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FEDERAL

ARCHEOLOGICAL PROGRAMS
AND ACTIVITIES

**The Secretary of the Interior's
Report to Congress**



Departmental Consulting Archeologist
Archeological Assistance Program
National Park Service
Department of the Interior
Washington, DC

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FEDERAL ARCHEOLOGICAL PROGRAMS AND ACTIVITIES

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The Secretary of the Interior's Report to Congress

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Washington, DC

COVER: Rock art at Pony Hill Site, NM.

Photo courtesy Andrew Gulliford, Middle Tennessee State University

Executive Summary

In 1989 Secretary of the Interior Manuel Lujan, Jr. sent to Congress a report on Federal archeological activities that incorporated information from all Federal agencies that have archeological responsibilities. The content and scope of the 1989 report substantially expanded the archeological activities and results taken into account. As a result, the reports, of which this is the second, have increased substantially in content. This more comprehensive level of reporting, data collection, synthesis, and evaluation has required a considerably longer time to prepare the reports than in previous years when only a portion of National Park Service (NPS) activities were covered. Measures are being taken to reduce the time needed to collect the data and produce future reports.

The recommendations made in the 1989 report were used by Secretary Lujan to devise a national strategy for Federal archeology that has been formulated (Lujan 1991). The strategy calls for greater attention as part of Federal archeology programs and projects in:

- Providing for public education and participation;
- Using the paleoenvironmental record from archeological sites to better understand present-day changing environments;
- Preserving in situ archeological remains;
- Improving the communication of archeological information;
- Improving archeological resource inventories; and
- Improving the curation of archeological collections.

These categories provide an outline that organized the chapters of the present report to Congress. This report records progress in certain areas related to the national strategy. A number of important improvements have strengthened efforts to protect and preserve archeological resources. Amendments to the Archaeological Resources Protection Act (ARPA) enhanced the statute by: (1) making it easier to obtain convictions under ARPA by lowering the financial threshold for artifact value or site damage required for a felony violation; (2) making the attempted looting of a site a crime; (3) requiring Federal programs to increase the public's awareness of and appreciation for the significance of archeological resources located on public and Indian lands and the need to protect such resources; (4) developing methods of reporting violations of the Act and establishing procedures for document completion by agency personnel; and (5) determining the nature and extent of archeological resources on Federal land through increased archeological survey.

Important advances also have occurred in the means of exchanging information about Federal archeology. Not the least of those advances was the production and distribution of the earlier Secretary's report to Congress on Federal archeology (Keel et al. 1989). In addition, to assist in regular information exchange, the National Park Service's Archeological Assistance Program developed a series of publications.

These publications include:

Federal Archeology Report, a quarterly newsletter begun in April 1988, which provides information on current archeological activities by Federal and other public agencies. Topics covered include training opportunities, published sources for technical guidance, interagency peer reviews to improve Federal project effectiveness, as well as anti-looting and vandalism, public awareness, and education initiatives. This newsletter is distributed to over 5,000 individuals and organizations.

Technical publications, which began appearing in June 1988, that provide specific guidance on topics important for improvements in public agency archeology programs and archeological preservation.

There have been advances in public education. For example, the interagency Public Awareness Working Group (PAWG) began a number of programs in 1987 including the production and distribution of a series of archeological resource protection bookmarks and a 28-minute videotape (*Assault on Time*) promoting archeological resource protection. The bookmarks and video were produced and distributed cooperatively by several agencies including the National Park Service, Fish and Wildlife Service, Bureau of Land Management, Forest Service, the Department of the Treasury, and the Department of the Army.

The coming decade and the next century pose new challenges along with the ones that have confronted those concerned about archeological preservation during the last 20 years. The areas currently addressed must continue to be addressed. For the most part, Federal program managers and archeologists cannot afford to shift precious resources away from these activities to meet additional challenges, although some shifting may be necessary.

New efforts are required to improve public education and participation, the preservation of the in situ record, information availability, resource inventories, and the curation of collections and records. Progress in all of these areas has the potential for substantial benefits if they can be addressed effectively.

To continue to improve the system of archeological resource management that has developed in the United States during the past 25 years, the Administration, Federal and other public agencies, Congress, archeologists from each of the major areas of employment including public agencies, academic departments, private firms, and museums and historic preservationists must work cooperatively. There is much to do, but it is necessary if the nation's archeological heritage is to have a useful future.

Acknowledgements

Interagency cooperation provided the foundations upon which this report was written. We acknowledge those departments/agencies that contributed data. Without their dedication and contributions the content, scope, and quality of data contained in this report would not have been possible. A special note of appreciation is extended to all those individuals who collected and compiled the data used in this report. We would also like to thank the Interagency Archeological Task Force for its assistance in revising an earlier questionnaire to meet the needs of data collection for this report. Especially helpful in this revision were: Richard Brook (Bureau of Land Management), Evan DeBloois (Forest Service), Jim Hand (Corps of Engineers), and Kevin Kilcullen (Fish and Wildlife Service). Their comments greatly assisted in the quality of data received.

The staff of the National Park Service, Archeological Assistance Division was responsible for compiling and evaluating the data provided by 43 departments and agencies. Because the data were analyzed at a much finer level than was possible in previous years, it took considerable staff cooperation and time to prepare this report. Their collective experience, dedication, persistence, ability to work well with their colleagues in various departments/agencies, and their pleasant attitudes made the writing and completion of this report possible. Various drafts and sections of this report were prepared by Patricia C. Knoll, Francis P. McManamon, George S. Smith, and Richard C. Waldbauer. The final version of the text was edited by Francis P. McManamon, Departmental Consulting Archeologist. A special note of appreciation goes to Veletta Canouts, Robin K. Coates, and Ruthann Knudson for their valuable input and assistance in producing this report and to Jean C. Alexander, David Andrews, and Roger S. Friedman for copy editing, design, and publication of it. We would like to thank Bennie C. Keel, whose coordination of Federal archeological activities during his tenure as Departmental Consulting Archeologist from 1979 to 1989 promoted cooperation among agencies. Jerry Rogers, Associate Director, Cultural Resources, National Park Service, also has promoted coordination and cooperative action with other Federal agencies and departments vigorously.

The recognition and understanding of natural and cultural processes builds upon past knowledge. This collective knowledge changes as new ideas or new ways of looking at old ideas come into being. It is with much appreciation that we acknowledge those who preceded us. They provided the basis for today's Federal archeological activities.



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Montezuma Castle National Monument, Camp Verde, AZ.
Richard Frean/National Park Service

I

Reporting on Current Federal Archeological Activities

Introduction

This document, the Secretary of the Interior's report to Congress on Federal archeological activities, is prepared for the Secretary by the Departmental Consulting Archeologist, Archeological Assistance Program, National Park Service (Knudson and McManamon 1992). The report is required by Section 5(c) of the Archeological and Historic Preservation Act of 1974 (AHPA; P.L. 93-291, 16 USC 469-469c) and Section 13 of the Archaeological Resources Protection Act of 1979 (ARPA; 16 USC 470aa-470mm), as amended. These statutes direct the Secretary of the Interior to report on the scope and effectiveness of various aspects of Federal archeological activities and to provide information about such activities and programs to Congress. This report provides information about the wide range of Federal archeological activities in order to provide assistance with professional methods and techniques for archeological preservation and for the administration of historic preservation programs. Sections 2 and 101(h) of the National Historic Preservation Act (NHPA; P.L. 89-665, 16 USC 470 *et seq.*), as amended, authorize the Secretary to collect and distribute such information to Federal agencies, State and local governments, private organizations and individuals, other nations, and international organizations. The Secretary also can recommend changes or needed improvements and report on communication and information exchange activities.

As was the case with the report on FY 1985 and FY 1986 Federal archeological activities (Keel et al. 1989), this report on the FY 1987 activities contains detailed information. The expansion of information made available reflects the recognition by archeologists and historic preservation officials in various Federal agencies that a more comprehensive description of the overall scope, cost, and results of Federal archeology would be valuable for Congress, Federal agencies, Tribal, State and local governments, and others concerned about archeological preservation. This recogni-

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tion has led to a greater cooperative spirit among agencies to provide detailed information for compilation and analysis by the National Park Service.

In the earlier report, *Federal Archeology: The Current Program* (Keel et al. 1989), the Secretary of the Interior identified and made recommendations regarding four general archeological areas where greater emphasis was necessary in order to better preserve and interpret America's archeological resources to:

1. Increase and enhance the quality of archeological site inventories and curation of archeological records and collections;
2. Increase cooperation in sharing information about archeological properties, reports, and projects among Federal, State, Tribal, local, and other organizations;
3. Increase cooperation in efforts to apprehend those who loot and vandalize archeological properties; and
4. Increase public education, outreach, and involvement efforts as part of archeological projects and programs.

In March 1990, Secretary of the Interior Manuel Lujan announced a national strategy for Federal archeology based upon a new emphasis in these four areas. The main goal of this report is to describe activities related to these areas. In October 1991, Secretary Lujan updated the national strategy and issued it as a formal statement of policy. This is discussed in Chapter 7.

Following the introductory chapter, the next two chapters deal with archeological identification and evaluation investigations undertaken on Federal lands, or in conjunction with development or regulatory projects that included Federal involvement. Specifically, Chapter 2 discusses Federal archeological activities including archeological permits, identification and evaluation studies, data recovery studies, and unanticipated discoveries of archeological remains. Chapter 3 presents information regarding current knowledge about archeological resources located on federally managed lands and the level of effort expended to locate and evaluate these resources. Unfortunately, little specific information is available about the curation of archeological collections and associated records because the information for this report was collected before this area was identified as one needing special attention. In future data gathering for the Secretary's reports, information about the numbers, condition, and value of these collections and records and about agencies' efforts to preserve them will be collected.

The coordination and dissemination of information about Federal archeological investigations, reports, projects, and programs is presented in Chapter 4. Included in this chapter are descriptions of agency cooperation and cooperation with private and professional organizations. Chapter 5 presents information concerning the national problem of looting and vandalism of archeological sites on public lands. Also described are special programs designed to improve archeological site protection. In Chapter 6, recent efforts to improve public education about archeology, especially to foster the preservation of archeological properties on public lands, are described. Fi-

nally, Chapter 7 presents a brief summary of progress that has been made in Federal archeology since 1987. The questionnaire results (raw data) of the FY 1987 data collection are available in a series of Lotus 1-2-3 spread sheets from the Departmental Consulting Archeologist, Archeological Assistance Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127. Appendix A is a copy of the FY 1987 questionnaire.

Throughout the report readers will find brief summaries of projects and activities that agencies identified as highlights of their programs during FY 1987. Attempts were made to include these highlights within chapters that relate to similar topics.

The remaining two sections of this chapter present summary data that relate to all subsequent chapters of the report. The first section discusses the method by which data for this report were collected. The final section presents information about the reported costs of archeological activities involving Federal agencies.

Collecting Data and Analyzing Federal Archeological Activities

The complexity of the Federal Government is reflected in the diversity of the departments, bureaus, and other organizations represented in this report (Table 1.1; agency abbreviations are used throughout). These missions span a range of responsibilities from land management to resource development to regulatory activities to national defense. Departments and agencies carry out their responsibilities at various organization, funding, and personnel levels. Data in this report come from responses to a questionnaire specifically designed for the Secretary's report to Congress. The FY 1987 questionnaire was modified somewhat from the FY 1986 questionnaire with the assistance of several agency archeologists and historic preservation officials.

Due to the variability in organization, funding, and personnel levels, totally consistent data collection was not possible with respect to all questions; that is, some questions did not apply to some departments or agencies.

The list of queried organizations has evolved since 1985. Originally all Federal agencies listed in *The United States Government Manual 1985/86* (Office of the Federal Register 1985) were sent letters inquiring about their archeological activities. Unless there was personal Archeological Assistance Division (AAD) staff knowledge to the contrary, all agencies whose responses denied such activities were subsequently dropped from the annual data solicitation. Thus, this report is based on queries sent to 43 Federal agencies.

The FY 1987 agency questionnaire data represent a broad base of governmentwide information available on Federal archeological activities. To increase the effectiveness and usefulness of this report the level of analysis has been expanded beyond that of previous years. In addition to comparison and analysis used in the FY

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1985/FY 1986 report (Keel et al. 1989), data are compared and analyzed at the agency level based on an agency categorization within a set of three functions: (1) land or resource management, (2) development, and (3) regulation (Table 1.2). Agencies whose activities encompass all three categories have been classified under

Table 1.1 Department/Agency Abbreviations Used in Report

ASCS	Agriculture Stabilization and Conservation Service
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BR	Bureau of Reclamation
COE	Army Corps of Engineers
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
DOJ	Department of Justice
DOL	Department of Labor
ED	Department of Education
EDA	Economic Development Administration
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FERC	Federal Energy Regulatory Commission
FHwA	Federal Highway Administration
FmHA	Farmers Home Administration
FRA	Federal Railroad Administration
FS	Forest Service
FWS	Fish and Wildlife Service
GAO	General Accounting Office
GSA	General Services Administration
HHS	Department of Health and Human Services
HUD	Department of Housing and Urban Development
MMS	Minerals Management Service
NASA	National Aeronautics and Space Administration
NCPC	National Capital Planning Commission
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRC	Nuclear Regulatory Commission
OSM	Office of Surface Mining
PADC	Pennsylvania Avenue Development Corporation
REA	Rural Electrification Administration
SBA	Small Business Administration
SCS	Soil Conservation Service
TIA	Territorial and International Affairs
TVA	Tennessee Valley Authority
UMTA	Urban Mass Transportation Administration
USGS	U.S. Geological Survey
VA	Veterans Administration

Table 1.2 List of Agencies According to Major Activity Category*

<i>Departments/Agencies</i>	<i>Land/Resource Management</i>	<i>Development</i>	<i>Regulatory</i>
Department of Agriculture			
Agriculture Stabilization and Conservation Service			X
Farmers Home Administration	X		
Forest Service	X		
Rural Electrification Administration			X
Soil Conservation Service	X		
Department of Commerce			
Economic Development Administration			X
National Oceanic and Atmospheric Administration			X
Department of Defense			
Air Force	X		
Army	X		
Army Corps of Engineers		X	
Marines	X		
Navy	X		
Department of Education			
			X
Department of Energy			
	X		
Federal Energy Regulatory Commission			X
Nuclear Regulatory Commission			
			X
Environmental Protection Agency		X	
Federal Communication Commission			X
General Services Administration		X	
Department of Health and Human Services			
Indian Health Service		X	
Department of Housing and Urban Development			
		X	
Department of the Interior			
Bureau of Indian Affairs	X		
Bureau of Land Management	X		
Bureau of Reclamation	X		
Fish and Wildlife Service	X		
Minerals Management Service			X
National Park Service	X		
Office of Surface Mining			X
Territorial and International Affairs	X		
U.S. Geological Survey			X
Department of Justice			
			X
Department of Labor			
			X

Federal Archeological Programs and Activities

Table 1.2 List of Agencies According to Major Activity Category*

<i>Departments/Agencies</i>	<i>Land/Resource Management</i>	<i>Development</i>	<i>Regulatory</i>
National Aeronautic and Space Administration			X
National Capital Planning Commission			X
Pennsylvania Avenue Development Corporation			X
Postal Service			X
Small Business Administration			X
Tennessee Valley Authority	X		
Department of Transportation			
Federal Aviation Administration			X
Federal Highway Administration		X	
Federal Railroad Administration			X
Urban Mass Transportation Administration		X	
Veterans Administration		X	
TOTAL	14	9	20

* Inclusion in a category reflects agencies' major activities with respect to Federal archeology and not necessarily their defined missions.

their predominant activity related to archeology. This subdivision enhances discussion and evaluation of agencies' archeology programs, as well as providing a better basis for comparing Federal archeological activities.

More than 90% (39) of the 43 queried departments/agencies responded to the FY 1987 questionnaire (Table 1.3). As presented in Figure 1.1, 70% (30) provided data, 19% (8) reported that the questionnaire was not applicable, 9% (4) did not respond to the questionnaire, and 2% (1) reported that it had no relevant data. A number of agencies reported difficulty in separating activity costs because of the way their records were kept. Therefore, in many cases costs associated with specific activities were estimates.

Although responding in previous years, the Federal Highway Administration (FHWA), a major funding agency for Federal archeological activities, chose not to complete the FY 1987 questionnaire. Because FHWA funds a large part of certain Federal archeological activities, summary cost data have been adjusted as described below to compensate for this lack of response.

FHWA's decision not to provide FY 1987 data made comparisons with the information from 1985 and 1986 difficult. To provide as accurate a nationwide cost estimate as possible, cost data were adjusted by two different methods: (1) FHWA cost esti-

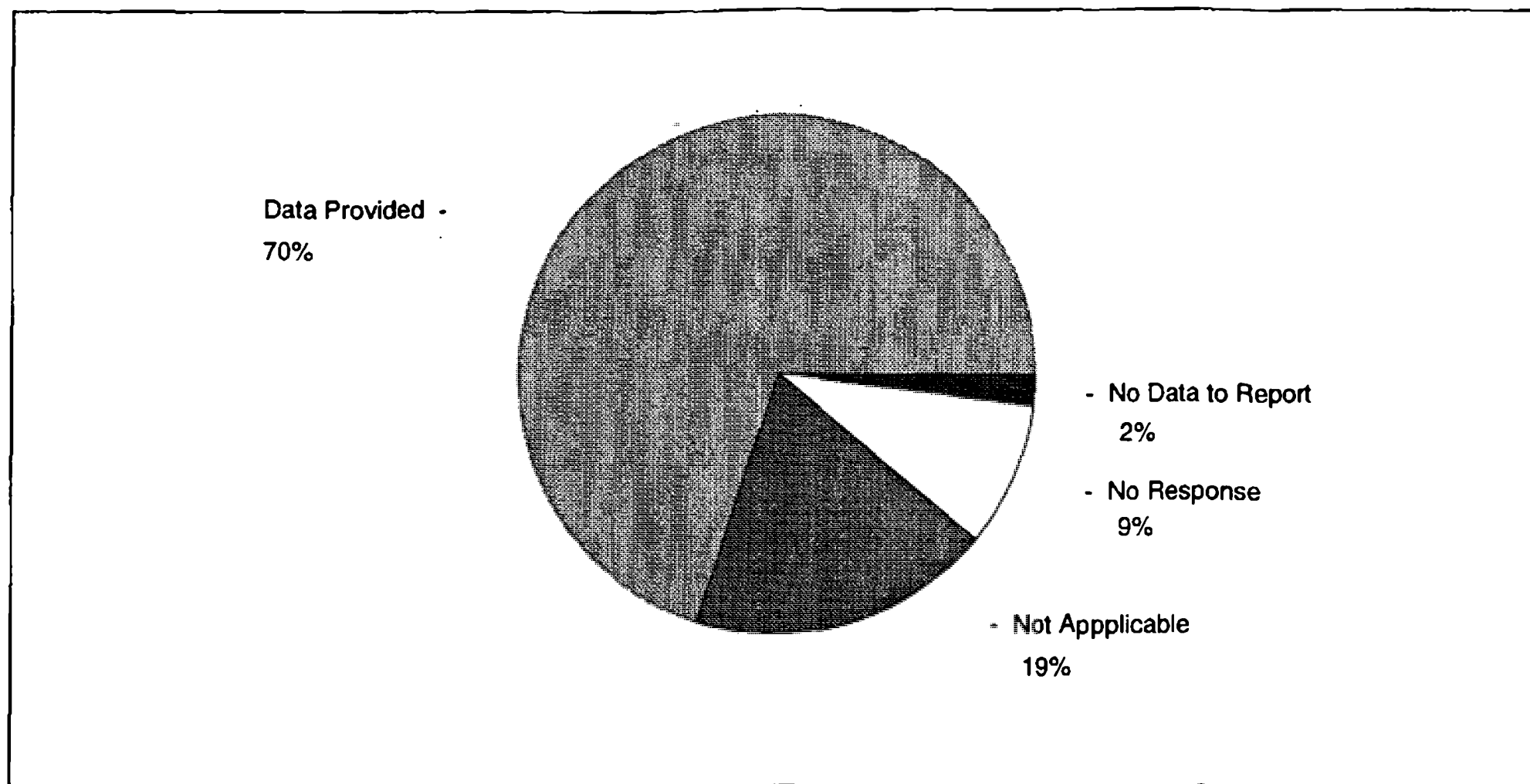


Figure 1.1 Percentage of response to FY 1987 questionnaire.

mates provided for FY 1986 were added to the FY 1987 cost estimates (Table 1.4) and (2) the percentage that FHwA represented of the FY 1986 total cost was calculated and the same percentage was added to FY 1987 amounts. FHwA accounted for a substantial amount of the reported FY 1986 costs in certain categories — 51% of the literature review cost, 41% of the field survey cost, and 41% of the data recovery cost. A comparison of these two methods indicated that there was only a 1% difference between using the data reported for FY 1986 and calculating new estimates based on percentages. The first method was finally employed as a means of estimating the likely FHwA costs because it did not depend on the activity level of other agencies. It should be noted that the permits, enforcement, and education costs were not affected by the lack of FHwA data, as FHwA did not report any activity regarding these categories in FY 1986. Costs reported for unanticipated discoveries were unchanged because FHwA did report these data for FY 1987.

