of scientists sued the USACOE. They questioned the basis on which USACOE determined cultural affiliation of the human remains and asserted their right to study them. The scientists sought a court order, rather than an ARPA permit.

In March, 1998, the Department of the Interior and National Park Service agreed to assist the USCOE in resolving some of the issues related to the Federal case. Between 1998 and 2000, the Department of the Interior and National Park Service, in cooperation with the USACOE, conducted a series of scientific examinations of the remains. No fewer than eighteen nationally and internationally recognized scientists and scholars conducted these analyses.

The Kennewick skeleton was physically examined, measured, and recorded using current and standard scientific methods and techniques. Sediments adhering to the bones and trapped within bone cavities were described and analyzed for similarity with the soil sediments in the vicinity of the discovery of the skeletal remains. The stone projectile point embedded in the skeleton's pelvis was described and analyzed. Bone samples were taken and dated to confirm the ancient date for the remains. A taphonomic study of the bones, including a second detailed physical examination, recording, and analysis of the remains, was conducted. Reports are available on the NPS Archeology Program web site at: http://www.nps.gov/archeology/kennewick/index.htm.

Consultation with tribes played a major role in the Department of the Interior's involvement. NAGPRA requires consultation with tribes that may or do have a cultural affiliation with the human remains of objects covered by the law. Under Section 3 of the statute, consultations should start soon after any discovery and should address any issues related to excavation, documentation, analysis, recording, and ultimate deposition of the remains or objects in question. Compliance with NAGPRA requires consultation with tribal representatives, not consent of the tribe, except in cases where the discovery is on tribal lands. Consultation with tribal representatives in the Kennewick Man case took place over several meetings between May 1998 and July 2000. Discussions led to agreement and provided mutually useful information for development or modification of plans and activities.

The Federal legal case was not resolved until 2004. The Department of the Interior's determination that the Kennewick remains were culturally affiliated with the claimant tribes was rejected by the 9th Circuit and District Federal courts, which stated that the scientific evidence argued against such a determination and was not fully taken into account in the Secretary's determination. Ultimately, the Department of the Interior accepted this interpretation of the evidence and did not appeal this aspect of the Circuit Court's decision.

Overview of unauthorized looters pit at a site described as the "Artifact Mine" by several of the individuals prosecuted in Operation Indian Rocks. (USFS)

Developments in Federal Consultations

Current relations between Federal agencies and sovereign Indian nations concerning archeological resources are shaped by efforts to ensure Native American communities are full participants in decision-making. The National Historic Preservation Act of 1966 (NHPA) and the National Environmental Policy Act of 1969 (NEPA) required that information about anticipated undertakings on Federal lands or funded with Federal dollars be shared with members of the public. Neither law as originally enacted, however, accorded Indian tribes a special status with respect to consultation. Relations between Federal agencies and Indian tribes began to change with the passage of the American Indian Religious Freedom Act of 1978 (AIRFA). Federal agencies were directed to "evaluate their policies and procedures in consultation with native traditional religious leaders in order to determine appropriate changes necessary to protect and preserve Native American religious cultural rights and practices" (42 U.S.C. 1996). In 1990, NAGPRA mandated consultation by Federal agencies and museums with federally recognized Indian tribes. The purpose was twofold: first, to establish the cultural affiliation and second, to transfer control of Native American human remains and cultural objects held in museums and repositories and newly discovered on the land. No longer are all archeological items on Federal land assumed to be Federal property.

Amendments to NHPA in 1992 enabled federally recognized Indian tribes to take full responsibility for carrying out cultural resource activities on their tribal lands. Tribal Historic Preservation Offices (THPO) can assume the functions of State Historic Preservation Offices and carry out many of the same duties within the boundaries of reservations. The National Park Service (NPS), through the Tribal Historic Preservation Program, is responsible for processing applications for a tribe to assume duties. Tribal Historic Preservation Offices focus on cultural resources, including archeological resources, within the exterior boundaries of the reservation or dependent Indian community. The THPO also may be charged by tribal authorities to represent the tribe in NAGPRA and Section 106 consultations, or other consultations concerning cultural resources not on tribal lands that are important to the tribe. The growing participation of tribes in managing cultural resources enhances the national historic preservation program. In 1996, the NPS approved the first twelve applications to establish THPOs. By 2003, the number of THPOs had risen to thirty-five. The NHPA amendments and the subsequent establishment of the THPO Program enhance tribes' capacities to care for historical and cultural resources on tribal lands.

Recent emphasis on consultation reflects the Federal government's commitment to involve Indian tribes in decisions about cultural resources that are important to them. Between 1996 and 2000, President William J. Clinton issued several Executive Orders that strengthened tribal involvement in consultation with Federal agencies. The Executive Orders include E.O.13007-Indian Sacred Sites; E.O. 13084-Consultation and Coordination with Indian Tribal Governments; and E.O. 13175-Consultation with Indian Tribal Governments. To facilitate open and constructive consultations, at least ten Federal agencies issued guidelines formalizing agency consultation with Indian tribes between 1995 and 2003. Three large land managing agencies (Bureau of Land Management, National Park Service, and U.S.

Archeological Investigations at On Your Knees Cave, Alaska

U.S. Forest Service archeologists in Alaska discovered a small inhabitable cave while conducting NHPA Section 106 field survey prior to a timber sale on Prince of Wales Island in 1993. Consultation and community involvement were important components of the subsequent partnership that developed between tribes, the U.S. Forest Service, and archeologists who wanted to investigate the cave. The Tlingit communities were closely involved in decision making. Scientists shared information with the communities before releasing news of discoveries to the public (Dixon 2005). As a result of this cooperation, tribal members supported excavation of the cave, and many Tlingit students participated in the research during five field seasons from 1996 to 2000.

The excavations uncovered evidence of humans' use of the cave between about 10,300 and 9,000 years ago. Prince of Wales Island was not connected to the mainland at the time, and could have only been reached by boat (Dixon 2002). Tools found in the cave were made of stone from southeastern Alaskan islands and the mainland, indicating that people who used the cave probably traveled widely in the geographically complex region.

The Alaska Native communities also supported DNA and isotope analysis of the 10,300-year-old remains of a young man that were discovered in the cave, the oldest ever found in Alaska. Isotope analysis revealed that the young man ate mostly marine foods, which required special skills to harvest in cold coastal waters. Analysis of mitochondrial DNA suggests that he is related to living Native American populations along the Pacific coast of North and South America (Fenly 2005). The human remains were transferred to the Tlingit following the archeological studies (D'Oro 2007).

The excavations at On Your Knees Cave and examination of material remains and human remains were only possible through a full and open partnership between the U.S. Forest Service, Alaska Native communities, and scientists. The exciting results provide evidence for early maritime adaptations and for continuity with living Alaska Native communities, supporting oral histories of early Tlingit occupation of the region.

Learn more at the Tongass Forest web site: www.fs.fed.us/r10/tongass/forest_facts/resources/heritage/onyourknees.shtml.

Above: A common artifact type in the oldest levels at On Your Knees Cave was microblades. These slivers of volcanic glass and flint were broken into sections for insertion in the edges of bone and ivory tools. Photo by Craig Lee, University of Colorado Boulder.

Forest Service) did not issue stand-alone guidance, but incorporated consultation practices into policies and manuals. A partnership between the Department of Energy's, Nevada Operations office, twenty Shoshone and Paiute tribes, and a group of anthropologists is another example of the benefits of consultation with fully engaged participants. Throughout the decade of the partnership, the groups jointly developed a nine-step consultation process that was used, among other things, to carry out NAGPRA consultations and formalize the consultation process in a written document (Stoffle et al. 2001).

These laws, regulations, Executive Orders, and policies have encouraged a new level of commitment to consultation that enables exceptional cooperation with tribes for archeological research. These partnerships are good examples of the benefits for all parties, and the public, when Federal agencies work in open cooperation with Native American tribes.

Emerging and Continued Threats to Our Nation's Archeological Resources

The impacts of global warming and the effects of globalization on the antiquities market are serious, growing threats to the integrity of archeological resources in the United States. Evidence of their impacts on archeological resources is seen in the 1998-2003 period, and is expected to grow in significance to Federal archeology policy and procedure in the future.

Climate Change Threatens Sites

The accumulation of greenhouse gases and attendant global warming has triggered accelerated changes in climate, especially at upper latitudes. Eleven of the twelve years between 1995 and 2006 were the warmest years since 1850 (Intergovernmental Panel on Climate Change 2007). Increase in average global temperature has profound implications for the continued preservation of archeological sites. In northern latitudes, the wide-spread melting of glaciers and snow fields has already yielded rare organic objects that rapidly decay when exposed to air. Archeological survey in Wrangell-St. Elias National Park and Preserve in 2001 and 2003 in response to receding ice patches recovered fragments of wooden arrow shafts (Dixon et al. 2005). Without the survey, the valuable information contained in the wooden arrow shafts would have been lost due to decomposition after exposure.

Water from melting ice flows into the oceans and causes sea levels to rise, and as the oceans warm, the salt water

Archeology and Climate Change at Dust Cave, Alabama

Archeological investigations have provided data about ancient climatic conditions in almost all regions of the country, from the American Southwest to Alaska. Dust Cave on Tennessee Valley Authority land outside Florence, Alabama has refined our understanding about environmental conditions in the Southeast at the end of the Pleistocene Epoch and the ways that people adapted to these conditions. These data constitute a baseline for measuring climatic fluctuations. The cave is located in a limestone escarpment overlooking the north side of the Tennessee River.

Excavated for twelve seasons from 1989 to 2002, the site contained nearly fifteen vertical feet of deposits that are remarkable for preservation of organic remains. Animal bones are so well-preserved that even fish scales were recovered. Plant remains, including seeds, stems, and pollen, were numerous (Sherwood et al. 2004). Analyses of plant and animal remains indicate that, by 10,000 years ago, the oak-hickory forests that dominate the area today were well-established in the Tennessee River Basin (Hollenbach 2007). The area around the cave was both wooded and open, a mosaic habitat supporting a wide variety of plants and animals that were utilized by the people living in Dust Cave.

Paleoindian people first began using the cave for shelter around 10,500 years ago (Walker et al. 2001). Researchers were surprised to learn that Paleoindian lifeways were more similar to later Native Americans living in the Southeast than to Pleistocene big game hunters. Paleoindians in the Southeast adapted to a woodland environment. They snared and hunted small mammals and birds, fished, and gathered plant foods. The inhabitants of Dust Cave relied on nuts such as hickory and walnut, berries, migratory ducks and geese, and small mammals for food. People also relied on aquatic resources from backwater lakes in the floodplain of the Tennessee River.