Using the adjusted cost estimates for FY 1987 (Table 1.4 and Figures 1.2, 1.3), agencies reported spending \$939,896 on archeological law enforcement, down 2% from FY 1986 estimates. As was the case in FY 1986, the FY 1987 cost for archeological resource protection education and training was calculated based on personnel training provided and calculated at the GS-9 level. The cost for this training was estimated at \$135,490, down 10% from FY 1986 estimates.

Literature reviews accounted for \$17,419,688 (23%) of the total cost reported for Federal archeology, up 13% over similar FY 1986 costs. The field survey cost was very similar to FY 1986 estimates reported at \$36,544,164 (48%) of total cost; less than a 1% difference. Data recovery activities showed the largest decrease between 1986 and 1987, down 21%; the FY 1987 costs were reported at \$19,025,575 (25%). The FY

TABLE 1.3 Response to FY 1987 Questionnaire

<i>Departments/Agencies</i>	<i>FY 1987</i>
Department of Agriculture	
Agriculture Stabilization and Conservation Service	NA
Farmers Home Administration	DP
Forest Service	DP
Rural Electrification Administration	DP
Soil Conservation Service	DP
Department of Commerce	
Economic Development Assistance	NA
National Oceanic and Atmospheric Administration	NR
Department of Defense	
Air Force	DP
Army	DP
Army Corps of Engineers	DP
Marines	DP
Navy	DP
Department of Education	NA
Department of Energy	DP
Federal Energy Regulatory Commission	NA
Environmental Protection Agency	DP
Federal Communications Commission	ND
General Services Administration	DP
Department of Health and Human Services	DP
Department of Housing and Urban Development	NA
Department of the Interior	
Bureau of Indian Affairs	DP
Bureau of Land Management	DP
Bureau of Reclamation	DP
Fish and Wildlife Service	DP
Minerals Management Service	DP
National Park Service	DP
Office of Surface Mining	NR
Territorial and International Affairs	DP
U.S. Geological Survey	DP
Department of Justice	DP
Department of Labor	NA
National Aeronautic and Space Administration	DP
National Capital Planning Commission	NR
Nuclear Regulatory Commission	DP
Pennsylvania Avenue Development Corporation	NR
Postal Service	DP
Small Business Administration	NA
Tennessee Valley Authority	DP

TABLE 1.3 Response to FY 1987 Questionnaire

<i>Departments/Agencies</i>	<i>FY 1987</i>
Department of Transportation	
Federal Aviation Administration	DP
Federal Highway Administration	DP
Federal Railroad Administration	NA
Urban Mass Transportation Administration	DP
Veterans Administration	DP

DP = Data Provided

NA = Indicated Data Requested Not Applicable

ND = No Data to Report

NR = No Response to Questionnaire

*The level of response for the FY 1987 questionnaire was less than for FY 1985 and FY 1986. FHWA indicated that its archeological program was carried out under authorities that are not the responsibility of the Department of the Interior (DOI) and, therefore, feels it is not required to report archeological activities, with the exception of unanticipated archeological discoveries, to DOI.

1987 cost associated with unanticipated discoveries was reported at \$1,452,251 (2%), up 13% over FY 1986 estimates.

Overall, the total cost of reported Federal archeological activities was \$75,517,064. This amount represents about a 4% decrease compared to FY 1986. The FHWA adjustment and other reporting variability make this decrease difficult to assess. The FY 1987 inflation rate was approximately 3% (U.S. Bureau of Labor Statistics 1987), resulting in a further negative impact on the estimated real dollar decrease in archeological financial support.

Conclusion

Federal archeology involves many dynamic activities, projects, and evolving programs, which merit regular evaluation. The Secretary of the Interior's annual report to Congress on Federal archeological activities is assembled from reliable data to highlight progress as well as identify areas that need more attention. It can assist public agencies, other interested organizations, and private citizens to save the past for the future.

Federal Archeological Programs and Activities

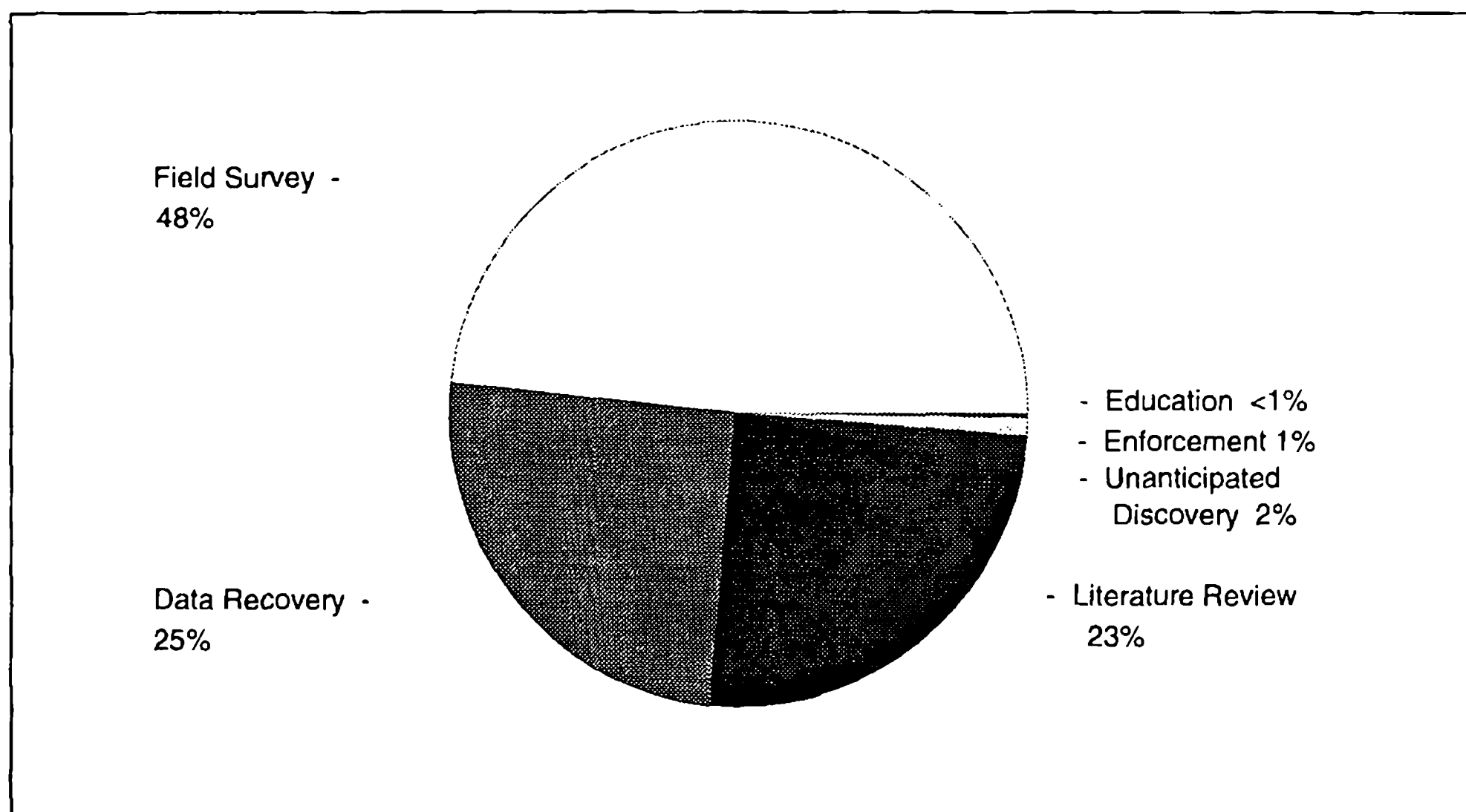


Figure 1.2 Percent of cost associated with the Federal archeology program, FY 1987

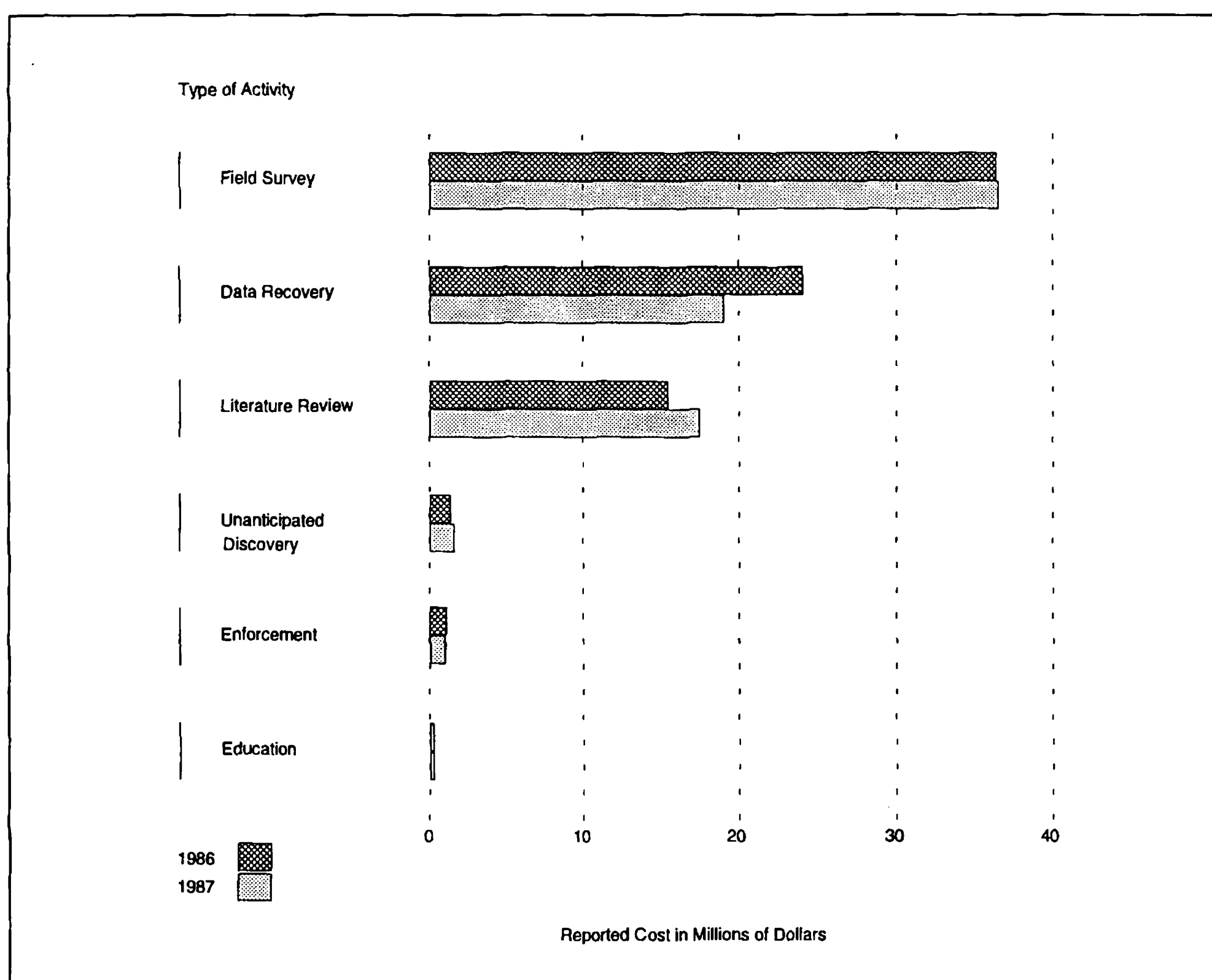


Figure 1.3 Cost comparison by activity, FY 1986 and FY 1987

The Secretary of the Interior's Report to Congress

Table 1.4 Reported Cost for Activities Associated with Federal Archeology, FY 1986 and FY 1987, Adjusted with Federal Highway Administration FY 1986 Data

<i>Activities</i>	<i>FY 1986</i>	<i>FY 1987*</i>	<i>FHwA FY 1986 Data Added to FY 1987 Data (FHwA estimate)</i>
Permits	**	**	**
Enforcement	\$959,508	\$939,896	\$939,896 (No Change)
Archeological Resources Protection Education***	151,000	135,490	135,490 (No Change)
Identification and Evaluation			
Literature review	15,407,852	12,219,688	17,419,688 (5,200,000)
Field survey	36,388,092	26,044,164	36,544,164 (10,500,000)
Subtotal	\$51,795,944	\$38,263,852	\$53,963,852
Data Recovery	24,195,922	12,025,575	19,025,575 (7,000,000)
Unanticipated Discoveries	1,288,021	1,452,251	1,452,251 (No change)
TOTAL REPORTED COST	\$78,390,395	\$53,817,064	\$75,517,064

*With the exception of unanticipated discoveries, FHwA data not provided.

**Included as part of Identification and Evaluation or Data Recovery.

***Calculated based on personnel training data provided.



Excavation of animal figurines, Pueblo Grande site, Phoenix, AZ.
David Noble/Phoenix Arts Commission

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Federal Archeological Investigations and Studies

Introduction

The FY 1985 and FY 1986 report on Federal archeology (Keel et al. 1989) provided overall governmentwide information. In this report, for more detailed comparisons, we have categorized agencies according to their general mission or functions: land/resource management, development, and regulatory (Table 1.2). It is understood that within any agency these activities are not mutually exclusive and an agency may actually have overlapping responsibilities with respect to these activities. In this report agencies were assigned to activity categories to reflect those programs within each agency that involved the most archeological activity.

Functional Categories for Agencies

Of the 43 departments/agencies in the report, 14 (33%) are classified as land or resource management agencies, 9 (21%) as development agencies, and 20 (47%) as regulatory agencies. In general, these definitions apply to the activity categories:

LAND/RESOURCE MANAGEMENT — agencies that conduct archeological activities as part of their responsibility for managing lands and/or the resources they contain;

DEVELOPMENT — agencies responsible for archeological activities associated with modern development projects such as reservoirs, highways, sewer lines, etc., on lands that they may or may not manage; and,

REGULATORY — agencies that require archeological activities in order for a third party to obtain a Federal license, permit, or funding.

As a result of organizing data into these activity categories, the FY 1987 report more accurately reflects individual agency accomplishments. This organization also indicates data gaps more clearly.

Underrepresented Activities and Costs

Some of the activity numbers and amounts reported by agencies appear to underrepresent actual activity levels and costs, especially data associated with land use applicants for the land managing agencies and in many of the categories for the development and regulatory agencies. This undoubtedly has been true in previous reports as well.

The term “land use applicant” refers to individuals or organizations that apply to use Federal lands for grazing, oil or other mineral exploitation, timber harvesting, transmission or pipeline corridors, or other legitimate and allowed uses. If a proposed activity may disturb significant archeological resources, the land managing agency can require the applicant to conduct archeological investigations prior to, or as a condition of, approving the use application. The Bureau of Land Management (BLM) manages the largest percentage of Federal land and does not collect, and thus report, the amount of money spent by land use applicants on any archeological activities. On the other hand, BLM and the other land managing agencies are able to report in accurate detail the number and types of their own archeological investigations. Many of the development and regulatory agencies are presently unable to report accurately on national programs because they do not execute or fund archeological studies directly. These agencies typically pass archeological responsibilities on to State agencies, local governments, or private developers. For example, neither the Department of Housing and Urban Development nor the Federal Highway Administration (FHWA) reports any numbers or amounts in these categories.

Among regulatory agencies, the Federal Energy Regulatory Commission, which requires that potential licensees undertake archeological studies as part of their license applications or as a condition of granting a license, did not report any of these archeological activities or costs. Other agencies probably have underreported activities and costs.

In evaluating the figures used throughout this chapter, these likely underrepresentations must be kept in mind.

Archeological Permit Activities

Both the Antiquities Act and the Archaeological Resources Protection Act (ARPA) require permits to (1) excavate or remove any archeological resources located on public lands and/or (2) carry out activities associated with such excavations and removals. Permits also are issued for archeological investigations under agency-specific policies, procedures, or guidelines, though Federal agencies conducting archeological investigations as part of their program activities are not required to issue permits to staff or contractors. However, these agency-related investigations must comply with ARPA requirements.

A total of 902 permits for Federal archeological activities was issued or in effect during FY 1987 (Table 2.1). Fifty-six percent (506) of these permits were issued under agency policies, procedures, or guidelines, while ARPA permits accounted for 37% (338) of the total. Only 7% (59) were issued under Antiquities Act authority. Within the total body of Federal archeological permits, approximately 83% (753) of these permits were issued for investigations associated with National Historic Preservation Act (NHPA), Section 106 compliance, while approximately 12% (108) were issued for non-compliance scientific or scholarly research. Approximately 57% (518) of all issued permits were field-checked. A total of 18 permits were denied or suspended, and four of these cases were appealed in FY 1987.

Table 2.1 Permit Activities, FY 1987

<i>Activities</i>	<i>FY 1987</i>
Number of permits issued or in effect for archeological activities	902
Number of ARPA permits issued	338
Number of Antiquities Act permits issued	59
Number of permits issued under agency policy, procedure, or guidelines	506
Permits field checked	518
Percent of permittees field checked	57%
Number of permits issued for investigations related to compliance	753
Number of permits issued for scientific or scholarly research	108
Number of investigations for which no permits were issued, but which complied with conditions required by ARPA	2,937
Number of such investigations conducted by agency personnel	2,231
Number of such investigations conducted by contractors	676
Number of permit applications received (all types)	828
Number of permit applications denied (all types)	14
Number of permits suspended	4
Number of appeals of denied or suspended permits	4
Number of notifications to Indian Tribes of ARPA permits	184
Number of notifications to Indian Tribes of investigation in conformance with ARPA requirements	227

Archeological investigations carried out by Federal agency personnel or through contracts as part of agency operations or development do not require permits. Agencies must ensure that archeological activities conducted by either their employees or contractors comply with all ARPA requirements except for the specific issuance of a permit. Agencies reported 2,937 such investigations for which no permits were issued but which complied with the conditions of ARPA. Seventy-six percent (2,231) of non-permit investigations were conducted by agency personnel, while 22% (676) were conducted by contractors.

Section 4(c) of ARPA requires that Indian Tribes be notified of impending permits that would affect important religious or cultural resources associated with the Tribe(s), and Section 4(g) requires Tribal consent for permits applicable to Indian lands. Agencies reported 184 such notifications. Two hundred twenty-seven notifications were reported for investigations that were conducted by agency personnel or under contract.

Comparisons Among Agencies

Given the responsibilities of land/resource management agencies, it is not unexpected that they account for 97% (876) of all archeological permits reported in FY 1987 (Table 2.2). Land/resource management agencies also accounted for 97% (501) of all field-checked permits, 98% (741) of all permits issued for investigations related to compliance, and 86% (93) of the permits issued for scholarly research. Of the investigations for which permits were not required, 87% (2,563) were reported by this category of agencies. Of these investigations, 92% (2,057) were conducted by agency personnel, 75% (505) under contract. Almost all denied permit applications (12 out of 14) were rejected by land/resource management agencies. These agencies also accounted for 75% (3) of the suspended permits and all (4) appeals of denied or suspended permits. With respect to notifications to Indian Tribes of permits, land/resource management agencies accounted for 99% (183) of the ARPA notifications and 77% (175) of the non-permit-related notifications of investigations in conformance with ARPA requirements.

Among the land/resource management agencies, approximately 85% (742) of all FY 1987 archeological permits were issued by BLM (366), the Forest Service (FS) (259), or the Bureau of Indian Affairs (BIA) (117). Permits issued under other agency authority followed a similar pattern, with BLM (215), FS (150), and BIA (78) reporting 90% of these permits. The same holds for ARPA permits, with BLM (151), FS (67), and BIA (38) accounting for 78%. With respect to permits issued under the Antiquities Act, FS (42) accounted for the majority (76%), while the National Park Service (NPS) (8) and Fish and Wildlife Service (FWS) (3) accounted for another 20%. The percent of permits for which field checks were reported ranged from 16% to 100%. The FS (212), BLM (193), and NPS (24) accounted for the majority (86%) of field checked permits. There were 741 (85%) permits issued for compliance, while 93 (11%) were issued for scientific or scholarly research. The majority (83%) of compliance related permits were issued by BLM (292), FS (211), and BIA (108). Of the research related permits issued, BLM (28), NPS (17), FS (17), and FWS (15) accounted for 83%.

Of the 2,563 archeological investigations by Federal agency archeologists or contractors that did not require permits but which complied with ARPA requirements, FS (830), BLM (603), and BIA (515) accounted for 76%. A total of 2,057 such investigations was conducted by agency personnel with FS (759), BLM (527), and BIA (429) accounting for 83%. There were 505 reported non-permit activities conducted under contract with BIA (86), the Department of Energy (DOE) (81), and BLM (76) account-

ing for 48%. Of all permits, only 12, FS (5), BLM (5), BIA (1), and NPS (1) were denied and three were suspended, FS (2), BLM (1). Four permits that were denied or suspended were appealed (3, BLM; 1, FS). One hundred eighty-three notifications to Indian Tribes of ARPA permits under Section 4c were reported with BIA (94), BLM (34), and FS (28) accounting for 84% of such notifications. In those cases where archeological activities complied with ARPA but were not under permits, 175 notifications to Indian Tribes were reported with BIA (64), BLM (39), and FS (36) accounting for 79% of these.

Development-oriented agencies accounted for only 22 (2%) of the total number of archeological permits issued or in effect in FY 1987 (Table 2.2). This was expected because some of the agencies characterized as development oriented may also manage land. Only 11 (3%) ARPA permits were issued by development agencies, while none was issued under the Antiquities Act. Eleven permits (2%) were issued under another authority. Twelve (2%) permits were field checked. One percent (8) of the permits were issued for investigations related to compliance, while 14% (15) were issued for scientific or scholarly research. A total of 370 (13%) investigations were reported for which no permit was required but which complied with the conditions of ARPA; 173 of these were conducted by agency personnel and 165 were conducted by contractors. Two (14%) permits were denied and one permit was suspended. Only one notification to an Indian Tribe of an ARPA permit was reported, while 50 (22%) such notifications to Indian Tribes of investigations not under permits but complying with ARPA requirements were reported.

All 22 permits issued by development agencies were accounted for by the Army Corps of Engineers (COE) (17), the Department of the Interior's Office of Territorial and International Affairs (TIA) (4), and General Services Administration (GSA) (1), while COE (10) and GSA (1) accounted for all ARPA permits reported. No permits issued under the Antiquities Act were reported by development agencies. However, of the 11 permits issued under other agency authority, COE (7) and TIA (4) accounted for all reported. COE (8) and TIA (4) accounted for all the permits reported as being field-checked. All eight permits issued for compliance related activities were reported by COE (4), TIA (3), and GSA (1). COE (13) and TIA (2) reported all the research related permits issued. With respect to non-permit activities complying with ARPA, all such activities were reported by COE (337) and TIA (33). Of these non-permit activities, COE (173) accounted for all that were reported as being conducted by agency personnel and all but one conducted under contract. TIA reported the one other non-permit activity conducted under contract. Both permits denied were reported by COE, as was the only suspended permit. No appeals of denied or suspended permits were reported by development agencies. The 51 notifications to Indian Tribes were all reported by COE.

Regulatory agencies accounted for only four of the total number of archeological permits issued in FY 1987, all of which were issued under the Antiquities Act (Table 2.2). No permits were reported issued under ARPA or other agency authority. All of

these permits were field checked. All were issued for compliance-related investigations. No permits were denied, suspended, or appealed. The Department of Justice (DOJ) accounted for all four of these permits.

Three archeological investigations complying with ARPA were reported by the Federal Aviation Administration (FAA) and were conducted by agency staff. Three non-permit activities conducted by contractors also were reported by FAA (2), and one by the National Aeronautic and Space Administration (NASA). No permits were denied or suspended. FAA reported two notifications to Indian Tribes.

Table 2.2 Permit Activities, Comparison by Agency Activity Category

<i>Activities</i>	<i>Land/Resource Management</i>	<i>Development</i>	<i>Regulatory</i>
Number of permits issued or in effect for archeological activities	876	22	4
Number of ARPA permits issued	327	11	0
Number of Antiquities Act permits issued	55	0	4
Number of permits issued under agency policy, procedure, or guidelines	495	11	0
Permits field checked	501	12	4
Percent of permittees field checked	58%	55%	100%
Number of permits issued for investigations related to compliance	741	8	4
Number of permits issued for scientific or scholarly research	93	15	0
Number of investigations for which no permits were issued, but which complied with conditions required by ARPA	2,563	370	4
Number of such investigations conducted by agency personnel	2,057	173	1
Number of such investigations conducted by contractors	505	165	3
Number of permit applications received (all types)	769	55	4
Number of permit applications denied (all types)	12	2	0
Number of permits suspended	3	1	0
Number of appeals of denied or suspended permits	4	0	0
Number of notifications to Indian Tribes of ARPA permits	183	1	0
Number of notifications to Indian Tribes of investigation in conformance with ARPA requirements	175	50	2

Permit Monitoring and Coordination

Sixteen agencies provided information concerning computerized systems to record and monitor archeological permits. Software varied from commercial packages to specially developed in-house programs. Two agencies (COE and BLM) have designed software systems for their more comprehensive archeological databases, including permit data.

COE reported three different systems for its permit activities: Archeological Sites Information System (ASIS), Archeology (ARCH) program, and Automated Management of Archeological Site Data in Arkansas (AMASDA). The ASIS system is an IBM-PC compatible database program. A very adaptable and user-friendly inventory system, it was developed by the COE Construction Engineering Research Laboratory located on the University of Illinois Urbana-Champaign campus. The system has been developed based on experience gained on Army installations and field tested in civil works by the COE's New Orleans and Los Angeles Districts. The ARCH program is used on a Harris mini-computer system and contains about 2,200 site listings. Developed by the COE Little Rock District, which uses this system extensively, it contains such information as site number, U.S. Geological Survey quadrant, and relation to water level in lakes and reservoirs. AMASDA provides computerized access to the site file of the Arkansas Archeological Survey. It can be used to identify quickly what sites are located in a particular area. Each brief site printout gives such information as site number, stream basin, and cultural affiliations.

The DOE Savannah River Plant relies on computers for interaction in all phases of archeological activity, using primarily the Apple Macintosh system and Apple peripherals. The primary application software includes Business Filevision, Double Helix II, and Excel. With these applications, a detailed database of all archeological resources and associated data is maintained. The DOE staff and their cooperators at the University of South Carolina Institute of Archaeology and Anthropology are similarly equipped; therefore, data interchange is direct and efficient. At present, an IBM terminal in which all archeological database data are stored is hardwired into the plant mainframe. Gradually the system will be updated to a point at which a Macintosh PC will be able to access the mainframe.

Although BIA reported no agencywide computerized system for recording and monitoring ARPA, Antiquities Act, or other permits for archeological investigations, some Area Offices make limited use of computer equipment to track archeological and compliance information. The types of hardware and software vary from office to office.

During FY 1987, BLM initiated development of an automated system for gathering and managing its resource database bureauwide. This new system represents a combination of existing systems such as the Automated Lands and Minerals Records System and the Geographic Information System. This multiyear project will see the automation of the entire cultural resource database.

Six agencies reported systems for coordination of ARPA permits with NHPA, Section 106 compliance and State Historic Preservation Office (SHPO) surveys and planning. Consultation and formal agreements with State and Federal agencies were incorporated by three agencies. ARPA permits and requirement standards also were noted by three agencies.

The DOE Western Area Power Administration requires contractors to obtain ARPA and/or special use permits, while the Department of Housing and Human Services (HHS) provides coordination through meetings and correspondence with SHPOs. BLM has recently completed a Programmatic Agreement with the Colorado SHPO and the Advisory Council on Historic Preservation (ACHP) on NHPA, Section 106 compliance and consultation for survey and planning purposes, and is pursuing similar arrangements with other States. The Alaska Region of NPS reported that all holders of permits are required by special stipulation to fill out and submit Alaska State Site Cards to the SHPO for any archeological sites discovered. In the Midwest Region, qualifications of individuals or groups submitting proposals for research are reviewed routinely to insure that they meet ARPA standards.

Identification and Evaluation Activities

Identification and evaluation of archeological resources, many of which are not easily recognized or even visible on the surface, usually involves a number of distinct activities. For purposes of this report, identification and evaluation efforts are divided into literature reviews and map analyses that do not include fieldwork in one category and field investigations in a different category. The latter are referred to as field surveys in the text and tables.

A total of 18,195 agency undertakings involving literature and map research were reported (Table 2.3). Approximately 239 FTEs (Table 2.3, Note 2) were used in this activity, at an estimated cost of \$6,663,856. The cost for agency support of literature and map research was reported at \$1,635,521. An additional \$3,497,711 was expended under contract for this type of research. It was estimated that land use applicants spent another \$422,600, for a total estimated cost of \$12,219,688 for FY 1987.

A total of 15,912 studies to identify and evaluate archeological resources were reported. Approximately 1,038 FTEs were used for this activity, at an estimated cost of \$10,061,277. The cost of agency support was reported at \$2,175,591, while the cost for this activity through contracts was estimated at \$12,611,114. An additional \$1,196,182 was estimated to have been spent by land use applicants, for a total of \$26,044,164. However, the staffs of agencies most involved with land use applicants, i.e., BLM and FS, indicated that these estimates are much lower than the actual expenditures by applicants. The reasons for this were discussed at the beginning of this chapter. The total for both literature and map research, and identification and evaluation was reported at \$38,263,852.

Table 2.3 Identification and Evaluation Activities, FY 1987*

<i>Activities</i>	<i>FY 1987</i>
Cost Related Data	
Cost of FTEs used for literature or map research**	\$6,663,856
Cost of support for literature and map research by agencies	1,635,521
Cost of literature and map research by contract	3,497,711
Cost of literature and map research by land use applicants	422,600
Subtotal Literature and Map Research	\$12,219,688
Cost of FTEs to identify and evaluate archeological resources	\$10,061,277
Cost of support to identify and evaluate archeological resources by agencies	2,175,591
Cost to identify and evaluate archeological resources by contract	12,611,114
Cost to identify and evaluate archeological resources by land use applicants	1,196,182
Subtotal, Identification/Evaluation	\$26,044,164
TOTAL IDENTIFICATION AND EVALUATION ACTIVITIES	\$38,263,852
Statistical Data	
Number of agency undertakings with literature or map research	18,195
Number of FTEs used for literature or map research	239
Agency studies to identify and evaluate archeological resources	15,912
FTEs used to identify and evaluate archeological resources	1,038
Acres inspected to identify and evaluate archeological resources	6,548,749
New sites identified	25,228
Sites determined eligible for inclusion in National Register	4,749

*Amounts and counts do not include data from FHWA (See Chapter 1, this volume).

**FTE is an acronym for the term "full time equivalency." It is used as a measure of the number of person-years employed for an activity. One FTE equals one person-year.

Land/resource management agencies accounted for 73% (13,360) of the literature and map research projects reported and 83% (198) of the FTEs associated with these activities, as well as 80% (\$5,328,421) of the associated cost, 63% (\$1,023,281) of the support cost, and 61% (\$2,123,971) of the cost resulting from contracts (Table 2.4). In total, these agencies accounted for 71% (\$8,657,773) of the amount reportedly spent on literature and map research.

Land/resource management agencies accounted for 90% (14,331) of the identification and evaluation studies, 95% (982) of the FTEs used for this activity and 76% (\$7,654,489) of the associated cost, plus 65% (\$1,417,029) of the support cost, 58% (\$7,318,966) of the cost under contract, and 11% (\$136,782) of the cost by land use applicants. Overall these agencies reported 63% (\$16,527,266) of the cost associated with identification and evaluation of archeological resources.

Within the land/resource management agency category, 84% (11,160) of the literature and map projects were reported by FS (4,802), BLM (4,281), and BIA (2,077). FS (135), NPS (30), and BIA (10) accounted for 87% (172) of the FTEs used for this activity and 89% (\$4,765,621) of the FTE cost. The majority (92%) of the support cost (\$943,081) was reported by FS (\$824,581), NPS (\$89,000), and BIA (\$29,000). Seventy-one percent (\$1,507,893) of the contract cost for literature and map projects was reported by NPS (\$550,300), DOE (\$482,100), and FS (\$475,493). NPS (\$150,000), DOE (\$24,000), and the Air Force (\$8,000) accounted for 99.9% (\$182,000) of the cost by land use applicants.

Of the 14,331 studies to identify archeological sites reported by land/resource management agencies, BLM (6,245), FS (5,123), and BIA (1,921) accounted for 93%. A total of 982 FTEs were used for this activity with FS (842) accounting for 86%. NPS (75) and BLM (32) accounted for another 11%. The cost of FTEs used to identify and evaluate archeological resources was dominated by FS, which accounted for 54% (\$4,104,865) of the total. NPS (\$1,802,912) and BIA (\$1,085,712) accounted for an additional 38%. NPS (\$741,405), FS (\$410,079), and the Air Force (\$87,345) accounted for 88% (\$1,238,829) of the support cost associated with this activity. NPS accounted

Table 2.4 Identification and Evaluation Activities, Comparison by Agency Activity Category

<i>Activities</i>	<i>Land/Resource Management</i>	<i>Development*</i>	<i>Regulatory</i>
Cost Related Data			
Cost of FTEs used for literature or map research**	\$5,328,421	\$1,215,435	\$120,000
Cost of support for literature and map research by agencies	1,023,181	602,340	10,000
Cost of literature and map research by contract	2,123,971	1,213,740	160,000
Cost of literature and map research by land use applicants	182,200	223,500	16,900
Subtotal Literature and Map Research	\$8,657,773	\$3,255,015	\$306,900
Cost of FTEs to identify and evaluate archeological resources	\$7,654,489	\$2,326,788	\$80,000
Cost of support to identify and evaluate archeological resources by agencies	1,417,029	757,362	1,200
Cost to identify and evaluate archeological resources by contract	7,318,966	5,071,148	221,000
Cost to identify and evaluate archeological resources by land use applicants	136,782	669,400	390,000
Subtotal, Identification/Evaluation	\$16,527,266	\$8,824,698	\$692,200
TOTAL IDENTIFICATION AND EVALUATION ACTIVITIES	\$25,185,039	\$12,079,713	\$999,100

Table 2.4 Identification and Evaluation Activities, Comparison by Agency Activity Category

<i>Activities</i>	<i>Land/Resource Management</i>	<i>Development*</i>	<i>Regulatory</i>
Statistical Data			
Number of agency undertakings with literature or map research	13,360	4,138	697
Number of FTEs used for literature or map research	198	38	3
Agency studies to identify and evaluate archeological resources	14,331	1,262	319
FTEs used to identify and evaluate archeological resources	982	54	2
Acres inspected to identify and evaluate archeological resources	4,821,022	735,172	992,555
New sites identified	20,380	4,605	243
Sites determined eligible for inclusion on the National Register	4,004	658	87

*Amounts and counts do not include data from FHWA (See Chapter 1, this volume).

**FTE is an acronym for the term "full-time equivalency." It is used as a measure of the number of person-years employed for an activity. One FTE equals one person-year.

for more than one-half (52%) of that amount. The majority (56%) of the cost (\$4,097,712) to identify and evaluate archeological resources by contract was accounted for by the Army (\$2,000,000), BIA (\$1,085,712), and Air Force (\$1,012,000). The Air Force (\$43,782), NPS (\$40,000), and FS (\$33,000) accounted for 85% (\$116,782) of the cost by land use applicants.

Development agencies reportedly accounted for 23% (4,138) of the agency undertakings with literature and map research, 16% (38) of the FTEs used, 18% (\$1,215,435) of the cost associated with these, 37% (\$602,340) of the support cost by agencies, 35% (\$1,213,740) of the cost under contract, and 53% (\$223,500) of the estimated cost by land use applicants (Table 2.4). They also accounted for 8% (1,262) of the identification and evaluation studies, 5% (54) of the associated FTEs, 23% (\$2,326,788) of the cost of the FTEs, 35% (\$757,362) of the support cost, 40% (\$5,071,148) of the cost under contract, and 56% (\$669,400) of the cost by land use applicants. These agencies reported 27% (\$3,255,015) of the cost associated with literature and map research and 34% (\$8,824,698) of the cost associated with identification and evaluation studies. They accounted for 32% (\$12,079,713) of the total amount spent on identification and evaluation studies.

Within the development agency category, COE (2,290), the Farmers Home Administration (FmHA) (1,457), and Environmental Protection Agency (EPA) (199) accounted for 95% (3,946) of the literature or map studies; COE accounted for more

than one-half (55%). COE (31), EPA (6), and HHS (0.8) accounted for all 38 FTEs reported, while COE accounted for 93% (\$1,132,200) of the FTE cost. COE also accounted for 98% (\$590,600) of the support cost, 98% (\$1,191,500) of the contract cost, and 73% (\$163,500) of the reported cost for land use applicants. Of the identification and evaluation studies reported by development agencies, COE (729), FmHA (301), and HHS (102) accounted for 90% (1,132). COE, EPA, and the Urban Mass Transportation Administration accounted for all (54) of the FTEs used to support this activity. Ninety-seven percent (\$2,260,400) of the cost of these FTEs was reported by COE, as was 98% (\$741,000) of the support cost, and 95% (\$353,700) of the contract cost. COE (\$353,700), EPA (\$292,150), and FmHA (\$22,650) reported 99.9% (\$668,500) of the cost associated with land use applicants.

Regulatory agencies accounted for 4% (697) of the literature and map research studies, 1% (3) of the FTEs reported, and 2% (\$120,000) of the associated cost, less than 1% (\$10,000) of the support cost, 5% (\$160,000) of the literature and map research projects under contract, and 4% (\$16,900) of the land use applicant cost (Table 2.4). In total they accounted for 3% (\$306,900) of the amount spent on literature and map research. With respect to identification and evaluation studies, regulatory agencies accounted for 2% (319) of these types of studies, less than 1% (2) of the FTEs reported, the FTE cost (\$80,000), or the support cost (\$1,200), 2% (\$221,000) of the contract cost, and 33% (\$390,000) of the cost by land use applicants. Regulatory agencies accounted for 3% (\$692,200) of the cost associated with identification and evaluation studies. They also accounted for 3% (\$999,100) of the total amount spent on identification and evaluation activities

Among regulatory agencies, the Rural Electrification Administration (REA) accounted for 94% (697) of the literature or map research studies, while the Minerals Management Service (MMS) reported 100% (3) of the FTEs used and 100% (\$120,000) of the FTE cost for these studies. MMS also reported 100% (\$10,000) of the support cost, while DOJ accounted for 93% of the contract cost. All of the land use applicant cost was reported by REA (\$16,900).