Archeological research tells us about the adaptations of ancient Americans to North American environments after the Ice Age. It reveals the ways they colonized across the landscape and established a way of life that persisted until the development of cultivation and a more sedentary lifestyle in the first millennium A.D.

expands, also contributing to rising sea levels. The sea level rose at an average rate of about 3.1 mm per year between 1993 and 2003. Scientists predict that sea levels will rise between two and eight feet within a century (Intergovernmental Panel on Climate Change 2007). Higher sea levels will affect archeological sites located along marine coastlines and estuaries, in all likelihood destroying many of them.

Oceans contribute energy to atmospheric weather. Increase in average ocean temperature has been linked to an increase in Category 4 and 5 hurricanes in the North Atlantic Region (Running 2006). These intense precipitation events cause increased temporary flooding that affect archeological sites that have been, until recently, immune to inundation. The high seas and winds associated with hurricanes also pose a threat to archeological sites from wave action and erosion. Sites along the Gulf of Mexico and the Atlantic Ocean are particularly vulnerable to violent hurricane activity.

While the eastern United States is seeing increasing precipitation, usually in the form of stronger hurricanes, the central part of the country is experiencing a decrease in average annual precipitation. As a result, lake and reservoir levels are falling, creating new erosion patterns and exposing archeological sites.

In the western United States, rising temperatures are causing earlier runoff from snowmelt. A shift in average time of snowmelt of one-to-four weeks earlier has increased the active wildfire season in the United States by an average seventy-eight days, causing a fourfold increase in major wildfires and a sixfold increase in the acreage burned (Running 2006). Wildfires particularly threaten archeological sites with standing architecture and rock art. Efforts to contain fires, such as trenching and building temporary helicopter landing pads and camps, can also have impacts on sites.

Archeological sites may contain information about changes in environmental conditions over long periods of time. With proper recovery and analysis, organic remains and soil sediments can provide information about the environment when the site was formed. Plant and animal remains are also important sources of information about environmental change. Through careful study, archeologists can document the ways that previous episodes of global warming affected plant and animal communities.

Effects of Globalization on Antiquities Market

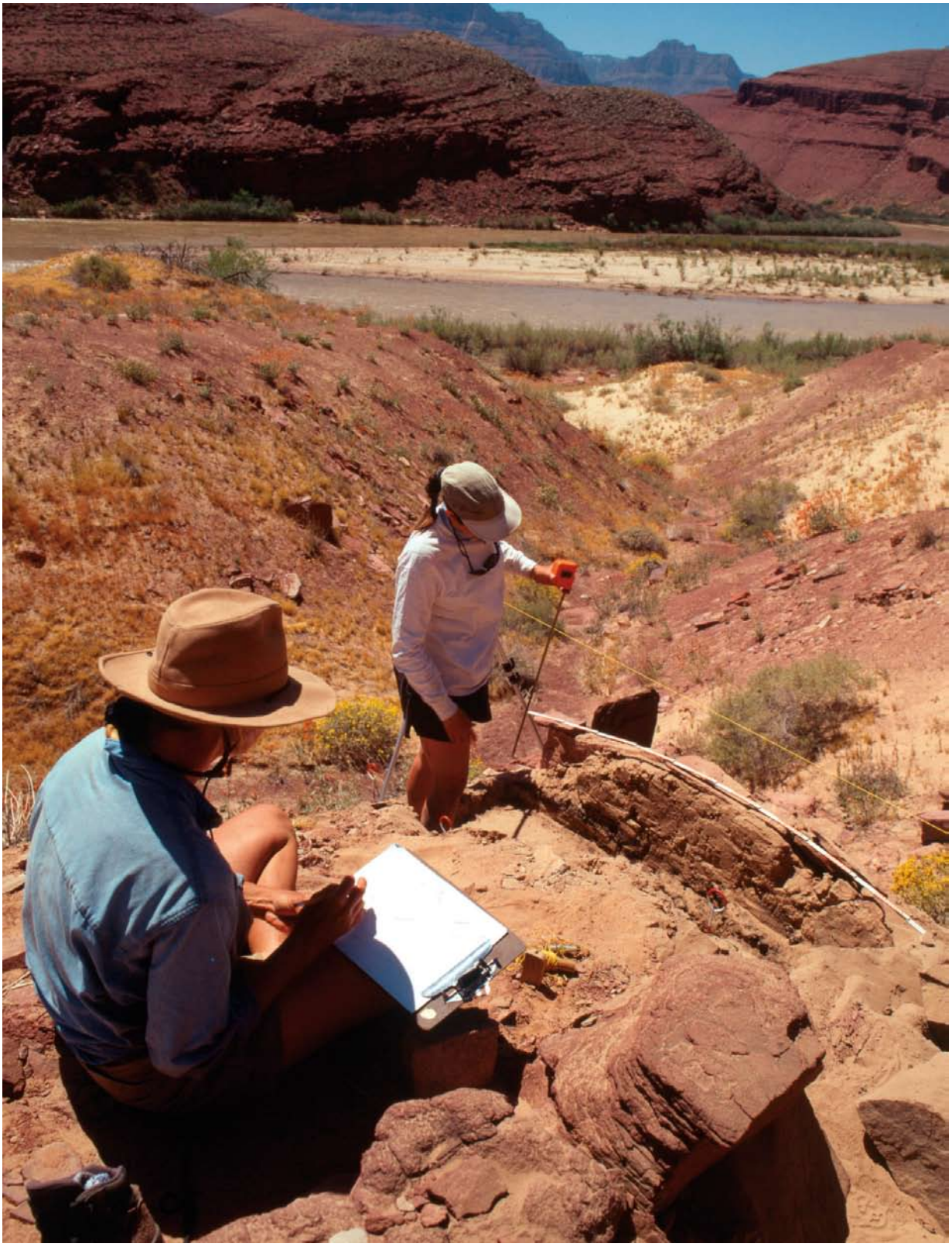
Archeological sites are also at increased risk from looting. Looting is not a new problem (e.g., see Toner 2002), however, the worldwide looting of archeological resources, exacerbated by war and other kinds of social disruption, significantly increased between 1991 and 2005 (Brodie 2006). Archeological sites on public and private lands in the United States and in other countries are threatened by looters seeking artifacts for an expanding antiquities market. Anecdotal evidence indicates that sales of artifacts looted from archeological sites are often associated with the illegal drug trade. Evidence of such situations on Federal lands will be discussed in future Secretary's Reports to Congress.

Petroglyphs at Lower Snake River District in Idaho. (BLM)

Study of legal trade in Alaska Native artifacts by "subsistence diggers" on Saint Lawrence Island, Alaska reveals that the same elements that accelerate the rate of globalization affect the antiquities market (Hollowell 2006). Development of new technologies associated with transportation, communication, and international banking have allowed the sale of legal and illegal antiquities to flourish. The internet and the cell phone have greatly facilitated communications and money transfer between buyers and sellers, and the ease of international travel permits ready transport of objects. The large number of ancient objects from Iraq that recently appeared on the antiquities market in Europe and the United States amply demonstrates the effects of globalization on sales of artifacts.

The effective preservation, protection, and appropriate use of America's Federal archeological resources requires ongoing professional attention and commitment. Unlike natural resources which, within limits, are renewable and may recover from adverse conditions, archeological resources are not. Once threatened with destruction, deterioration and loss is inevitable without intervention. Once destroyed, the sites cannot regenerate or be reintroduced or re-established like some kinds of natural resources. Archeological sites are threatened, now more than ever, from an increasingly active antiquities market, development, and the effects of climate change. Without greater commitment by Federal agencies and Congress, the deterioration and loss of our cultural resources will accelerate.

The next sections of the report describe and evaluate archeological activities reported by Federal agencies. Recommendations also are made about future activities.



Archeologists conduct surveys at Grand Canyon. (NPS)

Archeologists survey land along Snake River in Idaho. (BLM)

PRESERVE AND PROTECT ARCHEOLOGICAL SITES

Federal archeology is important to Americans not just for the information it yields on climate change or cultural history, but for its work towards the preservation of intact archeological sites. When agencies preserve archeological sites and landscapes on Federal lands, cultural groups with ties to those places benefit, be they Indian tribes, descendents of pioneers, or traditional inhabitants of areas that are now public lands. Sites and landscapes can be a source of pride and cultural continuation. Cultural groups and individuals strengthen and maintain traditional values through visiting former residences, sacred places, and traditional gathering areas.

Federal Responsibilities for Archeological Resources

Federal agencies have legally mandated stewardship responsibilities for archeological resources on Federal lands and for archeological resources on non-Federal lands that federally funded or regulated undertakings may impact. Federal agencies carry out their responsibilities in three ways. First, the agencies ensure that archeological resources eligible, or potentially eligible, for listing on the National Register of Historic Places to be impacted by an undertaking on Federal lands are identified, documented, and evaluated before the undertaking occurs. Under Section 106 of the National Historic Preservation Act (NHPA), any third party compliance projects must apply for a permit for archeological investigations. Second, agencies authorize research projects on Federal lands carried out for scientific or educational purposes by issuing permits for archeological investigations under ARPA requirements. Third, land managing agencies are directly responsible for the identification and protection of archeological resources on managed lands to aid in general management plans, exclusion from undertakings, and for public interpretive benefit.

Public Outreach is Essential to the Mission: The Bureau of Land Management

The Bureau of Land Management (BLM) is the largest land managing Federal agency, controlling over 261 million acres of public lands. Most of these lands are in the western United States, including Alaska. They include extensive grasslands, forests, high mountains, arctic tundra, and deserts. The BLM manages lands through a public planning process in a manner that preserves and protects range, timber, mineral, wildlife, fish, and scenic, scientific, and cultural resources while providing for outdoor recreation and human occupancy and use, and recognizing the nation's need for domestic sources of minerals, food, timber, and fiber.

The BLM annually surveys 550,000 acres, on average, for cultural resources. Most survey work is performed in connection with land-use applications, upwards of 10,000 per year, particularly for energy and mineral development. As of 2003, approximately 17.2 million acres of BLM lands, or about 6.6 percent of the current surface acreage, have been surveyed. Almost 279,000 cultural properties have been recorded.