With respect to regulatory agency identification and evaluation activities, MMS accounted for more than half (56%, 179) of these types of studies, with REA (99) accounting for another 31%. All FTEs reported for this activity were accounted for by MMS (1.5), however; associated costs in the amount of \$80,000 were reported by MMS (\$40,000), U.S. Postal Service (\$25,000), and FAA (\$15,000). All support cost associated with identification and evaluation activities was reported by FAA (\$1,200). DOJ accounted for 67% (\$148,000) of the contract cost, while REA accounted for all of the \$390,000 expended by land use applicants.

Data Recovery Activities

Data recovery can be undertaken for a number of reasons. Typically, on public lands it is undertaken as part of NHPA, Section 106 compliance activities designed to miti-

gate an adverse impact or to achieve a determination of "no adverse effect" for a Federal project. In addition, data recovery may be undertaken for management reasons such as site protection or stabilization, interpretation, collection of baseline data, data collection to address specific research questions, or to meet other management needs. Data recovery investigations are executed by agency staff, through contracts, by land use applicants, or by any combination of these means.

A total of 1,081 data recovery projects were reported for FY 1987 (Table 2.5). Approximately 123 FTEs were used at a cost of \$2,349,061. Another \$500,411 was spent

Table 2.5 Data Recovery Activities, FY 1987*

<i>Activities</i>	<i>FY 1987</i>
Cost Related Data	
Cost of FTEs for archeological data recovery**	\$ 2,349,061
Cost of support for archeological data recovery by agencies	500,411
Cost of archeological data recovery by contract	7,769,245
Cost of archeological data recovery by land use applicants	1,406,858
TOTAL DATA RECOVERY ACTIVITIES	\$12,025,575
Statistical Data	
Number of archeological data recovery projects	1,081
FTEs used for archeological data recovery	123
Archeological data recovery projects by agencies	612
Archeological data recovery projects by contract	178
Archeological data recovery projects by land use applicants	265
Archeological data recovery projects funded by any combination of factors	190

*Amounts do not include data from FHWA (See Chapter 1, this volume).

**FTE is an acronym for the term "full-time equivalency." It is used as a measure of the number of person-years used for an activity. One FTE equals one person-year.

by agencies in support of data recovery projects. Of the data recovery projects conducted, Federal agencies staff undertook 612, while 178 were conducted under contract. Another 265 were conducted by land use applicants and 190 by a combination of these factors. The cost of data recovery associated with contracts was reported at \$7,769,245 with an additional \$1,406,858 expended by land use applicants. In total \$12,025,575 was expended for data recovery.

Land/resource management agencies accounted for 75% (805) of the data recovery projects conducted in FY 1987, 81% (99) of the associated FTEs, and 67% (\$1,571,421) of the FTE cost (Table 2.6). In addition they accounted for 97% (595) of the data recovery projects conducted by agencies and 63% (\$315,886) of the agency support cost. They also reported 65% (116) of data recovery contracts and 66% (\$5,116,755) of

Federal Archeological Programs and Activities

Table 2.6 Data Recovery Activities, Comparison by Agency Activity Category

<i>Activities</i>	<i>Land/Resource Management</i>	<i>Development*</i>	<i>Regulatory</i>
Cost Related Data			
Cost of FTEs for archeological data recovery**	\$1,571,421	\$762,640	\$15,000
Cost of support for archeological data recovery by agencies	315,886	183,325	1,200
Cost of archeological data recovery by contract	5,116,755	2,414,490	238,000
Cost of archeological data recovery by land use applicants	72,558	1,309,300	25,000
TOTAL DATA RECOVERY ACTIVITIES	\$7,076,620	\$4,669,755	\$279,200
Statistical Data			
Number of archeological data recovery projects	805	244	32
FTEs used for archeological data recovery	99	23	0.6
Archeological data recovery projects by agencies	595	17	0
Archeological data recovery projects by contract	116	55	7
Archeological data recovery projects by land use applicants	88	153	24
Archeological data recovery projects funded by any combination	78	109	3

*Amounts and counts do not include data from FHWA (See Chapter 1, this volume).

**FTE is an acronym for the term "full-time equivalency." It is used as a measure of the number of person-years used for an activity. One FTE equals one person-year.

the associated cost. Approximately 33% (88) of the data recovery projects and 5% (\$72,558) of the associated cost reported for land use applicants were reported by land/resource management agencies. They also accounted for 41% (78) of the data recovery projects conducted using a combination of factors. In total they accounted for 59% (\$7,076,620) of the cost associated with data recovery projects.

Among land/resource management agencies, 63% of all data recovery projects were reported by FS (504). BLM (154) and BIA (38) accounted for another 24%. BLM accounted for 38% (38) of the reported FTEs for this activity with FS (28) and NPS (22) accounting for an additional 51%. NPS accounted for 32% (\$508,565) of the cost for data recovery projects by agencies with FS (\$459,951) and the Bureau of Reclamation (BR) (\$275,000) accounting for an additional 47%. NPS reported 80% (\$151,410) of the cost associated with supporting data recovery projects with FS (\$82,315) and BLM (\$45,161) accounting for an additional 40%. For those projects conducted under contract, 26% were conducted under contract to FS (30), with an additional 30% reported

by BR (20) and NPS (15). Nearly half (49%) of the cost, however, was expended by BR (\$2,509,000). BIA (\$924,072) and NPS (\$423,900) accounted for an additional 26%. Most (63%) of the land use applicant data recovery projects were reported by BLM (55), while the majority (68%) of the cost was reported by the Air Force (\$49,058). The remaining cost (32%) was reported by FS (\$23,500).

Development agencies accounted for 23% (244) of the reported data recovery projects, 19% (23) of the FTEs reported for this activity, and 33% (\$762,640) of the FTE cost (Table 2.6). They also accounted for 3% (17) of the data recovery projects conducted by agencies and 37% (\$183,325) of the agency cost for this activity. In addition, they reported 31% (55) of contract-related data recovery projects and 31% (\$2,414,490) of the cost of these contracts. Approximately 58% (153) of data recovery projects conducted by land use applicants and 93% (\$1,309,300) of the amount spent by land use applicants for data recovery was accounted for by development agencies. In addition, approximately 57% (109) of archeological data recovery projects funded by any combination of factors also were accounted for by these agencies. In total, development agencies reported 39% (\$4,669,755) of the amount expended for data recovery activities.

Among development agencies, FmHA (105) accounted for 43% of the data recovery projects with COE (96) and EPA (36) accounting for the other 57%. COE also accounted for all 17 of the reported data recovery projects conducted by agencies, 73% of the FTEs for agency data recovery projects, 87% (\$660,100) of the FTE cost, and 89% (\$163,200) of the support cost reported for this activity. COE also accounted for 80% (44) of the archeological data recovery contracts and a great majority (94%) of the amount expended for archeological contracts (\$2,259,100). FmHA reported 67% (101) of the land use applicant data recovery projects, while EPA reported the majority (62) of the land use applicant cost (\$810,000) for this activity.

Regulatory agencies accounted for 3% (32) of the reported data recovery projects, and under 1% (\$15,000) of the cost of associated FTEs. No archeological data recovery projects were reported by regulatory agency personnel; however, \$1,200 (less than 1%) in support cost was reported. Regulatory agencies accounted for 4% (7) of the data recovery projects under contract and 3% (\$238,000) of the cost of these contracts. Nine percent (24) of this type of projects were reportedly conducted by land use applicants at a cost of \$25,000 (2%). Regulatory agencies accounted for 2% (\$279,200) of the total amount reported for data recovery activities.

Within the regulatory agency category the majority (75%) of archeological data recovery projects was reported by REA. None, however, was conducted by the agency itself. All of the cost for FTEs associated with this activity was reported by FAA (\$15,000), as was the agency support cost (\$1,200). NASA (3) and DOJ (2) accounted for all data recovery projects funded by agencies through contracts. DOJ reported 62% (\$148,000) of the data recovery contract cost, with NASA reporting an additional 32% (\$75,000). All of the land applicant cost (\$25,000) for data recovery projects was

reported by the Agriculture Stabilization and Conservation Service. NASA accounted for all three archeological data recovery projects funded by a combination of factors.

It is important for readers to recall that the costs reported above are estimates. These estimates undoubtedly are lower than actual costs due to underreporting and a lack of data, as discussed earlier in this chapter.

Unanticipated Discovery Activities

Under Section 4(a) of the Archeological and Historic Preservation Act, Federal agencies must notify the Secretary of the Interior when unanticipated scientific, prehistoric, historic, or archeological data have been discovered during construction of a Federal undertaking and are being irrevocably lost or destroyed. Notification is necessary in those situations where a discovery is made after a Federal agency has complied with NHPA, Section 106 and has started construction. Alternatively, an agency may meet its responsibilities in unanticipated discovery situations by following procedures developed by ACHP (36 *CFR* 800.11).

The Departmental Consulting Archeologist (DCA) of the National Park Service carries out these responsibilities for the Secretary by evaluating the significance of discovered properties in terms of National Register of Historic Places criteria and making recommendations to the pertinent Federal agency on measures needed for recovery of the endangered significant data. If the DCA determines that property significance, project effect, or any proposed mitigation action warrants consideration by ACHP, the project may be referred to ACHP (36 *CFR* 800.7). Typically, resolutions to unanticipated discovery situations are developed in consultation with the SHPO, and almost always the resolution is concurred with by these offices.

A total of 229 discoveries of unanticipated archeological resources was reported by Federal agencies (Table 2.7). In most of these cases, agencies elected to follow the ACHP procedures to resolve any conflicts. Of those reported, 140 (61%) involved resources significant enough to require the collection of data or project modification to avoid resources. Federal agencies reported allocating 13 FTEs to this activity at a cost of \$220,736. In addition, \$84,994 was spent by agencies in supporting this activity. The cost by contractors for unanticipated discoveries was reported at \$615,000, while the land use applicant cost was reported at \$531,571. A total of \$1,452,251 reportedly was spent dealing with unanticipated archeological discoveries.

Land/resource management agencies accounted for 69% (159) of the reported discoveries of unanticipated archeological resources, 57% (80) of the unanticipated discoveries that were avoided by projects or from which data were collected, and 69% (9) of the FTEs allocated to this activity (Table 2.8). These agencies also accounted for 46% of the cost (\$100,636) associated with the FTEs used and 34% (\$29,016) of the support cost, for a total of \$129,752.

Table 2.7 Unanticipated Discoveries, FY 1987

<i>Activities</i>	<i>FY 1987</i>
Cost Related Data	
Cost of FTEs for unanticipated archeological discoveries by agencies*	\$220,736
Cost of support for unanticipated archeological discoveries by agencies	84,944
Cost of unanticipated archeological discoveries by contract	615,000
Cost of unanticipated archeological discoveries by land use applicants	531,571
TOTAL UNANTICIPATED DISCOVERIES	\$1,452,251
Statistical Data	
Discoveries of unanticipated archeological resources subsequent to NHPA, Section 106 compliance	229
Resources considered significant and data collection or avoidance implemented	140
FTEs used for unanticipated archeological discoveries by agencies	13

*FTE is an acronym for the term "full-time equivalency." It is used as a measure of the number of person-years employed for an activity. One FTE equals one person-year.

Among land/resource management agencies, 82% (131) of all unanticipated discoveries were reported by BLM (70), BIA (32), and FS (29). Almost half (48%) of the sites that were avoided or from which data were collected were reported by BLM (38). FS (18) and BIA (10) accounted for another 35%. More than half (53%) of the FTEs used for this activity were reported by BIA (5), while another 33% were reported by NPS (2) and BLM (1). NPS (\$33,156) and BLM (\$32,430) reported more than 60% of the cost associated with FTEs used for this activity, while these same two agencies reported more than 59% (\$17,216) of the agency support cost.

Development agencies reported 30% (68) of the unanticipated discovery cases, 42% (59) of the sites that were avoided or from which data were collected, and 31% (4) of the FTEs allocated for this activity (Table 2.8). They reported 51% of the cost of these FTEs (\$112,600) and 66% of the agency support cost (\$55,928). The vast majority (99%) of the cost (\$606,400) reported by contractors was accounted for by development agencies. They also accounted for all of the cost (\$531,571) by land use applicants. Development agencies reported spending \$1,306,499 on this activity.

Among development agencies 50% (34) of the reported cases dealing with unanticipated discoveries were reported by FmHA. COE (13), HHS (6), and TIA (6) accounted for an additional 37%. FmHA also accounted for more than half (53%, 31) of the sites

Federal Archeological Programs and Activities

Table 2.8 Unanticipated Discoveries, Comparison By Agency Activity Category

<i>Activities</i>	<i>Land/Resource Management</i>	<i>Development</i>	<i>Regulatory</i>
Cost Related Data			
Cost of FTEs for unanticipated archeological discoveries by agencies*	\$100,636	\$112,600	\$7,500
Cost of support for unanticipated archeological discoveries by agencies	29,016	55,928	0
Cost of unanticipated archeological discoveries by contract	100	606,400	8,500
Cost of unanticipated archeological discoveries by land use applicants	0	531,571	0
TOTAL UNANTICIPATED DISCOVERIES	\$129,752	\$1,306,499	\$16,000
Statistical Data			
Discoveries of unanticipated archeological resources subsequent to NHPA, Section 106 compliance	159	68	2
Resources considered significant and data collection or avoidance implemented	80	59	1
FTEs used for unanticipated archeological discoveries by agencies	9	4	0

*FTE is an acronym for the term "full-time equivalency." It is used as a measure of the number of person-years employed for an activity. One FTE equals one person-year.

that were avoided or from which data were collected. Of the FTEs reportedly used in support of this activity, EPA accounted for more than half (54%) of those reported. It should be noted that FmHA did not provide data on the number of FTEs used. COE reported the majority (72%) of the cost (\$81,500) of the FTEs used for this activity. EPA accounted for another 26% (\$29,000). HHS reported more than half (59%) of the agency support cost (\$33,000) for unanticipated discoveries, and FHWA reported another 19% (\$10,350) of the support cost. In addition, FHWA reported 65% (\$393,200) of the cost reported for contractors, while EPA reported the vast majority (93%) of the cost (\$491,571) reported by land use applicants.

Data provided by regulatory agencies accounted for only a small fraction of the cost associated with unanticipated discoveries (Table 2.8) and fewer than 1% (2) of the reported cases dealing with unanticipated archeological discoveries. In one case the site was considered significant enough for data recovery or avoidance. Although no FTEs were reported, \$7,500 (3%) was reported spent on agency involvement in this activity. In addition, \$8,500 (1%) was reported for contractors. In total, regulatory agencies reported spending \$16,000 (1%) on activities associated with unanticipated discoveries. Among regulatory agencies, NASA (1) and FAA (1) reported the two cases dealing with unanticipated archeological discoveries.

Summary

Most of the archeological investigations carried out by Federal agencies were conducted by agency personnel under agency policies, procedures, and guidelines in compliance with ARPA. More than three times as many investigations were conducted under agency regulations or other authorities than under ARPA. Since the 1979 passage of ARPA there has been a decrease in the use of the Antiquities Act as an authority for archeological permits. A little more than half of all FY 1987 Antiquities Act permits were reported to have been field checked to assure that the conditions of permits were being carried out. It is clear that almost all Federal archeological activity was related to NHPA, Section 106 compliance, even on Federal land. More than seven times as many permits were issued for compliance as for scientific or scholarly research.

The number of studies that involved literature and map research and the number of identification and evaluation studies that involved field survey were relatively close. The number of FTEs used for the latter was more than four times greater, due to the more detailed and labor intensive nature of this type of activity. The personnel and labor cost to agencies for identification and evaluation studies and the amount spent under contract also were similar.

Although the majority of archeological data recovery projects was conducted by Federal agencies as in-house projects, more than three times as much money was spent in contracting for this activity. This probably reflects the fact that contracts include indirect costs such as overhead and benefits, while the reported agency cost reflects only direct personal costs. It also is likely that large data recovery projects were done through contract rather than primarily by agency staffs.

More than half of the archeological sites discovered subsequent to NHPA, Section 106 compliance were considered important enough for data collection or avoidance to be implemented. The majority of the cost associated with dealing with unanticipated discoveries was borne by Federal agencies. Information provided to the DCA suggests that some of the discoveries made during ground-disturbing activities may have resulted from incomplete archeological surveys conducted prior to beginning construction work.



Bandelier National Monument, Los Alamos, NM
National Park Service

3

Archeological Resources on Federal Land

Introduction

As part of the most recent report on Federal archeology (Keel et al. 1989), data were collected and presented concerning the extent of archeological resources on land controlled by Federal agencies. These data were collected to establish baseline information about the extent to which Federal land has been surveyed to inventory archeological sites, the number of archeological sites, and the quality of the information available about them. These data are presented to assist in understanding, evaluating, and managing the nation's archeological heritage. In addition, data were collected dealing with the level of effort expended by Federal agencies in locating and evaluating archeological resources on land under their jurisdiction.

Known Archeological Resources and Inventory Activity

During FY 1987, Federal agencies reported they administered about 2,154,169,639 acres of land (Table 3.1). This figure includes the 1,444,589,354 acres located on the Outer Continental Shelf (OCS) reported by the Minerals Management Service (MMS). The large size of the OCS acreage skews data evaluation substantially. For this report, the reported OCS acreage is excluded from calculations relating to Federally managed land. It is important to recognize the OCS land within the context of this report, however, because this submerged land contains many historic and prehistoric sites. MMS has an active cultural resource management program that works to protect these resources. A large portion of the now-submerged area would have been available for human occupation during those periods when extensive glaciers caused a worldwide drop in sea levels of some 300 feet. In addition, thousands of historic period shipwrecks now rest in this area.

Federal Archeological Programs and Activities

TABLE 3.1 Archeological Resource Base as of FY 1987

Acres controlled by agencies*	2,154,169,639
Acres controlled by agencies (OCS land excluded)	709,580,285
Acres investigated to identify 100 percent of archeological properties	21,678,958
Acres investigated to identify more than 50 percent of archeological properties	12,276,178
Acres investigated to identify less than 50 percent of archeological properties	10,580,734
Acres not investigated for archeological properties	653,572,475
Reported known archeological properties on Federal land	425,339
Reported known archeological properties listed on the National Register	25,229
Reported known archeological properties determined eligible for the National Register	40,116
Reported known archeological properties adequately evaluated but not listed on the National Register	62,964
Reported known archeological properties determined ineligible for the National Register	31,184
Reported known archeological properties not evaluated for the National Register	265,429

*Includes 1,444,589,354 acres of Outer Continental Shelf (OCS) land reported by Minerals Management Service (MMS).

For purposes of this report, Federal agencies reported administering nearly three-quarters of a million acres (709,580,285 acres). This represents approximately one-third of the total acreage in the United States, the majority of which is in the western portion of the country, including Alaska. Federal agencies reported that as of the end of FY 1987 they had inspected 21,678,958 (3%) of the acres under their jurisdiction carefully enough to have identified all archeological sites. They reported having conducted less intensive surveys on another 22,856,912 (3%) acres. This leaves approximately 653,572,475 acres (92%) of Federal land that have not received any archeological survey.