The BLM is directly responsible for the stewardship of archeological resources on the public lands it manages and takes an active role in stabilizing and protecting these resources. A commitment to public education about the value of archeological resources is key to protecting archeological sites. Between 1998 and 2003, the BLM reported on more than 200 community-based educational archeology projects, including collaborative research, public lectures, programmatic education, internships, grants, and program development.

BLM archeologists provide programmatic education to thousands of school children either directly or through teacher training. The California Bureau Office developed an Archeological and Cultural Awareness Program (ACAP) that involves members of the public in archeological projects. Through participation in this program, Boy Scouts can fulfill requirements for the Archaeology Merit Badge (Skinner et al. 1998). BLM archeologists participate at each National Boy Scout Jamboree held at Fort A.P. Hill, Virginia, every four years. Each year there are hands-on archeological displays for the scouts. In 2001, during the reporting period, it featured Ancient Adobe Construction. Some scouts used their work there for part of the Archaeology Merit Badge requirement.

District archeologists in Salem, Oregon, have taught after-school archeology classes for primary school children. Wyoming BLM staff members have taught an archeology class at Wyoming Indian High School, linking archeology with mathematics, biology, history, geography, geology, and language. Wisconsin Office archeologists have worked with the Wisconsin State Historical Society to enhance the teaching of Wisconsin history and culture in schools throughout the state through curriculum development.

BLM archeologists give talks at Archeology Week festivals, to firefighters, to Native American tribal members, and at national conferences. They develop and print brochures for self-guided tours, publish newsletters on archeological activities, produce calendars, and publish papers in scholarly journals. In 2002, the Governor of California awarded the Historic Preservation Award for 2002 to the Bureau of Land Management Site Stewardship Program.

Agency archeology programs authorized by agency-specific laws or NHPA Section 110 work to identify, assess, stabilize, interpret, and protect archeological resources. The Federal Archeology Program includes three kinds of Federal agencies:

- *Land managing* agencies, in general, have the largest archeological programs in the Federal Archeology Program. The Bureau of Land Management, U.S. Forest Service, and National Park Service each employ hundreds of professional archeologists. They are based in land management districts, forests, parks, and offices throughout the country. In the National Park Service, the Systemwide Archeological Inventory Program provides standards, guidance, and technical assistance in identifying and assessing archeological resources for archeologists (Aubry et al. 1992). Through this program, annual funding is targeted for park archeological inventory, evaluation, and documentation projects.
- *Development* agencies provide technical assistance and funding for development projects, usually on non-Federal lands. Under NHPA, these agencies are responsible for ensuring that federally funded projects include stewardship provisions for any archeological sites impacted by the undertaking. A development agency may fund substantial Federal undertakings, but lack staff for undertaking archeological investigations directly. Development agencies rely on partnerships with State and Tribal Historic Preservation Offices, local governments, and private organizations to conduct compliance activities.
- *Regulatory* agencies fulfill archeological stewardship responsibilities by ensuring that federally licensed private development activities comply with the provisions of Federal archeological resources protection laws. Agencies that issue licenses for federally regulated projects on non-Federal lands (e.g., the construction of pipelines, hydroelectric dams, or cell towers) ensure that appropriate measures are taken to identify and avoid or recover significant archeological resources. Regulatory agencies do not directly manage land and, thus, do not

Archeological Protection Through Regulation: The Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) authorizes undertakings through issuing and renewing licenses for projects associated with energy production, mainly gas and oil pipelines and hydroelectric power. Project sponsors (who are the companies requesting licenses) assist the FERC in meeting obligations under NHPA by assuming responsibilities for Section 106 compliance.

Section 106 of NHPA requires the FERC to take into account the effect of its undertakings on archeological properties. An undertaking includes any project, activity, or program requiring a Federal permit, license, or approval. Therefore, many FERC actions, such as issuance of new and original licenses, license amendments, surrenders, and terminations are undertakings subject to Section 106.

Because it is not always possible to determine all of the effects of various activities that may occur during the term of a license, the FERC typically requires that the licensee develop and implement a Historic Properties Management Plan as a condition of the license. Through the management plan, the FERC can require consideration and appropriate management of effects on archeological resources throughout the term of the license. In doing so, the FERC meets the requirements of Section 106 for Federal undertakings.

The FERC works to preserve and protect Federal archeological resources in other ways, as well. In 2000, the FERC developed a popular report based on results of Section 106 compliance work on the Iroquois Natural Gas Pipeline that was distributed to museums, libraries, and schools throughout the counties in New York and Connecticut where the pipeline was constructed. The FERC reported in 2001 that, as part of the Marketlink Expansion Project in Pennsylvania and New Jersey, the Transcontinental Gas Pipe Line Corporation donated Pine Breeze Island to the Commonwealth of Pennsylvania in order to preserve the Pine Breeze Island archeological site. The project was licensed by the FERC, who encouraged and assisted in the transfer of land.

Partners in Archeological Stewardship: The Natural Resources Conservation Service

The Natural Resources Conservation Service (NRCS) helps private land owners and land managers to conserve soil, water, and other natural resources. The NRCS funds thousands of small projects to improve the environment, including over 6,000 projects in New York State alone in 2004. Each project, however, must include an archeological assessment in order to comply with the NHPA. At a minimum, the grantee must confirm that the area has been previously surveyed for archeological resources. If no survey has taken place, the NRCS helps arrange for a survey. About two thirds (91,000 out of 143,000) of the NRCS projects between 1998 and 2003 included an archeological survey. NRCS-funded projects identified 9,500 new sites in 1998-2003, most on non-Federal land. Only 150 sites were excavated; many were in danger of destruction from natural agents, such as erosion following hurricanes and fires.

maintain large archeological resource management programs or issue permits for archeological investigations.

Federal agencies receive assistance from State and Tribal Historic Preservation Offices. State and Tribal Historic Preservation Offices (SHPOs and THPOs) make vital contributions to responsible stewardship of Federal archeological resources.

- SHPOs administer the national historic preservation program at the state level; review National Register nominations, including archeological sites; consult with Federal agencies during NHPA Section 106 reviews; and maintain a state register of archeological sites.
- Tribal Historic Preservation Offices administer the national historic preservation program on tribal lands. They maintain both information about archeological resources and a record of archeological reports with a limited distribution from projects on tribal lands.

Federal Activities for the Identification, Evaluation, and Documentation of Sites

Federal agencies carried out or monitored thousands of archeological investigations for scientific and NHPA Section 106 compliance purposes between 1998 and 2003. The identification, evaluation, and documentation of archeological sites on Federal lands provides necessary information towards the effective management of archeological resources. Highlights for the reporting period include:

Permits

Land managing Federal agencies are authorized by the Archaeological Resources Protection Act (ARPA) and the Antiquities Act to issue permits for archeological investigations for scientific purposes or Federal law

compliance. Federal agencies reported issuing 8,462 permits for archeological investigations on Federal land during 1998-2003, or an average of 1,410 per year (Table 1). Between 66 and 75 percent of the permits were issued for compliance with Section 106 of NHPA. The remainder was issued for scientific research.

Year	Permits Issued
1998	1,388
1999	1,047
2000	1,002
2001	1,025
2002	1,707
2003	2,293
Total	8,462
Average/year	1,410

Table 1. Permits for archeological investigations issued by Federal agencies, 1998-2003.

Consultation

Consultation requirements under NHPA and other laws have been a powerful impetus for the involvement of Indian tribes and the public in Federal archeological projects. Written tribal notifications are required under ARPA (16 U.S.C. 470cc(c)) whenever a Federal land manager is aware of an archeological site with religious or cultural importance that may be impacted by an undertaking requiring a permit for archeological investigation. Notifications provide information necessary for constructive consultations about possible archeological investigations on Federal lands of potential concern to Indian tribes. Land managing Federal agencies reported over 12,000 letters of notification or consultations with tribes between 1998 and 2003 (Figure 2). The number of contacts with tribes is one signal of the commitment by Federal agencies' to the consultation process.

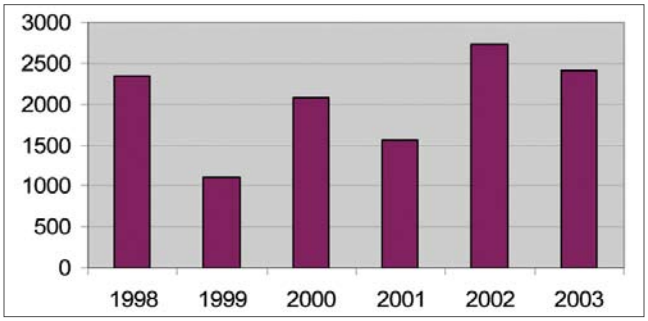


Figure 2. Number of Notifications to Tribes, 1998-2003.

Overviews and Record Searches

Information overviews and record searches use archives, site inventory maps, and records of previous investigations to determine whether a proposed undertaking will affect known sites or is likely to affect undetected sites in the project area. In many circumstances, the overview study and record search is sufficient to determine the likelihood that a project or undertaking will have an impact on significant archeological resources. Archeological field survey is carried out, however, if the area has not been previously investigated, archeological resources are reported but not sufficiently documented, or unidentified archeological resources are likely to exist.

Between 1998 and 2003, land managing Federal agencies reported carrying out or requiring 213,058 archeological overviews and record searches that did not involve fieldwork (Table 2). In almost half of all reported undertakings, a review of previous research reduced or eliminated the need for fieldwork. Forty-nine percent (104,378) were followed by archeological field studies. The field studies identified 278,894 archeological sites on almost 15 million acres of Federal land. Almost 2 percent (3,927) of the overviews and record searches led to site excavation or some other form of intensive data recovery project. The data suggest that the maintenance of, and accessibility to, up-to-date archeological inventories, registers, overviews, field studies, reports, and other records enable Federal agencies, SHPOS, and THPOS to be cost effective and efficient in their use of taxpayer funds.

Data Recovery Projects

If site disturbance is unavoidable because of the nature of the undertaking, data recovery may be conducted. Data recovery typically involves the excavation of at least a portion of a site. It may also consist of an extensive mapping program, photographic survey, or another method of data retrieval. Data recovery is a less favorable approach than *in situ* site preservation due to the expenditure of time and funds and the destruction of the archeological context. When possible, information overviews or record searches as discussed above are the preferred and cost-effective alternative. Data recovery may be unavoidable, but the preferred course of action is to avoid disturbing or destroying the site.