Federal agencies reported 425,339 known archeological sites on land they administer. Of these sites, 6% (25,229) were reported as listed on the National Register of Historic Places (NRHP), 9% (40,116) as determined eligible, either through a formal determination or by means of a consensus determination with the State Historic Preservation Office (SHPO), for NRHP, 15% (62,964) as evaluated for agency management purposes, but not submitted for review and listing on the NRHP, and 7% (31,184) as determined ineligible for inclusion on the NRHP. The majority (62%) of the known archeological sites (265,429) have not been evaluated with respect to NRHP criteria.

Table 3.2 Archeological Resource Base, Comparison by Agency Category

	<i>Land/Resource Management</i>	<i>Development</i>	<i>Regulatory</i>
Acres controlled by agencies	699,823,092	9,565,740	191,453
Acres investigated to identify 100% of archeological properties	19,952,877	1,695,098	30,983
Percent of acres investigated to identify 100% of archeological properties	3%	17%	16%
Acres investigated to identify more than 50% of archeological properties	11,200,286	1,041,182	34,710
Percent of acres investigated to identify more than 50% of archeological properties	2%	11%	18%
Acres investigated to identify less than 50% of archeological properties	9,279,132	1,281,402	20,200
Percent of acres investigated to identify less than 50% of archeological properties	1%	13%	11%
Acres not investigated for archeological properties	649,125,230	4,348,058	105,560
Percent of total acres not investigated to date	92%	45%	55%
Reported known archeological properties on Federal land	389,590	35,154	595
Reported known archeological properties listed on the National Register	24,517	703	9
Percent of reported known archeological properties listed on the National Register	6%	2%	2%
Reported known archeological properties determined eligible for the National Register	33,417	6,662	37
Percent of known archeological properties determined eligible for the National Register	9%	19%	6%
Reported known archeological properties adequately evaluated but not listed on the National Register	58,564	4,208	192
Percent of known archeological properties adequately evaluated but not listed on the National Register	15%	12%	32%
Reported known archeological properties determined ineligible for the National Register	25,231	5,950	3
Percent of known archeological properties determined ineligible for the National Register	7%	17%	0.5%
Reported known archeological properties not evaluated for the National Register	247,439	17,631	359

Table 3.2 Archeological Resource Base, Comparison by Agency Category

	<i>Land/Resource Management</i>	<i>Development</i>	<i>Regulatory</i>
Percent of known archeological properties not evaluated for the National Register	63%	50%	60%

Nearly all the archeological resource base data was reported, as expected, by land/resource management agencies. The main exception was the Army Corps of Engineers (COE), an agency categorized among development agencies, but which also manages a substantial amount (about 8,000,000 acres) of land.

Overall, land/resource management agencies accounted for 699,823,092 (99%) of the federally managed acreage reported (Table 3.2). Of this land examined for archeological resources during FY 1987, land/resource management agencies accounted for 92% of that receiving intensive survey (19,952,877 acres), 91% (11,200,286 acres) of the land surveyed to identify more than 50% of its archeological sites, and 88% (9,279,132 acres) of the land investigated to locate less than 50% of its archeological sites. They also accounted for 99% (649,125,230) of the total acreage not surveyed.

Of the number of archeological sites reported for Federal land, land/resource management agencies accounted for 92% (389,590) of the total, 97% (24,517) of the known sites listed on the NRHP, 83% (33,417) of the sites determined to be eligible for inclusion by NRHP, 93% (58,564) of the sites evaluated but not submitted for listing on the NRHP, 81% (25,231) of the sites determined to be ineligible for NRHP listing, and 93% (247,439) of the sites not evaluated.

Within the land/resource management agency category, the Bureau of Land Management (BLM) (8,100,000), the Forest Service (FS) (7,346,396) and the Army (1,500,000) reported 85% of the acres intensively surveyed. The National Park Service (NPS) (7,114,118), the Fish and Wildlife Service (FWS) (1,228,600), and FS (896,910) accounted for 83% of the acreage examined to locate more than 50% of its archeological sites. Approximately 84% of the acreage investigated to locate less than 50% of its archeological sites was reported by NPS (5,458,816), FWS (1,683,500), and the Navy (700,000). BLM (266,500,000), accounted for 41% of the Federal acres not surveyed for archeological resources, while FS (160,222,232) accounted for another 25% and FWS (87,914,000) 14%. Of the land specific to land/resource management agencies, most reported that less than 10% of their acreage has been investigated for archeological resources. The exceptions were the Navy, which reported 55% (1,100,000) of its acreage unsurveyed, the Bureau of Reclamation (4,804,000), and the Department

of Energy (1,613,993), which both reported approximately 70% of their acreage unsurveyed.

The majority (79%) of the sites reported by land/resource management agencies was reported by BLM (136,160), FS (132,399), and NPS (39,204). Of the sites listed by NRHP, a large majority (85%) were reported by NPS (20,895). For archeological sites determined eligible for the NRHP, the Bureau of Indian Affairs (14,785), BLM (10,059), and FS (5,728) accounted for 92%. Approximately 60% of the archeological sites evaluated but not listed by NRHP were reported by BLM (35,455). More than 59% of the archeological sites that were determined ineligible for NRHP also were reported by BLM (15,124). Of the archeological sites reported as not listed by NRHP, BLM (132,990), FS (77,295) and NPS (15,154) accounted for more than 90%.

Some of the agencies classified in the development category also manage land. Generally the extent of these managed lands is relatively small. Overall, development agencies accounted for only 1% of the acreage (9,565,740) reported managed by Federal agencies (Table 3.2). The majority (84%) of the acres managed by development agencies were reported on by COE (8,000,000). Of the total acreage managed, development agencies accounted for 8% (1,695,098) of the land intensively surveyed, 9% (1,041,182) of the land surveyed at a level designed to locate more than 50% of its archeological sites, and 12% (1,281,402) of the land investigated at a level designed to locate less than 50% of those sites. Development agencies accounted for less than 1% of the total acreage reported (4,348,058) as having never been investigated at any level.

Of the total known archeological sites reported by Federal agencies, development agencies accounted for 8% (35,154) of the total, 3% (703) of the sites listed on the NRHP, 17% (6,662) of the sites determined to be eligible for the NRHP, 7% (4,208) of the sites evaluated but not submitted for listing on the NRHP, 19% (5,950) of the sites determined to be ineligible for the NRHP, and 6% (17,631) of the sites not evaluated with respect to NRHP criteria.

Overall, regulatory agencies accounted for less than 1% (191,453) of the acres reported managed by Federal agencies (Table 3.2). As previously discussed, this figure does not include OCS land. Of the total Federal acreage reported, regulatory agencies accounted for 30,983 acres of the land investigated to locate 100% of the archeological sites, 34,710 acres investigated to locate more than 50% of the sites, and 20,200 of those surveyed to locate less than 50% of the archeological sites. Regulatory agencies accounted for 99,187 of the total number of acres reported as not being investigated at any level.

Of the total known archeological sites reported on Federal land, regulatory agencies accounted for only 595. Of the sites reported as being listed on the NRHP they accounted for 9, plus 37 of the sites determined to be eligible for the NRHP, 192 of the sites evaluated but not listed on the NRHP, 3 of the sites determined to be ineligible, and 359 sites not evaluated with respect to NRHP criteria.

Summary

Although only approximately 8% of the lands managed by Federal agencies have been examined for archeological resources, those efforts have been substantial, resulting in the location of 425,339 sites. Of the known archeological sites on Federal land, however, more than half have not been evaluated to determine their eligibility for the National Register of Historic Places, a procedure important if they are threatened by any activities that may affect them adversely.

By definition, land/resource management agencies are responsible for managing the great majority of Federal lands as well as a large majority of documented archeological sites. However, they also account for most of the land not surveyed, while development and regulatory agencies, which manage far less acreage, report considerably higher percentages of the lands under their jurisdiction as having been surveyed for archeological resources.



Participants in the National Archeological Database regional coordinators' meeting, Fayetteville, AR.
Clint Foster

4

Archeological Information Exchange

Introduction

In this chapter, examples of cooperation in information exchange involving Federal agencies, State agencies, and the public are the focus. In Chapter 5 many examples of interagency cooperation involving archeological resource protection also are described or cited. Public education, a special kind of information exchange, is an increasingly important activity that is receiving more attention in Federal archeological activities; Chapter 6 reports on public education efforts.

Information exchange among public, especially Federal, agencies as reported in this chapter, is an essential means of eliminating redundancy in the archeological activities of Federal agencies and others. Cooperation between and among Federal agencies and private and professional archeological organizations also is reported here. Such cooperation is encouraged under Section 11 of the Archaeological Resources Preservation Act as a means of enhancing resource preservation.

Interagency Cooperation

Twenty-six agencies and regional offices provided information on methods used to share archeological data with each other and interested groups. The most common form of information sharing was through the distribution of reports to State Historic Preservation Offices (SHPO), Federal agencies, the National Technical Information Service (NTIS), academic institutions, and professional journals. Computerized databases were utilized by several agency offices. Participation in State and local archeological societies, professional meetings, and workshops also was frequently cited as a way to disseminate archeological information. Cooperative agreements for information sharing among agencies, universities, and museums were helpful in many instances. A few agencies initiated working committees, information meetings and memoranda, mailing lists, and clearinghouses as means of distributing information.

Agency Reports

The Rural Electrification Administration (REA) stated that all archeological information developed as a result of field surveys and data recovery by applicants was provided routinely to the relevant SHPO. Summaries of the archeological work were included in REA's environmental review documents.

The Military Airlift Command sent all of its reports to NTIS. Archeologists associated with Edwards Air Force Base in California participated in local and State archeological society meetings, and copies of data recovery reports were provided to the National Park Service (NPS) and SHPOs.

The Army Corps of Engineers (COE) reported a variety of methods for sharing information: (1) project and more general reports, such as COE Construction Engineering Research Laboratory technical archeological reports, to state universities and agencies, libraries, SHPOs, Indian Tribes, NPS, and NTIS; (2) sharing of the Archeological Sites Information System database with SHPOs; (3) computer access to SHPO site information, when possible; and (4) radio and television interviews.

The Navy relied largely on informal interagency contacts that were sustained by monthly interagency information exchange meetings in Washington and project-specific interaction between Navy field commands and SHPOs.

The Department of Energy (DOE) Los Alamos National Laboratory reported information exchange with the New Mexico SHPO and a curation agreement with the Laboratory of Anthropology at the Museum of New Mexico. The Idaho DOE submitted annual reports to the SHPO and the Bureau of Land Management (BLM) containing pertinent archeological and cultural resource information. The DOE Western Area Power Administration distributed reports to all Section 106 consulting organizations or individuals and, upon request, to other interested parties. The DOE Chicago Operations Office conducted informal and formal consultations with SHPOs in States impacted by its projects. At the DOE Savannah River Plant, results of investigations were published for distribution, primarily through the Institute of Archeology and Anthropology at the University of South Carolina. Professional archeologists working on the Savannah River Plant project also published through various professional journals. The project continued to play a key role in archeological research in the Savannah River Valley.

The Environmental Protection Agency, New York State office developed a number of systems for sharing archeological information with other agencies, the New York SHPO, and other archeological groups. One such system was the development and sharing of information contained in the Construction Grants cost database. This database holds information about archeological identification and evaluation methods and descriptions of sites discovered. This computerized information was made available to the SHPO and the State Archeologist's Office. In addition, a report, *Analysis of Cultural Resources Survey Efforts in the USEPA Construction Grants Program in New*

York State, 1980 - 1987, was prepared and distributed to all interested parties. Comparative site data sharing was arranged among public and private institutions, including the New York State Museum, Rochester Museum, the SHPO, and several academic institutions. This procedure allowed quick access to basic site data for planning and research. A similar, although less extensive, arrangement was created for sharing reports with others. All reports were routinely archived with the SHPO.

The Bureau of Indian Affairs (BIA) reported that all SHPOs received copies of the results of all archeological work conducted within their respective states under BIA auspices. The site inventories they maintain were usually available to responsible users. With regard to other groups, BIA Area Archeologists participated in professional and avocational organizations and activities within their respective areas.

BLM offices regularly shared inventory and evaluation information with SHPOs and other Federal and State agencies as part of their operating procedures.

The Fish and Wildlife Service worked with a number of local archeological groups, communities, tour groups, refuge volunteer organizations, and neighboring agencies in sharing useful information. Field trips were conducted and local organizations were involved in locating and protecting archeological resources.

The Minerals Management Service sponsored an annual Information Transfer Meeting (ITM). Staff archeologists developed technical sessions to review current research being conducted. The archeological ITM sessions focused on both prehistoric and historic shipwreck archeology. Professionals from a region were invited to present current research topics related to the archeological resource protection program. These sessions served to disseminate information on the Offshore Continental Shelf archeology program to the oil and gas industry, environmental, regulatory, and archeological professionals, and to some extent to the general public.

In the NPS Alaska Region the need for a statewide cooperative forum for Federal archeologists was identified. The concept was then developed and a plan was formed for the establishment of such a group. Since FY 1987 this plan has come to fruition; the Alaska Interagency Archeological Group held its first meetings in FY 1988. The group serves as an information exchange forum for Federal archeologists in Alaska. The Alaska Region also developed a special summary report format to share archeological survey information with interested regional and village Native corporations in Alaska concerning the Bering Land Bridge National Preserve Archeological Survey. Reports were sent to all groups associated with the Bering Land Bridge National Preserve. The regional office also collected site data for inclusion in the computerized site inventory system administered by the Alaska SHPO.

The NPS Midwest Archeological Center maintained a large mailing list for dissemination of archeological reports to professional archeologists in the Midwest Region. Copies of all final archeological reports were distributed to appropriate SHPOs. The North Atlantic Region also disseminated research reports to appropriate groups. The

NPS Western Region field area and regional office archeologists actively communicated with staff from other agencies through formal interagency channels and informal communications. In California, NPS archeological site data were included in computerized databases maintained by State information centers. In Arizona, databases maintained at the Western Archeological and Conservation Center were shared with the Arizona SHPO. Archeological Clearance Survey Reports were automatically sent to appropriate SHPOs under Memorandum of Understanding arrangements. The NPS Pacific Northwest Region reported exchanges of information, including talks to interested groups and an update lecture each year at regional anthropological meetings.

The American Samoa territorial preservation office reported cooperation with university based archeologists who are interested in the prehistory of the area. Project costs were split, with the result that each party contributed approximately \$10,000 toward the cost of one project. As a result of this approach, leading scholars in the field conducted research in the area.

Under a cooperative agreement, the Tennessee Valley Authority provided for technology transfer of archeological site stabilization and protection data through the publication and dissemination of reports using empirical data on techniques and effectiveness.

The National Archeological Database

During FY 1987, the continuing development of a nationwide computerized archeological database was one of the goals of the NPS Archeological Assistance Program. The creation of the National Archeological Database (NADB) was identified by Congress as one means of eliminating redundant archeological efforts by Federal agencies and improving the Secretary of the Interior's ability to lead and coordinate Federal archeological activities.

As part of its FY 1984 appropriations actions, Congress directed NPS to improve coordination of Federal archeological activities. One of the means cited in Congressional reports on this program was the creation of a national database of Federal archeological activities. NADB is the product of this Congressional initiative for a database. The General Accounting Office has suggested that implementation of NADB will constitute a major step toward increasing program effectiveness. In addition, several Federal agencies expressed interest in participating in the NADB project with NPS.

During FY 1984 and FY 1985 the Archeological Assistance Program designed and developed database system specifications, conducted a pilot project, and began full nationwide implementation of the Report portion of the program. In FY 1986, the database system was installed, and data collection began in four regional offices, Mid-Atlantic, Rocky Mountain, Southeastern, and Western. Records were collected for archeological reports mainly from states in the eastern half of the country. Records

collection currently is focused on "grey literature," unpublished and limited distribution reports in the SHPOs. Early estimates suggested that there were approximately 200,000 such documents; however, more recent indications suggest that this estimate was low.

Ultimately, NADB will consist of three parts providing summary, especially geographical, information about: (1) archeological reports, (2) archeological projects, and (3) other archeological databases. The planning, data collection, and software development and testing conducted during FY 1987 have led to the completion of the Reports portion of NADB. NADB-Reports contains the following information about archeological reports for which data has been collected: bibliographic reference listing title, author, and year of publication; location where the report is on file; and a summary of the content of the report giving the geographical location of the work reported on, type of work performed, Federal agency involved, and key words about various aspects of the report.

Since FY 1987 development of NADB has continued. Areas of attention have included: (1) data collection for the Reports portion, (2) development of a means of providing access to the database, and (3) design and testing of the Project portion of NADB. Personnel costs and other operating expenses have eroded the base of funds available for NADB. This will continue to make development and implementation of the system slow, especially for outside users. The cost of collecting data by contract for NADB has been two to five times higher than was initially estimated. Since FY 1987, data collection has continued, but alternative methods to complete data collection for the Report portion of NADB were identified and implemented.

Summary

This chapter is composed mainly of brief descriptions of the means various Federal agencies or agency offices have used to exchange information. The focus has been information exchange to reduce redundancy and promote resource preservation. One major effort to coordinate such information is the National Archeological Database program, which was described in some detail in the last section. Archeological information exchange related to preventing the looting of archeological sites is discussed in Chapter 5. Public education activities that also can often be characterized as information exchange, are described in Chapter 6.



Stabilizing a wall at Escalante Ruin, CO. *Bureau of Land Management*

5

Archeological Looting, Law Enforcement, and Site Protection

Introduction

Archeological sites on public land in this country have been and continue to be looted and vandalized. Although there are Federal, State, Tribal, and local statutes designed to protect them, widespread looting and vandalism of important, non-renewable archeological resources have been reported. The 1987 General Accounting Office (GAO) report, *Cultural Resources: Problems Protecting and Preserving Federal Archeological Resources* (General Accounting Office 1987), examined archeological looting on Federal land in the Four Corners region of Arizona, Colorado, New Mexico, and Utah. Data collected for the GAO report indicated that nearly one-third of the known archeological sites have been looted to some extent. A recent survey by the National Park Service (NPS) on a sample of archeological sites listed on the National Register of Historic Places indicated that as many as half of all known private and public sites nationwide are threatened or have been damaged by looting (National Park Service 1988).

Data provided by Federal agencies for this report also indicate that substantial looting is occurring. An important point is that both the GAO report and the data in this report reflect only known archeological sites. They do not take into consideration looting and vandalism that have occurred at sites that have not yet been inventoried and evaluated by Federal agencies. Considering the fact that, overall, Federal agencies report that less than 8% of the land they manage has been investigated to inventory archeological sites (See Chapter 3), the level of destruction by looting could be substantially higher. In addition, many looting incidents may go unreported because the sites looted are in remote locations or the evidence of looting is not noticed.

The looting of archeological sites in the United States is occurring on a vast scale (e.g., see Carnett 1991; Landers 1991). If not diminished it will seriously deplete the archeological heritage of our nation. This means the loss of data that are the only source of knowledge about some parts of past human life on the North American

continent. Looting occurs throughout the country on land administered by Federal agencies. Although not described in any detail here, this also is occurring on State and private land.

Reported Looting and Vandalism

A total of 657 new incidents of archeological looting were reported on sites located on land administered by Federal agencies during 1987 (Table 5.1). As with past years, the number of arrests for such violations was small. In FY 1987 only 16 arrests and 52 citations were reported; 29 prosecutions against looters were reported. A total of 22 convictions under the Archaeological Resources Preservation Act (ARPA) were reported; 16 of these were misdemeanor and 6 were felony convictions. No second offenses of ARPA violations by an individual were reported. Two civil penalties under ARPA also were reported. An additional 33 cases of archeological looting or vandalism were prosecuted using statutes or regulations other than ARPA.

Criminal fines imposed under ARPA resulted in the collection of \$12,475, and an additional \$530 was collected in civil penalties. The estimated cost reported for repairing looted and vandalized archeological sites was \$105,480. ARPA provides for rewards to be given for information leading to civil or criminal prosecutions. One reward in the amount of \$500 was reported. The commercial value of artifacts seized and retained by the government was reported at \$37,531, while the commercial value of other personal property seized and retained by the government was reported at \$23,370. Agencies reported spending an estimated \$939,896 for archeological resource protection.