A total of 523 data recovery projects resulted from unanticipated site discoveries, typically during the land-altering phase of development undertakings or as the result of unrelated activities or events, such as erosion. The smaller number of archeological field studies, as compared to the overviews and record searches, demonstrates the effectiveness of records review in identifying, assessing, and avoiding sites, thereby reducing the number of

Year	Overivews and Record Searches	Field Studies	Data Recovery Projects	Sites Conserved	Unanticipated Data Recovery Projects	Sites Identified	Sites Eligible for the National Register	Acres Surveyed
1998	35,428	18,100	962	11,271	124	45,065	7,260	2,386,033
1999	26,126	13,201	499	12,308	59	22,835	6,437	2,096,304
2000	36,317	15,159	522	15,275	122	127,613	7,924	2,494,195
2001	24,398	15,136	574	18,433	35	32,564	7,017	2,112,214
2002	42,805	19,679	753	14,231	89	25,646	9,626	2,441,760
2003	47,984	23,103	617	14,005	94	25,171	11,183	3,441,565
Totals	213,058	104,378	3,927	85,523	523	278,894	49,447	14,972,070

Table 2. Overviews and record searches, field studies, and excavations carried out by land managing Federal agencies, 1998-2003.

Year	Overivews and Record Searches	Field Studies	Data Recovery Projects	Sites Conserved	Unanticipated Data Recovery Projects	Sites Identified	Sites Eligi-ble for the National Register	Acres Surveyed
1998	6,173	1,494	24	24	7	2,621	234	93,741
1999	5,211	1,119	32	47	3	1,752	303	57,575
2000	32,758	25,472	16	57	5	4,093	898	894,435
2001	41,368	28,634	64	32	4	3,593	742	3,866,941
2002	47,449	30,569	55	9	14	3,545	1,939	1,001,477
2003	41,388	21,077	35	10	16	3,564	1,166	1,215,755
Totals	174,346	108,365	226	179	49	19,168	5,282	7,129,924

Table 3. Overviews and record searches, field studies, and excavations carried out by development and regulatory Federal agencies, 1998-2003.

expensive field surveys and data recovery projects that must be conducted.

Between 1998 and 2003, regulatory and development Federal agencies reported funding 174,346 archeological record searches associated with development projects (Table 3). Agencies reported that 62 percent (108,365) of the projects required archeological field studies. Less than 1 percent (226) of the record searchers necessitated additional data recovery projects. Of the data recovery projects, forty-three were carried out because of unanticipated site discoveries. Over 7.1 million acres were surveyed for archeological resources during 1998-2003 and 19,168 sites were identified and documented. The projects occurred on terrestrial and underwater acreage. Federal land managing agencies and development/regulatory agencies reported comparable numbers of planning and overview studies (213,058 versus 174,346) and comparable numbers of field studies (104,378 versus 108,365). Land managing agencies, however, reported over seventeen times as many data recovery projects as development/regulatory agencies (3,927 versus 226) and surveyed more than twice as much acreage (15 million versus 7 million acres). The comparisons suggest that, on average, archeological field projects authorized by development/regulatory agencies were smaller than those authorized by land managing agencies, perhaps reflecting a smaller spatial extent of the undertakings. Many of the undertakings were on individual farms and ranches and were funded through grants that tend to be for smaller projects.

> The Minerals Management Service, Department of the Interior reported on underwater archeological surveys required for oil and gas exploration and extraction projects. The surveys located ten sites in 7 million acres of remote sensing underwater survey. These surveyed acres and sites are not included with the counts from other agencies because the methodology used is not comparable with terrestrial field studies.

If data from the Federal Highway Administration (FHWA), a development agency, were available, however, the picture would change. The FHWA submitted incomplete data for one year of the reporting period. These data were not included in the tables and graphs, although the potential magnitude of the contribution of the FHWA to the Federal Archeology Program is noted here. The Federal Preservation Officer for the FHWA estimated spending in 2001 at least $19 million on federally funded archeological activities for highway planning and construction. This

number amounts to more than the total sum of the funding reported for all development agencies for 1998-2003. The FHWA, however, does not have staff or mechanisms for collecting data about archeological projects that are carried out in association with highway construction or improvement. It, instead, transfers funding to state departments of transportation. The inclusion of information about the numbers of archeological sites evaluated through the unreported projects would make data from land managing agencies and development agencies more similar.

Field Survey

Field survey involves examination of the ground surface or exploration of the sub-surface for traces of human activity through shovel testing, soil coring, geophysical techniques, or other field methods of site discovery and evaluation. Archeologists assess and document any identified archeological resources and use the information to evaluate site significance and the potential impact of the proposed undertaking on the site. The Federal agency in charge of the undertaking decides whether significant sites can be preserved *in situ*, which is preferred, or whether the site or portions of the site will be destroyed. In that case, mitigation measures must be developed.

Excavations at Shiloh National Park. (NPS)

Between 1998 and 2003, archeologists surveyed 15 million acres of Federal lands, an average of about 250,000,000 acres per year (Table 4). By 2003, 9 percent (approximately 67 million acres) of all Federal lands had been surveyed for archeological sites (Table 5). At the current survey rate, it will take approximately 300 years to survey all Federal lands for archeological sites.

Year	Acres Surveyed
1998	2,386,033
1999	2,096,304
2000	2,494,195
2001	2,112,214
2002	2,439,480
2003	3,441,565
Total	14,969,791

Table 4. Federal lands surveyed for archeological properties, 1998-2003.

Agencies	Acres	Percent of Total Land
Bureau of Land Management	263,621,285	35
U.S. Forest Service	192,511,012	25
U.S. Fish and Wildlife Service	95,075,000	12
National Park Service	77,415,476	10
Bureau of Indian Affairs	55,700,000	7
U.S. Navy	16,449,650	2
Department of the Army	11,907,533	1
Army Corps of Engineers	11,700,000	1
Bureau of Reclamation	8,700,000	1
Air Force	8,613,275	1
Department of Energy	3,103,986	<1
National Aeronautics and Aviation	339,190	<1
Tennessee Valley Authority	293,000	<1
U.S. Coast Guard	66,000	<1
Air National Guard	47,550	<1
Bureau of Prisons	43,600	<1
Federal Aviation Administration	33,159	<1
Veterans Affairs	25,303	<1
General Services Administration	17,752	<1

Table 5. Lands managed by Federal Agencies, 2003.

In total, Federal agencies reported over 600,000 archeological activities, ranging from checking a file or map to determine whether archeological sites were reported in a project area, to field investigation, to full-scale data recovery through site excavation. Over 200,000 investigations included some kind of field study. Federal efforts identified 298,000 archeological sites, of which 279,000 were on Federal lands, and 19,000 were on non-Federal lands. A total of 572 projects were conducted after sites were discovered unexpectedly.

Archeological Properties and the National Register of Historic Places

Archeological sites may be listed on the National Register of Historic Places as either individual sites or as parts of groupings of sites within specified areas referred to as “districts,” “landscapes,” or “traditional cultural

Preserving the USS Monitor

USS Monitor. (NOAA)

The identification and protection of the ironclad war ship USS Monitor has provided Civil War and maritime historians with access to a pivotal time in the development of the modern American navy, and has encouraged the public to learn more about this era of history. After fighting the ironclad CSS Virginia to a draw in the Battle of Hampton Roads in March 1862, the Monitor went down in a gale off Cape Hatteras on New Years Eve (Broadwater 2006). The resting place of the Monitor's remains was discovered in 1972. It was later designated America's first National Marine Sanctuary and was listed on the National Register of Historic Places.

In the late 1990s, the National Oceanic and Atmospheric Administration (NOAA), the sanctuary's manager, determined that the ship's remains were disintegrating. A partnership was formed between NOAA, the U.S. Navy, and the Mariners' Museum to raise and restore sections of the Monitor. Listing on the National Register was an important factor in gaining funding for the project. Funding was provided by the NOAA, the U.S. Navy, and the Department of Defense Legacy Resources Management Fund. Between 1998 and 2002, parts of the ship, including the innovative gun turret, were successfully moved to dry land. Today, visitors and researchers can examine artifacts and pieces of the USS Monitor at the Mariners' Museum in Norfolk, Virginia.

properties." The National Register uses the term "historic property" to refer to all property types. For purposes of protecting sites on Federal lands, they may either be listed or be eligible for listing on the National Register.

Seventy-three new properties were added to the National Register under Criteria D, which includes places that have yielded, or may be likely to yield, information important in prehistory or history. Each year brought additional, new sites to the National Register: 18 in 1998, 15 in 1999, 6 in 2000, 4 in 2001, 9 in 2002, and 21 in 2003. Of the 808,000 archeological sites identified on Federal lands by 2003, only 2 percent (13,825) were *listed* on the National Register (Figure 3). An additional 10 percent (83,970) were *eligible* for listing. Eligibility includes administrative determinations, often referred to as "consensus determinations of eligible," made by Federal land managers and State Historic Preservation Officers that archeological sites, or properties, are eligibility for listing on the National Register. Another 11 percent (91,872) were evaluated and determined to be *ineligible*. Land managing Federal agencies reported that, between 1998 and 2003, 49,500 (18 percent of identified sites) archeological sites were determined to be eligible for the National Register, either through formal reviews or consensus determinations of eligibility. During the same time period, development and regulatory Federal agencies reported that 5,282 (26 percent of all sites reported identified during 1998-2003) archeological sites located on state, private, or tribal lands were eligible for listing on the National Register.

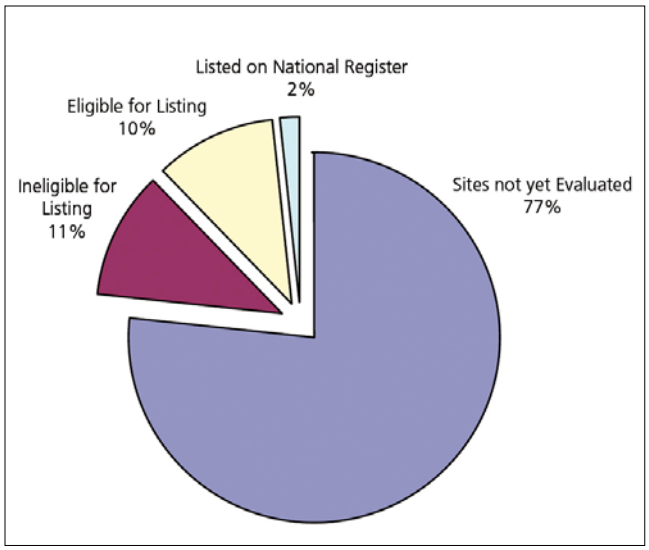


Figure 3. National Register status of archeological sites on Federal land, 2003.