Nearly all the information reported on this topic came from agencies in the land/resource management category. The major exception to this was the Army Corps of Engineers (COE), which manages some land along with its larger development service.

Agency Activities

The largest numbers of documented looting violations were reported by NPS (220), the Bureau of Land Management (BLM) (193), and Tennessee Valley Authority (TVA) (100). However, most of the arrests made were reported by the Forest Service (FS) (6) with an additional four reported by NPS. Half (26) of the citations issued were reported by NPS. Of the cases prosecuted, NPS (16) and FS (10) accounted for the majority. All the convictions under ARPA were reported by NPS (9), FS (7), BLM (3), and COE (3). Almost 70% of the misdemeanor convictions under ARPA were reported by NPS (9), while all of the felony convictions were reported by FS (6). No second offenses were reported. About 70% of the prosecutions under authorities other than ARPA were reported by NPS (21). Almost all of the amount collected in criminal fines was accounted for by FS (\$7,550) and NPS (\$3,475). Only two civil penalties were imposed under ARPA, Section 7; one each was reported by FS and NPS. The cost of restoring archeological sites that were looted or vandalized was reported very incompletely. Almost all of the penalty amount was reported by one agency, FS

Table 5.1 Enforcement Activities, FY 1987

Cost Related Data

Amount of money collected in criminal fines	\$12,475
Amount of money collected in civil penalties	\$530
Estimated costs for restoring or repairing archeological resources in cases in which civil penalties were assessed for violations of ARPA or other authority	\$105,480
Amount of money in awards under ARPA	\$500
Commercial value of artifacts seized and retained by the government	\$37,531
Commercial value of other personal property seized and retained by the government	\$23,370
Estimated agency cost for law enforcement for archeological protection*	\$939,896

Statistical Data

Number of documented violations of ARPA, Antiquities Act or other statutes protecting archeological resources	657
Number of arrests made in cases of vandalism or looting	16
Number of citations issued for vandalism or looting	52
Number of prosecutions for vandalism or looting	29
Number of convictions under ARPA	22
Number of misdemeanor convictions under ARPA	16
Number of felony convictions under ARPA	6
Number of second offenses under ARPA	0
Number of cases of vandalism, destruction, theft, etc. prosecuted using an authority other than ARPA	33
Number of civil penalties applied under ARPA	2
Percentage of overall law enforcement budget associated with ARPA or the Antiquities Act	0.2-7%

*Estimated from personnel training data provided. Computed based on a GS-9 salary level.

(\$105,000). The only reward reported under ARPA, Section 8 was \$500 reported by FS, which also accounted for more than 96% (\$36,000) of the amount reported for the commercial value of artifacts seized and retained by the government and more than 85% (\$20,000) of that for the commercial value of personal property seized and retained by the government. More than 60% of the amount spent for archeological law enforcement activities was reported by NPS (\$564,396), while another 24% was reported by BLM (\$230,000).

It is clear that the numbers and amounts reported in most of these categories are lower than the actual amount of looting and trafficking that occurs. The reasons for this vary from lack of resources to monitor sites for signs of looting, to incomplete reporting due to misunderstandings about questions on the form used to collect data

for this report. Improved site inventories and better coordination between agency archeologists and law enforcement staffs can improve the former situation.

Methods Used to Improve Archeological Site Protection

Training

Federal agencies reported employing 5,036 law enforcement personnel, 517 archeologists, and 818 other cultural resource personnel (Table 5.2). Many agencies included archeological resource protection training among their activities; 148 law enforcement personnel (3%), 33 archeologists or other cultural resource personnel (2%), and 3 employees outside these categories were reported as having taken the 40-hour archeological resource protection course offered by the Federal Law Enforcement Training Center (FLETC).

Additional archeological resource protection training in the form of 8- and 16-hour courses also was reported. One hundred eighty-nine law enforcement personnel, 19 archeologists or cultural resource personnel, and 91 other employees were reported as having taken 8- or 16-hour archeological resource protection training courses. As a result an additional 299 people received training. In total, 483 Federal employees received archeological resource protection training in FY 1987.

Land/Resource Management agencies accounted for almost all agency personnel who attended the 40-hour archeological protection course given by FLETC (Table 5.3). The same holds true for the 8- and 16-hour courses with all (189) of the law enforcement personnel, 68% (13) of the archeologists and cultural resource personnel, and 67% (61) of the other personnel being reported by these agencies. Overall, these agencies accounted for 99% (182) of the employees taking the 40-hour FLETC course and 88% (263) of the personnel taking similar training in an 8- or 16-hour format.

More than 73% (3,707) of the law enforcement personnel reported were employed by NPS (1,810), TVA (1,100), and the Fish and Wildlife Service (FWS) (797). Over 79% (613) of the cultural resource staff were reported by FS (276), NPS (187), and the Army (150), and more than 77% of the archeologists were accounted for by BLM (123), FS (118), and NPS (93). The majority (89%) of the law enforcement personnel (131) taking the 40-hour FLETC course were reported by FWS (101), NPS (18), and BLM (12). More than 74% of the archeologists and cultural resource personnel taking this course were reported by BLM (14), the Bureau of Indian Affairs (BIA) (5), and NPS (4). All other personnel (3) were reported by NPS. With respect to 8- and 16-hour archeological resource protection training, NPS (101), FWS (75), and FS (11) accounted for more than 98% of the law enforcement personnel taking these courses. Of all the archeologists and cultural resource personnel reported taking an 8- or 16-hour course, six were reported by the Air Force (3) and Navy (3). A 98% (60) majority of the personnel in other categories taking this training was reported by the Navy (50), BIA (8) and Air Force (2).

Table 5.2 Archeological Resources Protection Education/Training, FY 1987

Number of law enforcement personnel taking Federal Law Enforcement Training Center (FLETC) 40-hour archeological resources protection course	148
Percent law enforcement personnel taking FLETC 40-hour course*	3%
Number of cultural resource personnel taking FLETC 40-hour archeological resources protection course (includes archeologists)	33
Percent of cultural resource personnel taking FLETC 40-hour archeological resources protection course (includes archeologists)	2%
Number of other personnel taking FLETC 40-hour archeological resources protection course	3
Total taking FLETC course	184
Number of law enforcement personnel taking other courses or portions of courses (8-16 hours) dealing with archeological resources protection	189
Percent of law enforcement personnel taking other courses or portions of courses (8-16 hours) dealing with archeological resources protection*	4%
Number of cultural resource personnel taking other courses or portions of courses (8-16 hours) dealing with archeological resources protection (includes archeologists)	19
Percent of cultural resource personnel taking other courses or portions of courses (8-16 hours) dealing with archeological resources protection (includes archeologists)*	1%
Number of other personnel taking other courses or portions of courses (8-16 hours) dealing with archeological resources protection	91
Total taking 8 to 16 hours of courses	299
Number of law enforcement personnel reported on staff*	5036
Number of cultural resource personnel (non-archeologists) reported on staff*	818
Number of archeologists reported on staff*	517

*Question added to FY 1987 questionnaire

Development agencies accounted for 6% (51) of the cultural resource personnel and 17% (88) of the archeologists reported. All of the cultural resource personnel employed by development agencies were accounted for by COE (46) and TVA (5); more than 94% of the archeologists were reported by COE (83). Regulatory agencies did not report having any law enforcement personnel, archeologists, or cultural resource personnel on staff. This, however, is not accurate because some regulatory agencies such as the Federal Energy Regulatory Commission employ a number of archeologists.

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Table 5.3 Archeological Resources Protection Education/Training, Comparison by Agency Activity Category

<i>Activities</i>	<i>Land/Resource Management</i>	<i>Development</i>	<i>Regulatory</i>
Number of law enforcement personnel taking Federal Law Enforcement Training Center (FLETC) 40-hour archeological resources protection course	148	0	0
Percent of law enforcement personnel taking FLETC 40-hour course	3%	0%	0%
Number of cultural resource personnel taking FLETC 40-hour archeological resources protection course	31	2	0
Percent of cultural resource personnel taking FLETC 40-hour archeological resources protection course (includes archeologists)	2%	1%	0%
Number of other personnel taking FLETC 40-hour archeological resources protection course	3	0	0
Total taking FLETC course	182	2	0
Number of law enforcement personnel taking other courses or portions of courses (8-16 hours) dealing with archeological resources protection	189	0	0
Percent of law enforcement personnel taking other courses or portions of courses (8-16 hours) dealing with archeological resources protection	4%	0%	0%
Number of cultural resource personnel taking other courses or portions of courses (8-16 hours) dealing with archeological resources protection (includes archeologists)	13	4	2
Percent of cultural resource personnel taking other courses or portions of courses (8-16 hours) dealing with archeological resources protection	1%	3%	0%
Number of other personnel taking other courses or portions of courses (8-16 hours) dealing with archeological resources protection	61	30	0
Total taking 8- to 16-hour course	263	34	2
Number of law enforcement personnel reported as agency staff	5,036	0	0
Number of cultural resource personnel (non-archeologists) reported as agency staff	767	51	0
Number of archeologists reported as agency staff	429	88	0

All of the archeologists and cultural resource personnel reported as having taken the 40-hour FLETC course were accounted for by COE (2). COE also accounted for all (4) of the cultural resource personnel and archeologists receiving the 8- or 16-hour training and all (30) of the personnel in other categories receiving this level of training. Many of these COE employees probably work in the land management activities for which COE is also responsible. Overall, development agencies reported only 2 of the people taking the 40-hour FLETC course and 34 of the staff receiving archeological resource protection training in an 8- or 16-hour format.

Regulatory agencies did report 11% (2) of the cultural resource personnel receiving 8- or 16-hour archeological resource protection training. The National Aeronautic and Space Administration was the only regulatory agency to report training, accounting for all (2) of the cultural resource personnel taking the 8- or 16-hour archeological resource protection training.

Archeological Resource Protection/Management Training By Agencies

Of the 25 agencies that provided information concerning archeological resource protection training, 20 reported they had provided some form of training in cultural resource management, ARPA enforcement, or general archeology for their personnel. Six agencies cosponsored the Advisory Council on Historic Preservation (ACHP), Section 106 compliance course and three offered ARPA training through FLETC. Five agencies participated in additional training with other government agencies. Of the 20 agencies providing training, 14 had developed programs for their own use, varying in intensity from 2 hours to 2 weeks. Workshops and refresher courses were conducted utilizing guest speakers, films, videos, slide/tape programs, and on-site visits.

The Soil Conservation Service (SCS) developed a cultural resources training program that targets agency employees involved in SCS program and management decisions in handling cultural resource concerns. Training materials were organized in nine modules composed of self-paced slide/tape presentations, classroom study, and a field exercise/workshop.

Within the military, the Air Force and Navy participated in a cultural resources management workshop sponsored by the Department of Defense (DOD) at Northern Arizona University in Flagstaff. This course devoted roughly 60% of its time to archeology and ARPA figured prominently in instructional exercises. The Army reported exploring ways in which to educate military police and game wardens about ARPA and site vandalism. This subject was formally taught in training programs at installations such as Fort Bliss and Fort Hood in Texas. In all presentations made to installation facility engineers and their staff members, historic preservation officers provided information about ARPA and severe problems of vandalism. COE reported using its own Cultural Resources: Identification, Analysis, and Evaluation course. The Navy organized and participated in a 2-week DOD Historic Preservation and Archaeology Workshop at the University of Northern Arizona.

The DOE Los Alamos National Laboratory and the Western Area Power Administration (WAPA) provided training for in-house cultural resource personnel through the ACHP, Section 106 course. WAPA reported training through a BLM/FS archeology course and various State Historic Preservation Office (SHPO) sponsored workshops.

GSA reported using the Section 106 review course for training purposes.

The BIA Aberdeen Area Archeologist organized and oversaw a 2-week training course on cultural resource management for Indian agency and Tribal representatives. The course consisted of one week of classroom work and a second week of field experience. The Area Archeologist presented those sections of the course covering Federal laws and regulations, including ARPA. Additional sessions were given on the nature of archeology and its methods and on North American archeology with emphasis on the Northern Plains. Outdoor activities involved inventorying, mapping, and recording sites, as well as visits to major archeological sites in South Dakota.

Cultural resources personnel in the BIA Juneau Area Office attended a statewide cultural resource protection workshop organized by the Alaska Office of History and Archeology. One other Area Office provided training to sensitize Area Office and Tribal personnel to the obligations and requirements imposed by ARPA, the National Historic Preservation Act and other pertinent laws, regulations, standards, and guidelines.

BLM coordinated with ACHP to present several courses on the Section 106 process. Training was also provided in conjunction with BLM staff on mineral development issues for specialists and managers. BLM continued to provide archeological technician training for its personnel and to work with FS in Colorado on joint training of this kind.

In addition to participation in the FLETC week-long archeological resource protection course, four FWS Regional Offices conducted refresher sessions for refuge law enforcement personnel. These sessions were not designed for in-depth training, but rather to readdress basic legal points and methods for experienced employees. A short, introductory 2-hour session also was conducted at the FWS training academy for new refuge employees.

Within NPS, the Alaska Region reported that a small number of superintendents took the Cultural Resource Management class given at the Mather Training Center at Harpers Ferry, WV. The Law Enforcement Refresher Class given each spring in the Alaska region for seasonal rangers included information concerning ARPA and archeological looting.

The Midwest Archeological Center offered a course to train park personnel to serve as paraprofessional archeologists. Individuals attending the course were instructed in the nature and significance of archeological remains and the role of NPS in the man-

agement of archeological resources. Participants in the course were taught skills in recognizing archeological resources so they could assist NPS archeologists with projects at their park units, and report and document the discovery of archeological remains. The course provided an opportunity for park personnel to take an active role in the preservation of archeological resources and increase their understanding of the resources under their stewardship. A portion of this course covered ARPA issues and concerns.

The National Capital Regional Archeology Program developed a 2-hour ARPA training course titled "Protecting the Past: Training in Archeological Resources Protection." The course was designed to be taught during yearly in-service park ranger training and, upon request, at individual parks and U.S. Park Police substations within the National Capital Region (NCR). The intent of this course is to familiarize NCR law enforcement personnel with local archeological resources and the nature and extent of archeological vandalism that exists in the region's parks, not as a substitute for the more intensive training conducted by FLETC.

The NPS Pacific Northwest Region reported holding 2 major training courses for all law enforcement rangers in its 15 areas. In the past, the regional archeologist and the regional curator have given 2-hour presentations regarding ARPA and collection security. In 1986 and 1987 they hosted 4-hour ARPA talks by a former assistant U.S. attorney. In the future they hope to put together a short course each year involving the former assistant U.S. attorney, the regional archeologist, and a BLM special agent. The NPS North Atlantic Region also included ARPA training within an annual law enforcement refresher course.

The Southwest Region reported that 40-hour courses patterned after the FLETC course were conducted. The regional law enforcement refresher courses also included four hours on ARPA and its regulations. ARPA and other archeological issues were addressed in resource management workshops and in cultural resource management training.

TVA reported using the FLETC course on ARPA enforcement and the ACHP course on Section 106 compliance.

Interagency Cooperation in Fighting Archeological Looting

Twenty-one agencies or offices provided information concerning interagency cooperation; 15 of these reported cooperative activities in ARPA enforcement. Techniques used to improve ARPA enforcement involved cooperative agreements for monitoring, surveillance, and education. Twelve agencies developed informal and formal agreements with Federal, State, and local authorities for patrolling the locations of cultural resources. Three agencies involved local archeological societies and Indian tribes in archeological site monitoring activities. Education and public awareness techniques included personnel training, promotional Archeology Weeks, and site

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stewardship programs. One agency, NPS, reported the use of remote sensing equipment in ARPA enforcement.

Air Force Security Police and game wardens assisted in patrolling sites on Air Force property. COE made informal agreements with various local law agencies to assist in patrols and to make arrests.

At the DOE Savannah River Plant the security system included ground, air, and river patrols on both a scheduled and an irregular basis. In addition to general and specific plant security activities, patrol personnel were briefed to be aware of all activities in and near known archeological sites. Patrols routinely stopped at archeological sites under investigation to verify the presence of authorized personnel. In addition, FS personnel and South Carolina Wildlife and Marine Resources personnel working at the plant stayed alert for any indications of unauthorized activity at or near known archeological sites. They also reported indications of other archeological sites in their respective project areas.

Although BIA reported no formally organized projects, BIA and Tribal law enforcement personnel coordinated informally with law enforcement personnel of other agencies.

BLM continued to develop cooperative management approaches with other Federal, State, and local law enforcement agencies to deal with the looting and destruction of cultural resources. Several state offices undertook individual initiatives to enhance their protection programs. BLM in New Mexico, for example, worked to establish a new protection effort called IMPACT (Interagency Mobilization to Protect Against Cultural Theft). The New Mexico and Utah state offices participated actively in the first archeology awareness weeks held in these States. The Nevada office developed an "Adopt-A-Site" program with the Churchill County Chapter of the Nevada Archeological Association that used volunteers to assist in patrolling sites and monitoring projects. Nevada also increased tours at Hidden Cave and the Grimes Point petroglyph site and is developing interpretive displays at Lovelock Cave to encourage a conservation ethic in the visiting public. In Wyoming, BLM entered into a cooperative agreement with Fort Laramie to manage significant portions of the Oregon Trail.

In numerous instances FWS worked cooperatively with other agencies, local communities, and individuals for protection of archeological resources. Federal, State, and local agencies often combined routine surveillance and law enforcement efforts. In many cases, FWS refuge personnel regularly monitored the condition of known sites as part of routine patrol and maintenance work. Closure of sensitive areas in cooperation with other agencies also was employed effectively to deter looting and vandalism.

The NPS Western Regional office reported that concurrent jurisdiction was obtained for Western Region field areas. The Pacific Northwest Region reported an ongoing process of joint surveillance of selected sites with FS personnel and monitoring of

sites by several Indian Tribes whose land is adjacent to the parks. The Southeast Regional office reported plans to use remote sensing devices at Big South Fork National River and Recreation Area in Tennessee and Kentucky to assure protection of specific archeological resources.

The NPS Southwest Region concluded an agreement with BLM and FS for cooperation in management, protection, and preservation of archeological sites and structures. A 40-hour ARPA course was offered, in cooperation with the State of Texas, involving personnel from the Texas Historical Commission as instructors and as trainees. Attendees also included Border Patrol officers and deputy sheriffs.

TVA contracted with the Monroe County Sheriff's Department to patrol significant archeological sites in the upper portion of the Tellico Reservoir in east Tennessee. TVA contracted with an Alabama Wildlife Service officer to patrol significant archeological sites at the Seven Mile Island archeological district at Pickwick Reservoir in northwest Alabama. The Tennessee Wildlife Resources Agency assisted TVA in ARPA surveillance at Tellico Reservoir, Hiwassee Island in the Chickamauga Reservoir, and Huffine Island in the Watts Bar Reservoir.

Archeological Site Protection Methods

Techniques used by Federal agencies to improve archeological site protection were many and varied. They ranged from direct intervention methods such as fencing, patrols, and site stabilization to education programs and enhanced interpretation.

Three agencies, DOE, FWS, and NPS, established access restrictions to archeologically sensitive areas and information. Site security was aided by posted signs, fences and patrols from COE and FWS. In addition, some respondents used the monitoring of off-road vehicles and surveillance equipment, such as remote sensing by NPS, to monitor land units and sites.

Patrolling was utilized by four agencies, Air Force, COE, DOE, and FWS, fencing by six, Air Force, Army, COE, DOE, FWS, and NPS. COE and NPS posted signs against trespassing. Site stabilization programs were implemented by COE, DOE, NPS, and TVA. Public education by means of interpretive facilities, lectures, and tours was promoted by four agencies, Air Force, SCS, COE, and DOE. Archeological field schools and training seminars for agency personnel were conducted by DOE, BIA, BLM, and NPS.