Site Conservation at Shiloh National Military Park

Excavations at Shiloh National Park. (NPS)

During 1998-2003, one of the largest excavations conducted by the National Park Service in decades was carried out to stabilize and conserve Native American earthen architecture threatened by erosion in Shiloh National Military Park, Tennessee. The 20' high mound sits on an 80' high bank that was eroding into the Tennessee River as the result of impoundment of the river (Hillman 2002). The U.S. Army Corps of Engineers developed a plan to stabilize the bank with rip rap. The plan required cutting away a portion of the bank such that it would not support the steep-sided earthen mound.

As required by NHPA Section 106, consultation was initiated with the culturally affiliated Chickasaw Nation, in Ada, Oklahoma. The Chickasaw Nation is descended from a society that inhabited the Tennessee Valley from 1000 to 1350 A.D. The Chickasaw people were moved to present day Oklahoma during the Great Removal on the Trail of Tears in the 1830s.

Leaders of the Chickasaw Nation peer-reviewed the planning documents and, after their concerns were addressed, signed a Memorandum of Agreement with Shiloh National Park. The relationship between the Chickasaw Nation and the park became one based on trust and understanding of the positions and philosophy of each party. During the four years of the project, representatives visited the site every field season. A website was maintained so that tribal members could watch the progress of the excavation.

In order to stabilize the mound, National Park Service archeologists excavated its river-side face to form a more gradual slope and to prevent further erosion. The archeological excavations uncovered a remarkable record of mound construction, maintenance, and use that has expanded our understanding of the development of ceremonial mounds in the southeastern United States. The excavation provided additional information about the economy, social organization, and way of life of a complex and sophisticated Native American society.

The investigations also collected 9,000-year-old pollen records from a nearby pond in the park. Pollen grains preserve well and are unique and can be identified to species or genera. Analysis of pollen from Shiloh provided data to develop a more detailed picture of past environments. These data complement the information gained from excavations at Dust Cave and further refine our understanding of the characteristics of climate change.

Conservation of Federal Archeological Sites

Site conservation involves the stabilization or preservation of archeological sites in place. Between 1998 and 2003, Federal agencies reported conservation activities at over 85,000 sites, mostly on Federal lands (Table 2 and 3).

Conservation techniques to prevent the erosion of archeological sites include the placement of sterile soil, shallow-rooted vegetation, rip rap, or other stable material over exposed surfaces. The U.S. Army Corps participated in an experimental program at Lake Sharpe in South Dakota using hay bales and revegetation to mitigate the effects of erosion on 200 archeological sites on the lakeshore. It has proven to be a stable and effective method (Thorne 2004). Archeological sites with high levels of visitation, for example national parks and monuments, may require periodic conservation programs to protect sites from erosion due to foot traffic. Site maintenance is one type of site conservation, as it protects sites from degradation. Erosion of coastal, lake margin, and riverine sites is expected to increase. Erosion is a problem for archeological sites because it destroys sites and the context of archeological features and materials.

One particularly pressing issue facing the conservation of archeological sites involves the effects of climate change. Increasingly efficient and sophisticated methods of site conservation will be needed to protect archeological resources. More sites will be altered by exposure to heat as unprecedented wildfire intensity and frequency increases. Only conservation and documentation will save the information associated with affected archeological sites.

Year	Documented Violations	Cases Involving Arrests	Number of People Arrested	Number of People Cited	Fines	Restitution Given	Cost of Restoration and Repair
1998	1,706	12	36	154	127,250	102,040	821,709
1999	693	8	33	127	137,539	85,574.4	428,828.5
2000	675	40	45	146	23,205	213,030	1,554,908
2001	541	10	39	74	62,283	326,366	1,399,068
2002	787	80	115	197	64,090	288,846	4,591,953
2003	723	9	15	95	39,075	144,600	2,435,398
Total	5,125	159	283	793	453,442	1,160,456.4	11,231,864

Table 6. Documented violations of archeological resources protection laws, 1998-2003.

Combating Site Destruction through Law Enforcement Activities

Archeological sites are invaluable and unique sources of information about the past. The loss of these sites diminishes the degree to which Americans can learn about our unwritten history. Looting removes objects from their proper context, destroying the contextual information and severely limiting what can be learned about the past from any subsequent scholarly study of the looted objects. Looting and vandalism of archeological resources also affect the public financially. Federal agencies reported that, between 1998 and 2003, the cost of restoration and repair of damage to archeological resources from vandalism and looting was estimated at $11 million (Table 6). Restitution and fines accounted for only 15 percent of the amount ($1.75 million) leaving a gap in the ability of Federal agencies to restore sites without redirecting funds from other activities, such as investigations, public guides and other public services. During 1998-2003, Federal archeologists, law enforcement officers, rangers, and managers worked to protect and preserve archeological resources by monitoring sites, promoting conservation and preservation of archeological sites through interpretation and signage, and investigating incidents of looting or vandalism.

Protection activities reported by Edwards Air Force Base, California, illustrate the effective cooperation that is possible between archeological resources managers and law enforcement officers in preserving archeological resources. In 1998, archeologists and law enforcement officers at Edwards Air Force Base developed a plan for protecting archeological sites on the base. By 2003, the archeological resources protection program consisted of six components: site monitoring, a looted sites database, site investigation, education and outreach, site protection, and site surveillance. In site monitoring, selected sites on the base are visited periodically and the site records are updated with information about their current condition. The Site Protection Database maintains information on all looted and/or damaged sites on the base. Education and outreach included cultural resources briefings and public lectures, educational materials, and tours of archeological sites. Cultural resources staff members work closely with base law enforcement in site protection. The site surveillance program puts cultural resources specialists into the field at peak times of potential archeological site vandalism to monitor for signs of unlawful entry and activity. Any observed unauthorized activity is reported to base law enforcement personnel. Through this program, Edwards Air Force Base archeologists and law enforcement officers have prevented looting of archeological resources on the base.

Year	Reported Incidents
1998	1,706
1999	693
2000	675
2001	541
2002	787
2003	723

Table 7. Reported incidents of looting or vandalism of Federal archeological resources, 1998-2003.

Law enforcement personnel who are trained in archeological resources protection and archeological evidence collection are essential to successfully charging and prosecuting looters. Between 1998 and 2003, Federal personnel documented 5,125 incidents of archeological resources destruction or illegal removal. Looking beyond short-term variation between 1996 and 1998 (Table 7), the data from 1985 to 2003 suggest that the number of documented violations stabilized in 1993 to an average of 700 a year. The Bureau of Indian Affairs reported in 2003 that, as a result of training in archeological resources protection and increased law enforcement in multi-jurisdictional areas, three to five arrests were made annually for ARPA violations along the Columbia River, up from zero in 1997. Swain (2007) estimates, however, that less than 20 percent of the actual number of looting

Agency	Acres (in millions)	Reported Archeological Protection Law Violations	Reported Persons Apprehended	Law Enforcement Officers/Acre*
Bureau of Land Management	263.6	922	38	1/1,000,000
U.S. Forest Service	192.5	1,346	402	1/1,000,000
National Park Service	77.4	1,913	488	1/56,000

Table 8. Number of documented violations of archeological resources protection laws reported by three of the four largest Federal land managing agencies, 1998-2003.

FY	Documented Violations	Number Prosecuted under ARPA	Number Convicted of ARPA Misdemeanors	Number Convicted of ARPA Felonies
1998	1,706	64	21	11
1999	693	152	64	17
2000	675	90	85	12
2001	541	46	57	14
2002	787	50	80	7
2003	723	48	44	2
Totals	5,125	352	316	49

Table 9. Individuals prosecuted under ARPA for damage to or illegal trafficking in archeological resources, 1998-2003.

and vandalism incidents are investigated. If correct, then the number of incidents of destruction of archeological resources on Federal lands between 1998 and 2003 exceeds 25,000. The number of *documented* incidents of looting and vandalism likely reflects the number of personnel available to monitor and inspect archeological sites.

Three of the four largest land managing Federal agencies reported that a total of 4,198 incidents of looting or vandalism of archeological resources occurred between 1998 and 2003 (Table 8). Of these three agencies, the National Park Service (NPS) manages the smallest amount of land, but employs the largest per-acre number of law enforcement officers, one for every 56,000 acres of managed land. This high ratio is related to the NPS policy emphasizing visitor protection. The Bureau of Land Management and U.S. Forest Service employ approximately one law enforcement officer for every million acres of managed land. The NPS reported the highest number of apprehensions of looters and vandals, despite its smaller area managed. These data suggest that a larger field staff involved in monitoring and protection of archeological resources results in more documentations of incidents of looting and vandalism and apprehension of perpetrators.

A total of 1,076 people were either arrested or issued citations in relation to incidents of looting and vandalism between 1998 and 2003 (Table 6). Of the 5,125 reported incidents of archeological resources violations during this time, 159 involved arrests of 283 people, an average of 2 people per case. During the same period, a reported 793 people were issued citations in an unknown number of incidents. If we assume that the average number of people involved in each incident for which a citation was issued is also two people, then about 400 (396) incidents of archeological resources violation resulted in a citation or arrest. The number suggests that perpetrators were apprehended in only about 10 percent of the documented incidents of archeological resources violation (552 estimated cases out of 5,125 incidents) for 1998-2003.

Federal agencies reported that, between 1998 and 2003, 352 people were prosecuted under ARPA (Table 9). Federal agencies reported obtaining 316 misdemeanor convictions and 49 felony convictions under ARPA. The numbers reflect prosecutions that began during the reporting period but were not yet ended, and cases that finished in the reporting period, but were initiated prior to 1998.

Palmer (2007) found that only 89 out of a total of 327 ARPA violations cases referred to the U.S. Attorney's offices were prosecuted between 1996 and 2005. A total of 83 out of the 89 defendants were found guilty, a 93 percent conviction rate. The reasons most often given for declining to prosecute were "weak evidence" and "lack of criminal intent" (Palmer 2007). Training on performing damage assessments and ARPA training for agency field archeologists, law enforcement personnel, and Assistant U.S. Attorneys would strengthen ARPA prosecutions by providing agency staffs and government prosecutors with the special tools needed to investigate crimes against archeological resources and to prepare cases effectively.