Edwards and Vandenberg Air Force Bases in California presented periodic lectures regarding archeological site protection to groups visiting installation facilities.

COE used a wide variety of techniques and procedures to improve preservation: requirements for contractors to prepare articles and slide or video presentations for use in interpretive programs; contracts with regional information centers to do record searches, including up-to-date and rapidly accessed information; cultural resource in-

terpretive facilities; sealing of cave sites with concrete and boulders; stone rip-rap, steel piles, and berm walls for bank stabilization; public lectures and education programs; monitoring of protection measures; and grass revegetation for wind erosion. In addition, some districts developed cultural resource management plans for each operating project to provide guidance to resource personnel in the management, protection, and interpretation of cultural resources.

The Department of Energy (DOE) Los Alamos National Laboratory reported that most sites in areas of high visibility were fenced permanently with barbed wire. Guided tours were given of archeological ruins that are ordinarily off limits to the general public and special tours were provided to specific interest groups such as high schools, college classes, and researchers. In the DOE Western Area Power Administration one environmental specialist received BLM/FS paraprofessional training in archeology during FY 1987 and additional training was planned for the future. At the DOE Savannah River Plant, effective archeological resource protection was improved through a site use permit system. All proposed plant projects, including operations, construction, scheduled timber harvesting, reforestation, wildlife management, and environmental research, were submitted to DOE on site use permit applications. These applications described details of each proposal, and each application was circulated among all concerned offices at the plant for review and comment. In the case of archeological resources, an immediate map and site file investigation was made to identify any archeological site within the proposal area. The archeological program manager reviewed all applications with the options of: (1) approval as is; (2) approval with restrictions such as avoidance, monitoring, etc.; or (3) disapproval unless additional investigation were undertaken. DOE reviewed all responses and made the final decision as to approval or disapproval. Permit modifications were handled in the same manner. Land stabilization was required on all projects involving terrain alteration, as well as ongoing maintenance of road shoulders and backslopes. This minimized erosion and, therefore, potential damage to archeological resources.

In order to preserve archeological resources, the Indian Health Service of the Department of Health and Human Resources worked closely with the SHPOs prior to construction to avoid any known archeological sites. The Juneau Area Office of BIA reported that training sessions, seminars, and archeological field schools involving Alaskan Natives were most effective.

In FY 1987, BLM worked with officials of Hovenweep National Monument to develop a general management and development concept plan for public land adjacent to the monument. Operating in a multiple use context, the plan placed special emphasis on the protection of cultural resources. BLM also participated in the Interagency Management Group for coordinating the management of Chacoan outliers. In Utah, BLM developed an 8-week internship program for archeology students that could be applied for academic credit at 20 major western universities. The students learned cultural resource management practices such as survey methods, site recordation, and report writing. As part of the program, students assisted BLM staff in cultural resource

management projects resulting in the contribution by the students and other volunteers of more than 18 work months. In Oregon, BLM used field schools to help inventory and evaluate sites for management and interpretive purposes.

Various methods employed by FWS included fencing of sites, the erection of interpretive signs, media involvement, and restricting the release of site locational information. At the Stillwater Refuge in Nevada, for example, the use of a vigorous media campaign resulted in several newspaper and television stories that helped nurture public interest in protecting important sites.

The Alaska Region of NPS reported that a ranger/archeologist trained other staff rangers at Lake Clark National Park and Preserve to make archeological observations and site monitoring a regular part of ranger patrols. This effort included adapting the Ranger Case Incident Report procedure to ensure notification of the Regional Archeologist regarding archeological matters, thereby improving archeological resource protection. This system resulted in some very useful status reports on a number of resources.

The NPS Midwest Region program of paraprofessional archeological training improved the management of the archeological resource base by training staff in the parks. These staff members regularly served as advocates for archeological resources and incorporated archeological concerns at early stages in project planning. Consequently, many small projects that were previously being constructed without archeological review were incorporated into the overall review process. The NPS National Capital Region reported that a grant from the Parks and History Association was used to develop, print, and distribute a poster promoting archeological preservation.

Within the NPS Western Region, the Petrified Forest National Park in Arizona continued a very effective use of volunteers, mostly from the American Rock Art Association, for supervised archeological surveys of park boundary zones. Each fieldwork survey period lasted two or three weeks with supervisory assistance from the Western Archeological Center, funded by the Petrified Forest cooperating association. More than 80 linear miles of boundary zone were covered in an zone one-quarter mile wide. Approximately 11,000 acres were covered, and 169 new archeological sites were added to the park inventory.

The NPS Southwest Region reported the installation of surveillance equipment in Wupatki and Canyon de Chelly National Monuments in Arizona. Fencing was used at Canyon de Chelly and at Amistad Recreation Area in Texas. At Amistad, a study was underway to assess preservation/protection needs. The work included backfilling looted sites, mapping and recording, fencing, signing with interpretive and ARPA notices, and closing off areas with buoys.

During the fourth quarter of FY 1987, TVA and the University of Mississippi (UM) entered into a cooperative agreement with NPS whereby TVA and UM would establish and maintain a national clearinghouse for archeological site stabilization and protec-

tion. Innovative and cost efficient techniques for site stabilization and protection will be developed, implemented, and monitored for effects through time.

Archeological Looting Clearinghouse (LOOT Clearinghouse)

During FY 1987, the Archeological Assistance Division of NPS established a clearinghouse of information on archeological looting and vandalism prosecutions. These summary records are being entered into a computer-based clearinghouse called LOOT (Listing of Outlaw Treachery). Its purpose is to provide a central file for agency law enforcement, legal, and resource management staff who need information on looting and vandalism prosecutions. More than 80 case summaries have been received to date. Future plans call for the development of a database management program for easier data entry, analysis, and retrieval. Information is summarized for such categories as agency, region, state, location, offense, date, type of incident, fines, and forfeitures.

Entries for FY 1987 included looting cases from St. Francis National Forest in Arkansas, Fredericksburg and Spotsylvania National Military Park in Virginia, Grand Canyon National Park in Arizona, Chaco Culture National Park in New Mexico, and Channel Islands National Park in California. Looting cases included in the LOOT Clearinghouse through FY 1987 are listed in Table 5.4. These include cases from past years for which entries have been created since the last LOOT listing in Keel et al. (1989:39-40).

Discussion

Looting of archeological sites robs all Americans of an irreplaceable part of their national heritage. The information about the past that looters and vandals destroy reduces the extent to which we can ever understand how people lived in the past. Reported incidents of looting on Federal land have risen steadily in the years for which statistics are available (Figure 5.1). The numbers of reported incidents probably have been considerably understated because many archeological sites are located in remote areas, many have not yet been discovered by Federal agencies that are charged with managing them, and Federal agencies have limited resources for systematically locating or monitoring the condition of sites that they know exist.

Compounding the archeological looting problem is the fact that law enforcement efforts have a steady, but only a low level of success due to the difficulty of actually observing and halting looting in progress or being able to connect artifacts removed by looters to a specific site on Federal land. As a result, reported arrests or citations of looters indicate that only a small percentage of violators are being stopped or subsequently apprehended (Figure 5.1), only 15% in FY 1985, 7% in FY 1986, and 10% in FY 1987. The number of prosecutions is also very low, a mere 5% in FY 1985 and FY 1986, and 4% in FY 1987. Although ARPA allows the payment of up to \$500 in re-

wards for information leading to the conviction of looters, only one agency (FS) paid a reward under Section 8 of ARPA during 1987. Also, although ARPA authorizes civil penalties being assessed against looters, very little use is being made of this provision at present.

To assist in alleviating the looting problem, many Federal agencies reported archeological resource protection training for archeologists, law enforcement personnel, cultural resource specialists, and other appropriate personnel. Also a number of agencies have developed cooperative archeological resource protection programs with other Federal agencies, as well as State and local agencies, and private organizations. More attention is being given to the problem, but much remains to be done.

**Table 5.4 Cases Included in the Listing of Outlaw Treachery (LOOT)
Clearinghouse, 1990**

<i>Year</i>	<i>Agency</i>	<i>Location</i>
1936	FS	Tonto National Forest, AZ
1967	NPS	Natural Bridges National Monument, UT
1971	FS	Tonto National Forest, AZ
1972 or 73	State	San Juan County, UT
1973	Tribe	San Carlos Apache Indian Reservation, AZ
1974-75	NPS	Canyonlands National Park, UT
1975	FS	Gila National Forest, NM
1975	FS	Gila National Forest, NM
1976-78	FBI	Chicago, IL
1977	FS	Coronado National Forest, AZ
1977	Tribe	Zuni Indian Reservation, NM
1977	FS	Gila National Forest, NM
1977	FS	Tonto National Forest, AZ
1977	FS	Tonto National Forest, AZ
1977	FS	Tonto National Forest, AZ
1978	FS	Wallowa-Whitman National Forest, Hells Canyon National Recreation Area, OR
1978	FS	Tonto National Forest, AZ
1978	FS	Ozark-St. Francis National Forest, AR
1978	BLM/State	Black Canyon City, AZ
1978	FS	Siskyou National Forest, OR
1978	FS	Tonto National Forest, AZ
1979	BLM	Worland, WY
1979	NPS	Chaco Canyon National Historic Park, NM
1979	FS	Tongass National Forest, AK
1979	FS	Apache-Sitgreaves National Forest, AZ
1979	BLM	Grand Gulch Primitive Area, San Juan County, UT
1980	FS	Tonto National Forest, AZ
1980	BLM	Butler Wash, Blanding, UT
1981	FS	Coronado National Forest, AZ

**Table 5.4 Cases Included in the Listing of Outlaw Treachery (LOOT)
Clearinghouse, 1990**

<i>Year</i>	<i>Agency</i>	<i>Location</i>
1981	FS	San Juan National Forest, CO
1981	FS	Ouray Ranger District, Montrose, CO
1981	FS	Tonto National Forest, AZ
1981	BLM	South Warner Valley (Site 35LK94), OR
1982	FS	Santa Fe National Forest, NM
1982	FS	Coconino National Forest, AZ
1982	FS	Tonto National Forest, AZ
1982	FS	Coconino National Forest, AZ
1982	FS	Coconino National Forest, AZ
pre-1983	FS	Gila National Forest, NM
1983	FWS	Malheur National Wildlife Refuge, OR
1983	FS	Tonto National Forest, AZ
1983	BLM	Lonetree, WY
1983	NPS	Mesa Verde National Park, CO
1983	FS	Tonto National Forest, AZ
1984	NPS	Gulf Islands National Seashore, FL
1984	FS	Shawnee National Forest, IL
1984	FS	Manti Lasal National Forest, UT
1984	FS	Bend, OR
1984	FS	Shawnee National Forest, IL
1984	NPS	Richmond National Battlefield Park, VA
pre-1985	FS	Santa Fe National Forest, NM
1985	NPS	Petersburg National Battlefield, VA
1985	BLM/FS	Hells Canyon National Recreation Area, ID, in Wallowa-Whitman National Forest
1985	FS	Tonto National Forest, AZ
1985	NPS	Channel Islands National Park, CA
1985	FS	Lincoln National Forest, NM
1986	FS	Shawnee National Forest, IL
1986	FS	Cleveland National Forest, CA
1986	FS	Sumter National Forest, SC
1986	NPS	Biscayne National Park, FL
1986	FS	Chippewa National Forest, MN
1987	FS	St. Francis National Forest, AR
1987	FS	Tonto National Forest, AZ
1987	FS	Santa Fe National Forest, NM
1987	NPS	Channel Islands National Park, CA
-	NPS	Fredericksburg and Spotsylvania National Military Park, VA
-	NPS	Fredericksburg and Spotsylvania National Military Park, VA
-	BLM	Malheur County, OR

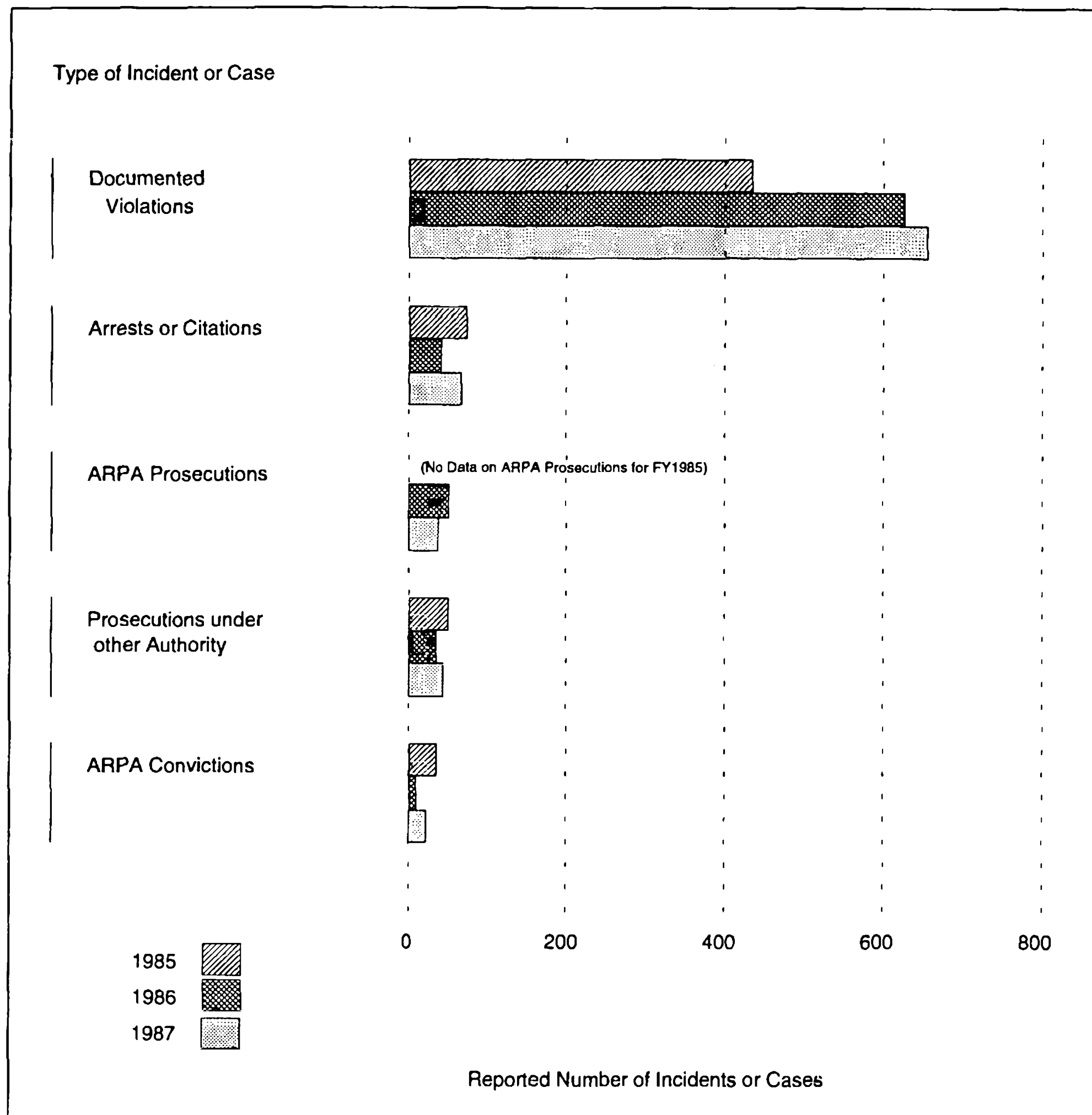


Figure 5.1 Looting and vandalism statistics, FY 1985, FY 1986, FY 1987



Volunteers on a dig. *National Park Service*

6

Public Education and Federal Archeology

Introduction

Late in FY 1986 the Federal archeological community identified a need for an organized and comprehensive public outreach effort at the national level that could provide a framework for and assistance to regional and local public relations activities undertaken by Federal agencies. The goal of this effort was to increase public support for and appreciation of America's archeological resources. Activities associated with this effort during FY 1987 are discussed below. Since FY 1987, the importance of public education and public involvement in the archeological programs of Federal agencies has been underscored (Beckes and Peters 1990; Brook 1990; McManamon 1991a). The 1988 amendments to the Archaeological Resources Protection Act, for example, include a section requiring the Secretaries of the Interior, Agriculture, and Defense and the Chairman of the Tennessee Valley Authority (TVA) to establish public education programs for archeological interpretation and preservation (McManamon 1991b).

The Public Awareness Working Group

At the urging of Federal historic preservation officials and archeologists, the Departmental Consulting Archeologist directed the Archeological Assistance Division of the National Park Service (NPS) to consider the organization of an interagency working group to improve public awareness of Federal archeology. An organizational meeting was held in September 1986. At this meeting substantial interest in and support for an ongoing cooperative effort was voiced. A working group was established and has been meeting regularly since. The goals of this group are to (1) foster a feeling of ownership of and responsibility for America's archeological heritage among members of the public; (2) increase public understanding and appreciation of archeology; (3) enhance public awareness of current problems involving archeological resources, such as looting and vandalism; (4) increase understanding of how the public's actions

affect archeological resources; and (5) increase public involvement in legitimate archeological activities. The working group's activities are being coordinated with the Secretary of the Interior's "Take Pride in America" campaign.

A number of products and programs have resulted from this group's activities. Among these is the widely distributed report, *Archeology and the Federal Government* (Smith et al. 1988). This publication is the most complete description to date of Federal agencies' archeological programs and their products. Another result was the creation of a series of six bookmarks promoting archeological and historical preservation. These bookmarks, designed by the Fish and Wildlife Service (FWS) and printed by NPS, include a brief, positive message asking the public to help protect archeological resources. More than 2.5 million bookmarks have been distributed since their introduction in 1987 through numerous Federal, State, Tribal, local and private organizations. Another product of the working group is a 30-minute resource video titled "Assault on Time," which was begun in 1987. Designed to heighten public awareness of the national problem of archeological looting, the video was completed in 1989.

One of the initial needs identified by the public awareness working group was a clearinghouse that would summarize information on public education efforts being carried out by or for Federal agencies or other organizations as part of archeological projects. The Archeological Assistance Division agreed to organize such a clearinghouse; the next section describes this effort.

Listing of Education in Archeological Programs (LEAP Clearinghouse)

During 1987, the Archeological Assistance Division of NPS established a Listing of Education in Archeological Programs (LEAP). This clearinghouse summarizes information about public education efforts carried out as part of Federal agencies' or other organizations' archeological programs and projects. Information is collected for LEAP using a standard recording sheet for each archeological education product (Knoll and Knudson 1990).

The LEAP Clearinghouse contains, but is not limited to, information about a broad range of projects and programs, including cooperative efforts among agencies, to educate the public about archeological resources. Among the entries are projects and programs with avocational or amateur archeological groups and volunteers involving archeological survey, testing, excavation, or interpretation. The listings also include projects and programs, sometimes done in conjunction with museums, academic institutions, historical societies, or other organizations, for exhibits or displays about archeological resources. Many listings are for brochures, posters, videos, radio and television spots, and other education products created for public benefit as part of archeological programs or projects. The LEAP Clearinghouse is intended as a reference for Federal, State, Tribal and local agencies, museums, educational organiza-

tions, and others interested in preservation who are seeking information on existing projects, programs, and products to increase public awareness of archeology.

During 1987 approximately 450 entries for LEAP were received from 13 Federal agencies, several State offices and organizations, museums, and private foundations. This information was entered into a database using a dBASE III Plus program designed by the Minerals Management Service. Each record in the LEAP database includes a product title, agency or institution, contact person with address and telephone number, and a narrative summary of that product. The brief narrative contains information about the project or program to which the product relates, its organization, production, use, distribution, funding or sponsorship, etc. LEAP has grown since 1987 to include about 1,200 records. The database management program has been improved. A summary report including all the listings was published in 1990 (Knoll [editor] 1990; 1991).