FY	Documented Violations	Number of People Prosecuted	Number of People Convicted of Misdemeanors	Number of People Convicted of Felonies
1998	1,706	63	10	2
1999	693	474	93	6
2000	675	67	13	0
2001	541	56	26	12
2002	787	77	31	3
2003	723	266	21	5
Totals	5,125	890	184	26

Table 10. Individuals prosecuted under laws other than ARPA for looting or vandalism of Federal archeological resources, 1998-2003.

A total of 890 people were prosecuted for violations of other Federal laws (Table 10). Some individuals were charged with violations of both ARPA and other laws. Other laws that are commonly used as a basis for charges are agency organic acts, and theft and destruction of Federal properties statutes. A total of 184 misdemeanor convictions and 26 felony convictions under laws other than ARPA were also reported.

Recommendations

Recommendation 1: Survey, locate, interpret, and document archeological sites to promote resource preservation and inform management decisions.

Recommendation 2: Build partnerships to leverage protection resources and share information. Strengthen relationships between Indian tribes and Federal agencies regarding archeology and archeological resources.

Recommendation 3: Prevent theft of archeological resources by providing technical support and training to enforce existing laws and use special technology for detection.

Chaco Anasazi Pitcher, Chaco Culture National Historical Park, CHCU 92338. (NPS)

Kito Nzingha, sorting prehistoric ceramic sherds (pottery) for cataloging. (BLM, Anasazi Heritage Center, Dolores, Colorado)

CONSERVING ARCHEOLOGICAL COLLECTIONS AND RECORDS

Archeological excavation is destructive. All that remains after excavation are artifacts and other material remains, soil samples, field notes, photographs, drawings, electronic data, and associated records and reports. Excavations are carried out only once, but good records and collections management provide opportunities for the material remains and associated records to be analyzed repeatedly. Archeological material remains, the most tangible clues to past human lives, can be re-examined as new questions are asked and new analytical techniques become available. Federal agencies are responsible for ensuring that collections under their care are available for scientific, educational, and heritage use—now and into the future.

The year 2000 marked a decade since the publication of government-wide regulations on the care of Federal archeological collections (36 CFR 79 "Curation of Federally Owned and Administered Archeological Collections"). These important regulations provide guidance for Federal agencies with archeological collections and for museums and repositories that curate Federal collections. The regulations provide definitions, standards, procedures, and guidelines that must be observed to manage and preserve Federal archeological collections, including the associated records, from federally mandated projects or projects on Federal lands. The 1998-2003 data indicate that Federal agencies made progress in carrying out curatorial responsibilities in the decade of increased attention to Federal collections after the publication of the curation regulations.

Federal Agency	Objects Curated (number)	Percent Cataloged	Cataloged (number)	To be Cataloged (number)
DEPARTMENT OF AGRICULTURE				
U.S. Forest Service	90,048	56	50,427	39,621
DEPARTMENT OF ENERGY	1,395,057	99	1,381,106	13,950
DEPARTMENT OF THE INTERIOR				
Bureau of Indian Affairs	4,552,173	9	409,695	4,142,477
Bureau of Land Management	3,700,000	67	2,479,000	1,221,000
Bureau of Reclamation	6,747,833	90	6,073,050	674,783
U.S. Fish and Wildlife Service	1,980,427	80	1,584,342	396,085
National Park Service	34,532,979	63	21,755,777	12,777,202
DEPARTMENT OF HOMELAND SECURITY				
U.S. Coast Guard	8,115	100	8,115	0
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	58	30	18	40
TENNESSEE VALLEY AUTHORITY	4,570	9		
Total	53,011,260	63	33,741,529	19,265,161
Federal Agency	**Objects Curated (cubic feet)***	**Percent Cataloged**	**Cataloged (cubic feet)**	**To be Cataloged (cubic feet)**
DEPARTMENT OF DEFENSE				
U.S. Air Force	2,254.00	51	1,149.54	1,104.46
U.S. Army Corps of Engineers	56,000.00	90	50,400.00	5,600.00
Department of the Army	39,076.00	11	4,571.89	34,504.11
U.S. Navy and Marine Corps	6,085.00	85	5,172.25	912.75
DEPARTMENT OF ENERGY	4,179	99	4,137	42.00
DEPARTMENT OF JUSTICE (2002)	25.16	99	24.90	0.25
Total	107,619.00	60	65,455.8	42,163.36

Table 11. Archeological objects in Federal agency collections as of 2003, reported by number and by volume.

* Agencies record and reported their archeological collections using two different measures, either numbers of objects or cubic feet of objects curated.

Curation Activities

In 2003, Federal agencies reported caring for 53 million objects and 107,600 cubic feet of materials (Table 11). During 1998-2003, the number of cataloged objects in Federal archeological collections increased by over 7 million objects. The number includes both objects that are in new collections accessioned into Federal ownership and objects in collections that had not been previously cataloged. Federal agencies reported that, overall, more than one third of archeological objects in Federal museum collections had yet to be cataloged.

Federal agencies reported that, as of 2003, a total of 14,624 linear feet of associated archeological records were held in

Partnership Benefits Federal Collections in Wyoming Repository

In Wyoming, studies in the mid-to-late 1970s found that deterioration, inaccessibility, and poor security plagued archeological collections. An interagency agreement, however, helped the University of Wyoming Archeological Repository in Laramie to better manage Federal archeological collections. The Bureau of Land Management, Bureau of Reclamation, U.S. Fish and Wildlife Service, and Federal Highway Administration signed a cooperative agreement that provided funds to curate Federal collections held at the repository. By the end of the agreement, approximately 700 boxes of archeological materials were inventoried and cataloged. As a result, researchers could easily locate artifacts and samples from over 2700 sites whose ages spanned 11,000 years or more. After site excavation, many of the sites were destroyed by development. The collections and associated records, therefore, were unique sources of information about the sites.

Wyoming State Archeologist Mark Miller wrote in the 1999 progress report, "The archeological repository is a far better facility now than it was five years ago, thanks in large measure to the inter-agency cooperation that was made possible through this agreement."

agency offices, museums, and repositories. Some agencies consider associated records to be part of the material remains from an excavation. Other agencies consider records associated with archeological investigations to be archival in nature, and report them separately even though the definition of "collection" in 36 CFR 79.4 includes "associated records" as part of a collection. These numbers, therefore, can be considered a conservative estimate of the archeological records that require curation that are held by Federal agencies.

Through agency directives and compliance with legal reporting and repatriation requirements of the Native American Graves Repatriation Act (NAGPRA), an increased emphasis on accountability has prompted Federal agencies to redouble efforts to identify and catalog Federal archeological collections. Many of the uncataloged collections are curated for Federal agencies by non-Federal repositories at public and private universities and museums. As of 2003, agencies had identified over 1,300 Federal collections curated in non-Federal repositories and 400 Federal repositories housing Federal archeological collections. Childs and Kinsey (2003) found that estimates for curating a cubic foot of archeological materials ranged from $68 to $1500. Their study also found that, over time, increased attention to the costs of curating archeological collections to the standards required by 36 CFR 79 has resulted in more museums charging fees for curation of Federal collections. 36 CFR 79 made clear that Federal agencies had responsibilities, including financial support, to collections in non-Federal repositories. It is important that Federal agencies work closely with the repositories to ensure adequate curation of Federal archeological collections and provide logistical support. In order to provide support, agencies may incur costs for curation that are not provided for in their current budgets.

Federal agencies reported that an average 64 percent of their collections, including material remains and associated records, were cataloged as of 2003. This number is a 6 percent increase from 1998 (Table 12). These data suggest that, even in the absence of new collections, it will take Federal agencies nearly 40 years to catalog the archeological objects and associated records currently in their care. Careful cataloging improves public access and use of collections and helps Federal agencies to be accountable for Federal property. Continued focus on this challenge will reduce and eliminate the cataloging backlog and provide effective preservation and access to collections.

FY	Items curated	Items cataloged	Percent cataloged
1998	45,664,413	26,429,902	58
1999	40,893,227	25,017,210	61
2000	44,256,972	27,847,175	63
2001	41,588,399	26,802,584	64
2002	46,46,5481	28,274,581	61
2003	53,011,260	33,741,529	64

Table 12. Cataloged archeological items in Federal collections, 1998-2003.

Note: The cataloged proportion of Federal archeological holdings fluctuates when new collections are added.

The NPS launched an online course *Managing Archeological Collections* (www.nps.gov/archeology/collections/) in 2000 (Childs and Corcoran 2000). *Managing Archeological Collections* was the first online federally sponsored course designed to assist archeologists, curators, students, and the public with the complex web of responsibilities related to collections care. It focuses on the objects, records, reports, and digital data collected and cared for in the field, lab, office, and repository. The course is designed to help teach about long-term preservation and management of archeological collections. Issues and best practices related to archiving and conservation are integrated throughout the course materials.

Jar, Sankawi'i Black-on-cream, Ancestral Pueblo, Pueblo IV. AD 1525 -1650. Bandelier National Monument, BAND 725. (NPS)

Recommendation

Recommendation 4: Provide resources to care for federally owned and administered archeological collections and records.

Public archeology at Fort Vancouver. (NPS)

UTILIZING AND SHARING ARCHEOLOGICAL RESEARCH RESULTS

Archeological investigations recover and preserve the information associated with our nation's past, and make this information available to further historical and long-term scientific understanding of human and natural history. An accurate understanding of the past is essential for researchers in social, earth, and life sciences. Sharing the results and interpretations of the research with the scientific community and with the public enhances the value of the information. This chapter focuses on the ways that Federal agencies use and share archeological research with professionals and the public.

Utilizing Archeological Data

Archeological data can, and should be, used to address a variety of research questions ranging from the development of specific ancient and historical events and culture histories to changes associated with global warming. Archeology provides a rich source of information and can be used in concert with oral histories, traditional narratives, and historical accounts to provide detailed histories of particular groups or areas (e.g., Dixon 2005). Archeological investigations inform our understanding of the long-term social and natural dynamics that have shaped our contemporary world.

Because of the complexity of the primary data – the material remains and records from excavation and survey – other scientists rely on analysis and synthesis of archeological research. Advances in electronic communication and storage technologies have enabled archeologists to integrate and synthesize large data sets in new ways and promise even more benefits from data integration in the future (Kintigh 2006).

Synthesizing Research to Model Native American Anasazi Populations in the Southwest

Archeologists in the American Southwest use many kinds of data to understand why the Anasazi people of the Four Corners area moved away from their cliff dwellings around 1250 A.D (Johnson et al. 2005). The archeologists hypothesized that climate change was a factor in the migration. They used data from excavations, surveys, and museum collections that synthesized a century of archeological research on Federal lands to construct computer simulations of population growth and movement over time.

Bureau of Land Management archeologist C. David Johnson used tree ring data from wood in pueblo architecture and hydrological data to develop a model that suggested climate changes during this time affected crop productivity and, equally important, tree growth patterns. The results indicated that a severe drought in the beginning of the thirteenth century A.D. limited agricultural capabilities and slowed tree growth. The model estimated that, over time, the amount of wood available to residents of the Four Corners area diminished greatly (Johnson et al. 2005). These results have significant implications for the study of rural communities today that harvest firewood for domestic consumption that will be impacted by global warming.

In a related study using some of the same data, archeologists studied the effect of hunting on deer populations in the region (Kohler et al. 2008). Computer simulations indicated that deer were quickly exterminated locally, a finding that was corroborated by study of animal remains from archeological sites. Despite the loss of a major food source, human population levels were higher than those predicted by the models. The researchers concluded that pueblo peoples had replaced deer with domestic turkeys in the diet and fed both themselves and their turkeys with maize. Shortfalls in crop yields in the beginning of the thirteenth century, therefore, had a double impact on the Anasazi, decreasing the availability of food for households and for flocks of domestic turkeys. Food shortages and lack of firewood led to migration and population levels to decline.

Planning for the study began in 1988 and ultimately involved a cooperative effort that included archeological survey of portions of Bandelier National Monument, Arizona by National Park Service archeologists, excavations over several field seasons by Washington State University, cooperation and consultation with San Ildefonso and Cochiti Pueblos, and research planning and publication with the School for American Research (now the School for Advanced Research) in Santa Fe. The improved understanding of the ancient history and human ecology of the area provided a framework for understanding climate change. The results have been shared with members of the partnership and with the public, as well as reported in detail for professional and general audiences in books and technical reports (e.g., Kohler 2004; Powers 2005; Powers and Orcutt 1999; Smith 2002).

Through the development of powerful computers, scientists utilize sophisticated models for understanding past climate change and the effects on plant, animal, and human communities. This research environment has fostered re-analysis of museum collections, and survey and excavation records. Archeologists are integrating information from archeology, as well as contributions from other disciplines such as biology, soil science, hydrology, and demography to provide detailed pictures of the effects of changes in rainfall and temperature regimes.

Public archeology at Fort Vancouver. (NPS)

Update to the National Archeological Database-Reports

One problem facing archeologists in Federal agencies and the private sector is the location of technical reports, or "grey literature," from archeological studies. Since the 1980s, the National Park Service has maintained the National Archeological Database-Reports (NADB-Reports, available online at www.nps.gov/archeology/tools/nadb.htm) as a bibliographic inventory of reports on archeological investigation and planning. Most records in NADB-Reports are citations for grey literature with a limited distribution, meaning technical documents printed in small quantities and distributed to a few libraries or other institutions. Each record in the database contains a bibliographic citation of the report and a location where a copy is deposited.

NADB-Reports is the only online national database that inventories limited distribution reports of archeological investigations associated with Federal undertakings. The records have been contributed by State Historic Preservation Offices, California Information Centers, and Federal agencies. The NPS conducted a survey of these offices in 2002 to learn more about ways that the offices collected and recorded the bibliographic information (Childs and Kinsey 2004). In addition to the survey, the

NPS, FWS and BLM Special Agents and archaeologists working together in the field. (USFS)

NPS collected additional digital records of archeological reports. Following verification and processing, 110,000 new records were added to the NADB-Reports database, which as of 2008 contains information on over 350,000 archeological reports. More than 33,000 citations are for reports prepared between 1998 and 2001-2002 (Table 13a). The database is in frequent and regular use, which demonstrates that it meets a real need for archeologists. Between 1998 and 2002, the last update in the reporting period, NADB-Reports had been accessed over 900 times per month (Table 13b). NADB-Reports saves land managers and developers time and money to locate records about previous investigations.

Publication Year	Number of Reports in NADB-Reports
1998	7,120
1999	6,470
2000	8,030
2001	7,154
2002	4,120

Table 13a. Number of citations entered into NPS NADB-Reports by year 1998-2002. The next update occurred in 2004.

Time Period [Annual NADB-Reports Use. Use statistics not available for 1999-2000.]	Number of "Hits" on NADB web pages
1998	9,800
2001	11,500
2002	11,000
2003	11,000
2004	24,000

Table 13b. Annual NADB-Reports Use

Sharing Archeological Research Results

Archeology contributes to other sciences through joint research and through sharing research results in publications and presentations. Archeologists also communicate research findings to the public. Online databases, websites, public programming, and museum exhibits are just a few ways that Federal agencies, often in cooperation with partners, make information about archeology available to the public.

The sharing of research results takes many forms. In the 1998-2003 period, projects included:

- The U.S. Coast Guard and the Archeology Department at nearby Fort Niagara State Park conducted archeological investigations in conjunction with rebuilding the Niagara Coast Guard station. Over 1,000 historic artifacts were recovered and integrated into public exhibits at the station. The project represents a cooperative effort among archeological entities that resulted in the sharing of information among professionals and with the public.
- Excavations at Katmai National Park and Preserve were conducted to mitigate the impacts of erosion on the remains of dozens of house sites. Archeologists, working with Alaska Native groups, worked on research of mutual interest. Part of the project involved the possible relationships of human burials to houses. Another aspect addressed questions about the relationships of past house forms to contemporary housing. Archeologists' research recovered new information about housing types, family living arrangements, and connections between past

Public archeology at Fort Vancouver. (NPS)

peoples living at Brooks River and Kodiak. Information about the project enhances Native Alaskans' understanding of their ancestors' lives as well as archeologists' and visitors knowledge about past peoples and their relationships to the present.

- Archeologists collaborated with the Northern and Southern Cheyenne and Arapaho tribes, the Colorado Historical Society, landowners, and volunteers to locate the site of the Sand Creek Massacre in the process of identifying boundaries for the Sand Creek Massacre National Historic Site. Archeologists recovered artifactual evidence located in a site different from where oral traditions or ceremonial evidence placed the massacre. Rather than weigh one kind of evidence as more or less significant than another, the sharing of research enabled all sides to educate each other on the past and provide multiple perspectives on a problem.

The results of Federal archeological research help archeologists, researchers in other disciplines, and members of the public to gain an accurate understanding of national history and prehistory. They provide comparative data across sites, regions, and cultures within America.

Recommendation

Recommendation 5: Share archeological research results for educational, scientific, and cultural purposes.

Volunteers excavate with the Army Corps of Engineers. (Army Corps)

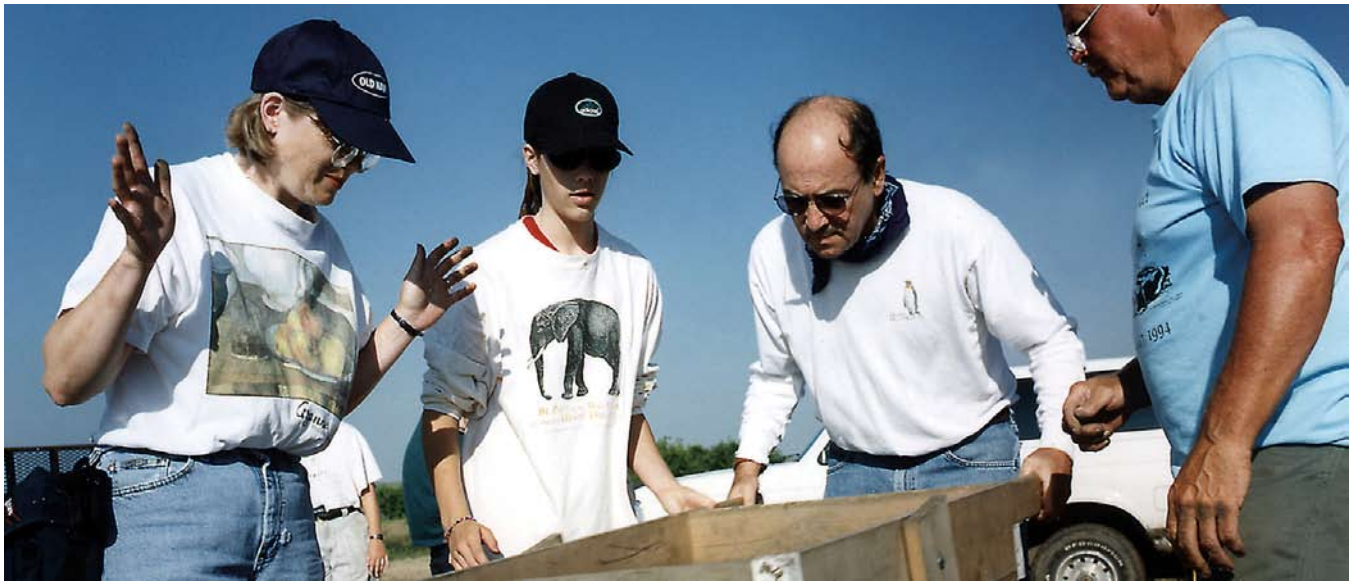
OUTREACH AND PARTICIPATION IN PUBLIC ARCHEOLOGY

Federal agencies rely on the American public to respect the many archeological resources on public lands and support funding for archeological stewardship that comes from Federal taxes. An informed public is better able to understand the importance of protecting archeological resources. This chapter outlines outreach and education efforts in which the Federal Archeology Program has taken part.

Investigating Public Attitudes and Perceptions about Archeology

The Federal Archeology Program operates in the public's trust to manage sites and collections for future generations. A recent poll underscores the significance of Federal archeology in the eyes of the public and provides support for Federal action towards the protection and use of archeological resources.

In 1999, archeologists in Federal agencies and national archeological organizations joined in a cooperative effort to conduct a national survey to determine Americans' understanding of and opinions about archeology and archeological resources. The Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Forest Service, and National Park Service in cooperation with the Archaeological Conservancy, Archaeological Institute of America, Society for American Archaeology, and Society for Historical Archaeology, organized and funded the investigation by Harris Interactive.



Volunteers excavate with the Army Corps of Engineers. (Army Corps)

The Harris Interactive survey results suggest fertile ground for effective public education and outreach, but ground that must be cultivated to achieve fruitful results (Ramos and Duganne 2000). When asked how they would rate "the importance of archeology in today's society" on an 11-point scale (where 0 means it is "not at all important" and 10 means it is "very important"), respondents gave a mean score of 7.3. This score is well above the mid-point in the scale. Almost half (45%) of the respondents were interested in learning about the human past and how people lived, worked, and built shelters. Respondents felt that the greatest significance of archeology was its ability to help them to understand the modern world. They gave this aspect the highest importance - a mean rating of 7.1. This complements respondents' views that archeology is important because we learn about the past to improve the future. Almost all (99%) of the respondents said that archeological sites have educational and scientific value. A majority of respondents also said that archeological objects and sites have aesthetic or artistic value (94%), value related to personal heritage (93%), and spiritual value (88%). Most people (96%) felt that there should be laws to protect historical and ancient archeological sites. The full results of the Harris Interactive survey are available on the NPS Archeology Program website (www.nps.gov/archeology/PUBS/Harris/index.htm).

The survey signals to Federal agencies and Federal archeologists that they have a significant responsibility to act in the public's trust in terms of archeological research, education, and interpretation. Americans are clearly supportive of archeology, and the challenge to the Federal Archeology Program is to meet and exceed their expectations.

Non-Federal Partners in Archeological Stewardship

Non-Federal partners, such as state and local governments, avocational and professional archeological organizations, universities, and State and Tribal Historic Preservation Offices, are vital in meeting the challenges of responsible stewardship of archeological resources. Partnerships with such organizations enable many Federal agencies to carry out archeological resources stewardship activities, including site identification and preservation, monitoring, public education, collections management, and project development that would otherwise be limited by lack of funding or personnel.

Federal agencies reported that, during 1998-2003, the number of non-Federal partners participating in archeological stewardship activities on an annual basis increased from around 600 to around 800 (Figure 4).

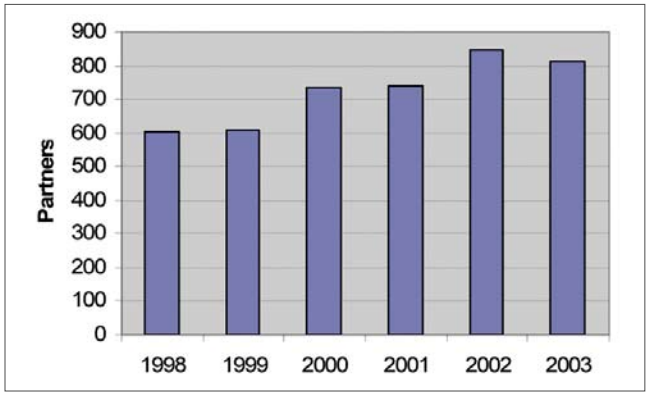


Figure 4. Non-Federal partners in the Federal Archeology Program, 1998-2003

Preserving the H.L. Hunley

The H.L. Hunley immersed in refrigerated storage tank at the Warren Lasch Conservation Lab. (Photo courtesy of Robert Neyland)

In 2000, the Naval Historical Center, the U.S. Navy, the University of South Carolina, and several private organizations created a partnership to raise the intact archeological remains of the H. L. Hunley, a Confederate submarine that sank shortly after sinking the USS Housatonic in 1864. The submarine was rediscovered in 1995 in 30 feet of water in Charleston Harbor, South Carolina (Neyland 2008).

Researchers lowered a steel box over the Hunley, then passed custom made slings attached to the box under the wreck. This maneuver was no easy feat, as the wreck was filled with sediment and weighed 23 tons (Flanagan 2001). A crane on a barge lifted the steel box, with the Hunley inside, to the surface and transported it to a state-of-the-art conservation laboratory at Charleston Navy Base.

After the intact vessel was safely placed in the laboratory, a team of investigators and conservators began a careful study of the submarine and its contents, including the remains of the crew. Excavation of the sediments inside the Hunley revealed buttons, a tobacco pipe, textiles fragments and, curiously, a Union soldier's identification tag (Flanagan 2001). No original plans or drawings of the vessel survive, which means that archeology has provided naval historians of the Civil War with information that cannot be known in any other way.

In 2002, the Hunley project received two national historic preservation awards. One award was from the Association of Partners for Public Lands, the other from the National Trust for Historic Preservation. The partnership between Federal agencies, a university, and several private organizations has preserved a unique piece of American naval history.

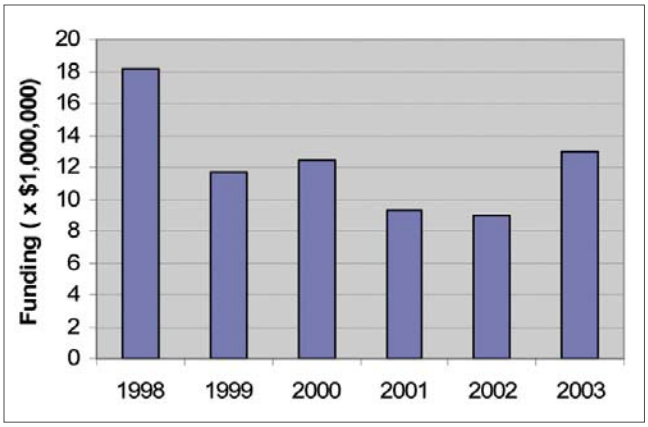


Figure 5. Non-Federal partner support (direct funding or dollar equivalents) of the Federal Archeology Program, 1998-2003.

Reported development agency partnerships, for example, went from 6 in 1998 to 71 in 2003. Partners contributed time, equipment, and funds for archeological activities. Agencies estimated that non-Federal partners contributed between $9 million and $18 million annually in labor, equipment, and direct donations for Federal archeology projects (Figure 5). While the funding (or funding equivalent) was low in 2001 and 2002, the number of partners increased relatively steadily between 1998 and 2003.

Federal Archeology Outreach Programs

ARPA (16 U.S.C. 470ii(c)) requires Federal land managers to develop outreach programs to increase public awareness of the significance of archeological resources. Agencies have complied with innovative programs that utilize a number of different venues to engage the public and promote archeological stewardship. Information about archeological resources and good communication about the need to protect and preserve archeological sites and collections is essential to public support of the Federal Archeology Program.

The adoption of Archeology Month or Archeology Week by many states throughout the United States is one example of Federal involvement in public outreach. Archeology Month/Week provides opportunities for archeologists to involve the public in archeological investigations, to promote the preservation and protection of archeological resources, and to demonstrate scientific methods. In 1996, for instance, over 2 million people visited Archeology Week events (Greengrass 1999). In 1999, 44 states observed an Archeology Week or Month (Ryan 1999:17). Local sponsors including Federal agencies, as well as universities, historic preservation programs, professional associations, and cultural resources management firms offer lectures, field trips, demonstrations, and other activities (Greengrass

1999). Private organizations and local, state, and Federal agencies coordinate public events aimed towards education about archeology and local archeological resources.

Volunteer Support for the Federal Archeology Program

Public volunteer support is important in caring for archeological resources. Individuals and programs who volunteer their time and expertise to Federal agencies for archeological activities contribute energy and skills to the Federal Archeology Program. Literally tens of thousands of volunteer hours assist with Federal archeological activities every year (Figure 6). Volunteers monitor archeological sites in backcountry areas, act as interpreters for visitors, participate in archeological site surveys, assist in archeological site stabilization, and work to conserve archeological sites and museum collections, to name a few of the many projects that involve them.

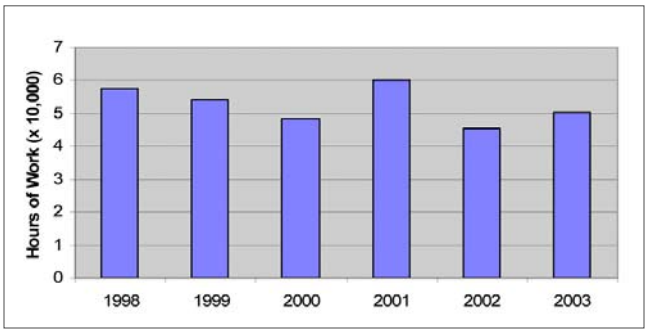


Figure 6. Volunteer support of Federal Archeology Program activities.

The National Park Service's "Volunteers in Parks," Bureau of Land Management's "Adventures in the Past," U.S. Forest Service's "Passports in Time," and Tennessee Valley Authority's "A Thousand Eyes" are specific examples of federally sponsored volunteer programs that assist archeologists and law enforcement officers on Federal lands and directly involve the public in archeology. The reported volunteer contributions of energy and expertise contribute nearly $1 million worth of work for Federal archeology activities each year.

Shared Competency Training

Recognizing the crucial role of good interpretation in educating the public, the National Park Service created a Shared Competency for Archeologists and Interpreters in 2000. The goal of the shared competency is to train archeologists and interpreters together in the skills and abilities needed to carry out effective interpretation of archeological resources. To support to the shared competency, the NPS Archeology Program launched an online course, Archeology for Interpreters: A Guide to Knowledge of the Resource (www.nps.gov/archeology/AforI/index.htm) in 2001 (Hembrey and Little 2001). This interactive on-line guide creates the opportunity for interpreters to learn about archeological methods, to explore how archeological interpretations are made, to ascribe meaning to archeological resources, and to increase public understanding and concern for the preservation and protection of archeological resources. Its impact, however, is wider than national park interpretation, as it is freely available on the internet for all agencies, schools, and the general public.

Archeology and Tourism

Archeological tourism provides other opportunities for Federal outreach programs. Tourism is the leading industry in thirty-seven states and in many gateway communities to Federal recreation lands. Heritage tourism is a significant component of the tourism industry (Howe et al. 1997:10-1). Well-preserved, accessible archeological sites with informative signage and interpretative tours are attractive heritage tourist destinations. In a survey conducted by the National Commission on the Outdoors, natural beauty was the top reason given for travel, followed by historic sites (in Howe et al. 1997: 10-11).

Cultural heritage tourism, including visits to archeological sites, can contribute significantly to local economies. The Bureau of Land Management reported that a 1997 study by the Arizona Humanities Council showed that, on average, cultural heritage tourists stay thirteen days in Arizona, which has a rich and accessible variety of Federal archeological resources. The average stay is four times longer than for typical tourists. Cultural heritage tourists spend an average of $1,534 during their stay, as compared to $389 for typical travelers. The Bureau of Land Management estimates that the Anasazi Heritage Center, which draws more than 30,000 visitors annually, added more than a million tourist dollars to the Dolores, Colorado economy in 2000.

Recommendation

Recommendation 6: Promote public outreach and education programs about archeology and archeological resources.

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