Professional Reviews of Archeological Technical Reports from Federal Agencies

Since 1986 the Departmental Consulting Archeologist, through the Archeological Assistance Division of NPS, has submitted and encouraged the submission by others of Federal archeology reports to professional journals for review. This program was undertaken to increase dissemination of information about Federal archeological activities to the professional archeological community. During FY 1987, 81 reports were submitted for professional review in regional and national archeological journals.

Professional and Private Cooperation

Ten agencies reported various kinds of public education activities, frequently in cooperation with professional organizations, individuals, or other private sector organizations, during FY 1987. Five agencies, the Air Force, Army Corps of Engineers (COE), Department of Energy (DOE), Bureau of Indian Affairs (BIA), and Bureau of Land Management (BLM), cited participation in professional societies by presenting papers and attending meetings. Cooperative involvement between agencies and research institutions was reported by DOE and NPS. Five agencies, COE, DOE, BIA, NPS, and TVA, noted associations with avocational archeological organizations as members, guest lecturers, or supervisors of projects with volunteer assistance, and three agencies, COE, DOE, and BLM, reported speaking engagements and tours to school groups and clubs. COE and NPS reported access to private collections for report purposes. BIA, BLM, and the Soil Conservation Service (SCS) reported that there was extensive cooperation and documentation through their field personnel.

Air Force archeologists participated in professional meetings. Williams Air Force Base in Arizona developed display cases and produced an audio-visual program about a Hohokam site on the base. The COE reported the following examples of profes-

sional/private cooperation: attendance at archeological seminars, conferences, and meetings such as the yearly meeting of the Society for American Archaeology (SAA); speaking engagements by agency archeologists before local avocational archeology groups and clubs; and invitations to avocational archeologists to participate in selected investigations. The COE San Francisco District produced a video, "The Environment and the Engineers at Lake Sonoma." This is about ethnobotanical and archeological concerns at Lake Sonoma, a COE project. COE personnel also contributed time to "Take Pride in America" activities.

DOE reported that a joint NPS/Los Alamos National Laboratory (LANL) publication was being prepared containing an overview of past archeological research on the Pajarito Plateau, a summary of what is now known of Puebloan culture history on the Plateau, and an 800-entry bibliography. A DOE archeological consultant was a member of the Northern Rio Grande Research Group, a cooperative research consortium sponsored by the School of American Research. Papers on archeological research conducted at LANL were presented to the Pecos Conference, Archeological Society of New Mexico, Society for American Archaeology, Los Alamos Historical Society, and at Bandelier National Monument and the School of American Research during FY 1987.

The DOE Savannah River Plant reported ongoing support of in-plant cooperative research with local archeological societies, interaction with local museums in South Carolina and Georgia, and interaction with and indirect support of the Council of South Carolina Professional Archeologists. There was also active response to requests for information from citizens in the plant vicinity. Archeologists from the Savannah River Plant project made presentations to school classes and civic organizations in the area. Archeologists shared information for DOE related projects at several national conventions including SAA and the Society for Historical Archaeology, at the regional Great Basin Conference, and during informal talks with the Nevada Archaeological Association. Test site collections from the Nevada State Museum were acquired on loan to analyze and incorporate into the regional database.

Cultural resource specialists from BLM attended appropriate professional meetings both as speakers and attendees. They also presented numerous tours, lectures and other types of programs for school and non-school groups on cultural resource matters and the need to manage and preserve them. The Shell Pipe Line Corporation was a national finalist in the "Take Pride in America" awards program for the archeological resource management effort in its Cortez Project done under BLM permit.

FWS undertook public education activities in a variety of field areas. These activities involved local avocational archeological societies, tour groups, local community organizations, refuge volunteers, and neighboring agencies.

The Alaska Region of NPS shared collected archeological information during FY 1987 with State and Federal agencies that requested such information. The NPS Midwest Archeological Center encouraged communication between professional archeolo-

gists and those with an avocational interest in archeology who also have an interest in parks in the Midwest Region. Research at Ozark National Scenic Riverways specifically included extensive documentation of private collections. Center staff worked with some avocational archeologists to include photographs of materials from private collections in NPS research reports, thereby increasing the quality of data from specific sites.

At the NPS Western Archeological and Conservation Center, staff participated in operations and meetings of the Arizona Archaeological Council. With leadership from the Center, a symposium on new data on the prehistoric Sinagua culture of northern Arizona was held to bring together Forest Service and BLM personnel, university faculty, and others.

The NPS Pacific Northwest Region reported that local informants provided useful information for archeological surveys during FY 1987. Their collections were also studied and photographed. As a result of trust between local avocational archeology groups and the North Cascades NPS archeologists, the recent Clovis find at Wenatchee, WA, was assessed and safeguarded until researchers from Washington State University could study the site.

The TVA continued to work with amateurs through its Archeological Associates Program with the University of Alabama.

Summary

Federal agency archeology programs increased their public education activities during FY 1987 and have continued to do so in subsequent years. At the national level several activities, such as the formation of the interagency Public Awareness Working Group on public awareness of archeology and the creation of LEAP, demonstrated this heightened level of activity (e.g., Hoffman and Lerner 1988).

Throughout the country archeologists, especially those working in public agencies, increasingly saw public education as a crucial need for effective archeological preservation. A public interest in archeology provides the best long-term guarantee that archeological sites will not be destroyed wantonly by looting or development.



Excavations at Thunderbird Site, Front Royal, VA.
Sandra Spiden/Thunderbird Research

American Public Archeology

Current Management and Recommendations for the Future

Introduction

Beginning in FY 1985 the Secretary of the Interior's annual report to Congress on Federal archeological activities was changed to incorporate information from all Federal agencies that have archeological responsibilities and to expand the activities and results taken into account. As a result, the reports have increased substantially in content. This more comprehensive level of reporting, data collection, synthesis, and evaluation, has required a considerably longer time to prepare the reports than in previous years when only a portion of National Park Service (NPS) activities were covered. In addition, staff changes in the Departmental Consulting Archeologist and Archeological Assistance Program have reduced the amount of time available to devote to report preparation. We believe that both of these problems now have been resolved successfully and that preparation and submission will occur in a much more timely fashion. Activities and events have occurred that extend beyond the fiscal year (FY 1987) considered in this report. In an effort to provide Congress with up-to-date information, the first part of this final chapter has been added to identify significant developments that occurred after FY 1987. Because these activities will be discussed in depth in future reports they are only highlighted here. Several post-1987 developments also have been discussed in earlier chapters and will be referred to briefly here.

Important Progress Since 1987

ARPA Amendments and More Support for Resource Protection

In October and November of 1988 two amendments to the Archaeological Resources Protection Act (ARPA) were signed into law as P.L. 100-555 and P.L. 100-588. Recognizing that it was necessary to strengthen ARPA to assist in protecting the nation's archeological heritage, the 100th Congress designed these amendments to increase the effectiveness of the Act by: (1) making it easier to obtain convictions under ARPA by

lowering the financial threshold for site damage required for a felony violation; (2) making it a crime to attempt to loot or vandalize a site; (3) increasing the public's awareness of and appreciation for the significance of archeological resources located on public and Indian lands and the need to protect such resources; (4) developing methods of reporting violations of the Act and establishing procedures for document completion by agency personnel; and (5) determining the nature and extent of archeological resources on Federal land through increased archeological survey.

Senators Pete V. Domenici (R-NM) and Jeff Bingaman (D-NM) introduced the amendment that became P.L. 100-555. The second amendment, P.L. 100-588, was introduced in the House by Representative Sam Gejdenson (D-CT) with the support of Representative Bruce F. Vento (D-MN) and, in the Senate, by Senator Domenici (Carnett 1991; McManamon 1991b).

The Federal budgets since FY 1989 have included increases earmarked for improving archeological resource protection for several bureaus including the Bureau of Land Management (BLM), the Forest Service (FS), and NPS.

Information Exchange through Publications

Since FY 1987, important advances have occurred in the means of exchanging information about Federal archeology. Not the least of those advances was the production and distribution of the Secretary's report to Congress on Federal archeology for FYs 1985 and 1986 (Keel et al. 1989). To assist in regular information exchange, the Archeological Assistance Program developed a series of publications detailing information about activities of Federal agencies carrying out archeological preservation responsibilities. These publications include:

Federal Archeology Report, a quarterly newsletter, began in April 1988. This journal provides detailed information on current archeological activities by Federal agencies. Topics covered include training opportunities, published sources for technical guidance, interagency peer reviews to improve Federal project effectiveness, as well as anti-looting and vandalism, public awareness, and education initiatives.

Technical publications began appearing in June 1988. Each technical publication provides specific guidance on a topic important for improvements in public agency archeology programs and archeological preservation. Other publications are produced to address specific needs. They are disseminated widely and have been received very favorably.

Thirteen technical publications have appeared. A listing of these publications, covering a variety of technical and programmatic topics, appears in Table 7.1. These publications are part of the effort by Federal agencies to promote information exchange. In addition, information exchange has been improved by the creation of the LEAP and LOOT national clearinghouses and through improvements in the National Archeological Database. All of these efforts have been described in earlier chapters.

Advances in Archeology and Public Education

The interagency Public Awareness Working Group (PAWG) began a number of programs in FY 1987 that have been completed or are nearing completion. These include the production of a series of archeological resource protection bookmarks, by NPS and the Fish and Wildlife Service (FWS), and a 28-minute videotape promoting archeological resource protection. The video, "Assault on Time," was produced by the Federal Law Enforcement Training Center in cooperation with NPS, FWS, BLM,

Table 7.1 Archeological Assistance Program Technical Publications

ARCHEOLOGICAL ASSISTANCE TECHNICAL BRIEFS (ISSN 1057-1574)

Technical Brief 1. *Filter Fabric: A Techniques for Short-Term Site Stabilization* by Robert M. Thorne, 1988.

Technical Brief 2. *Arizona Archaeology Week: Promoting the Past to the Public* by Teresa L. Hoffman and Shereen Lerner, 1988.

Technical Brief 3. *Archeology in the National Historic Landmarks Program* by Robert S. Grumet, 1988.

Technical Brief 4. *Archeology in the Classroom: A Case Study from Arizona* by A.E. Rogge and Patti Bell, 1989.

Technical Brief 5. *Intentional Site Burial: A Technique to Protect Against Natural or Mechanical Loss* by Robert M. Thorne, 1989.

Technical Brief 6. *The Kentucky Archaeological Registry: Landowner Participation in Site Preservation* by A. Gwynn Henderson, 1989.

Technical Brief 7. *Federal Archeological Contracting: Utilizing the Competitive Procurement Process* by John H. Jameson, Jr., John E. Ehrenhard, and Wilfred M. Husted, 1990.

Technical Brief 8. *Revegetation: The Soft Approach to Archeological Site Stabilization* by Robert M. Thorne, 1990.

Technical Brief 9. *Volunteers in Archeology* by Hester Davis, 1990.

Technical Brief 10. *The National Historic Landmarks Program Theme Study as a Preservation Planning Tool* by Robert S. Grumet, 1990.

Technical Brief 11. *Legal Background of Archeological Resources Protection* by Carol Carnett, 1991.

Technical Brief 12. *Site Stabilization Information Sources* by Robert M. Thorne, 1991.

Technical Brief 13. *Managing Archeological Resources from the Museum's Perspective* by Lynne P. Sullivan, 1992.

Technical Brief 14. *The Peer Review of Public Archeology Projects: A Procedure Developed by the Departmental Consulting Archeologist* by Bennie C. Keel, 1993.

ARCHEOLOGICAL ASSISTANCE STUDIES

Archeological Assistance Study No. 1. *Cost Analysis of Archeological Activities at Eight South-eastern Sites* by Linda F. Carnes, Roy S. Dickens, Jr., Linda France, and Ann Long, 1986.

Archeological Assistance Study No. 2. *Archeology and Education: The Classroom and Beyond* edited by KC Smith and Francis P. McManamon, 1991.

FS, and the Army. This video is widely distributed to Federal and State agencies, professional and avocational archeological and historical groups, universities and colleges, museums, public school systems, and the general public.

NPS, in cooperation with the Society for American Archaeology (SAA), produced an archeological resource protection button titled "Save the Past for the Future." Thousands of these buttons were distributed between 1988 and 1990 as part of the cooperative Save the Past for the Future project (Society for American Archaeology 1990). The button was modified slightly to customize it for the 1989 national Boy Scout Jamboree at which over 11,000 were distributed as part of an archeological education program.

PAWG also is producing both a handbook and a brochure on archeological resource protection. This effort has been funded by FS, the Army, the Soil Conservation Service (SCS), the Army Corps of Engineers (COE), NPS Archeological Assistance Division and Employee Development, BLM, the Bureau of Reclamation (BR), and FWS.

PAWG identified common archeological issues and concerns related to improving public awareness of archeology and archeological preservation. As a result, in 1988 the NPS Archeological Assistance and Interpretation Divisions, SCS, the Tennessee Valley Authority (TVA), and BLM co-sponsored, in conjunction with the University of Minnesota Center for Ancient Studies, a conference titled "Presenting the Past to the Public - Media, Marketing, and the Public." Because of the success of this conference, another was held in 1989. The second conference, "Presenting the Past to the Public - History and Archeology in Schools and Museums," was co-sponsored by the NPS Archeological Assistance Division and SCS, again with the University of Minnesota. Involvement in these conferences has benefitted archeological public awareness and archeological resource protection programs nationally.

PAWG members recognized early in their discussions the need for a clearinghouse to identify public awareness products associated with archeological activities. To provide this, the Listing of Education in Archeological Programs (LEAP) Clearinghouse was established. LEAP is described in Chapter 6 of this report.

In addition to ongoing efforts by Federal agencies to address the archeological resource protection issue, SAA initiated an archeological preservation project titled "Save the Past for the Future." Federal agencies that contributed funding and much staff time to support this national program include BLM, BR, FS, NPS, COE, the Minerals Management Service, FWS, the National Oceanic and Atmospheric Administration, and SCS. A plenary session was held at a 1989 SAA annual meeting. A working conference, held in this same year at Taos, NM, included representatives from many Federal agencies. The project resulted in an ambitious workplan that has been distributed widely (Society for American Archaeology 1990). Many of the specific actions urged in the plan are being undertaken by public agencies.

The Current Management of Archeological Resources in the United States

Organized concern for the preservation of American archeological resources is at least a century old. Initial preservation efforts led to the passage in 1906 of the Antiquities Act. This statute made it illegal to remove archeological remains from Federal and Indian lands without a permit (Lee 1970). In some areas the Act halted hasty excavations of archeological sites, but it could not be enforced effectively because there was neither an organization nor a sufficient work force to do so (Lister and Lister 1981:2-62; Rothman 1989); also, it did not protect sites on State, local, or private land. Since the beginning of the 20th century, the legal basis, organizational structure, and work force have expanded to provide better preservation of America's archeological record. However, much remains to be done.

Many Federal, State, Tribal, and, increasingly, local organizations have responsibilities for the consideration of archeological resources that are on land they administer or are affected by their actions. This multiplicity of responsibilities makes it quite easy to devise a very confusing description of public archeology in the United States. Wouldn't it be easier if fewer agencies, or even a single one, were primarily responsible for public archeology in this country? It might be easier to describe, but it probably would not be as effective in preserving the resources, and it almost certainly would not be possible to have the same level of archeological activity associated with public projects that currently exists.

There are roughly a dozen major Federal land managing agencies, that is, agencies that are responsible for more than one million acres of Federal land and the archeological resources in it. There are about half a dozen Federal agencies that either fund or issue permits for substantial development actions and regularly require archeological investigations as part of these developments. These Federal development and regulatory agencies typically have State level counterparts that usually are responsible for conducting or contracting for the archeology required by the Federal agencies. There are also State agencies that manage archeological resources on State land and, with increasing frequency, there are municipal, county, and Tribal agencies that are taking on some archeological preservation responsibility.

To simplify somewhat, it can be said that in the United States the management of archeological resources is conducted in two ways: by Federal agencies on the land that they administer, and by State Historic Preservation Offices in cases that do not involve Federal land. The term "management" means here the collection and analysis of information about archeological resources and the use of this information to make decisions about the preservation, use, or destruction of archeological resources within the context of land use or development activities. Data from the 1987 reports by Federal agencies described in earlier chapters can be used to illustrate how the current system operates.

Archeological Resource Management on Federal Land

Federal agencies administer about one third of the land area in the United States. Most of this land management is undertaken by a dozen Federal agencies. These are listed under the heading "Land Management" in Table 7.2. The Archaeological Resources Protection Act and the National Historic Preservation Act require these agencies to care for the archeological resources, and other kinds of cultural resources, on these lands within the context of the agencies' missions. Since the early 1970s, most of these land management agencies have hired and developed professional staffs to oversee their archeological programs. Some, such as NPS, FS, and BLM, have relatively large archeological staffs. Others have smaller staffs and accomplish the work necessary for their archeological programs through contracts with private firms or universities.

Each of these agencies has begun to assemble an inventory of the archeological sites that it administers. The degree of completeness of these inventories varies widely (Keel et al. 1989: 26-28 and Chapter 3 of this report). At one time several agencies had programs to advance these inventories, but, for the most part, these programs have been eliminated to cover increasing costs in other areas of agency operations. Most current inventory efforts come from archeological investigations associated with development projects on agency land. Many of the agencies also have developed written overviews of the archeology and history relevant to the lands that they manage. These overviews are designed to assist in the assessment of sites that have been or will be discovered on the land as well as to help in the prediction of where sites are likely to be found. Most of the land managing agencies have incorporated archeological considerations into their agency-specific guidelines for managers and many provide training in cultural resources topics for the managers who are responsible for overseeing lands and resources administered by the agency.

Many of the land units, such as BLM districts, National Forests, and units of NPS, have management plans that include options or actions to be taken to protect or develop the resources within the unit. These plans contain directions on how archeological resources within the land unit are to be treated.

Land management agencies conduct or pay for thousands of archeological investigations each year (Keel et al. 1989:13-22 and Chapter 2 of this report). Most of these investigations are basic records, map checks, or identification and evaluation studies. Federal land managing agencies reported nearly 15,000 identification and evaluation studies during 1987 (Table 7.2). Identification and evaluation studies usually involve fieldwork and analysis to provide a basis for determinations of eligibility for the National Register of Historic Places. One of the results of this work was the physical inspection of nearly 2.5 million acres of land, and the discovery of more than 20,000 new archeological sites (Table 7.3).

Land managing agencies also undertake or require data recovery activities (Table 7.4). These activities typically involve excavation, extensive collection, analysis, re-

Table 7.2 Federal Archeological Activities: Identification and Evaluation Research Activities and Costs, 1987

Department	Agency	Number of Id./Eval. Studies	Costs in Thousands of Dollars				
			Agency Personnel	Agency Support	Agency Contract	Land Use Applicant	Total Expended
Land Management							
Agriculture	FS	5,123	4,105	410	159	33	4,707
Defense	Air Force	110	72	87	1,012	44	1,215
	Army	28	ND	ND	2,000	ND	2,000
	Marines	3	1	0	15	0	16
	Navy	66	ND	ND	207	ND	207
Energy		181	77	17	652	0	746
Interior	BIA	1,921	109	54	1,086	20	1,269
	BLM	6,245	ND	ND	150	ND	150
	BR	146	450	49	718	ND	1,217
	FWS	135	39	59	330	ND	428
	NPS	257	1,803	741	637	40	3,221
TVA		17	23	ND	58	ND	81
TOTAL		14,232	6,679	1,417	7,024	137	15,257
Development							
Agriculture	FmHA	301	8	3	5	23	39
	SCS	96	0	0	177	0	177
Defense	COE	729	2,260	741	4,797	354	8,152
EPA		95	49	9	ND	292	350
GSA		2	NA	NA	12	0	12
HUD		NA	NA	NA	NA	NA	0
Interior	OTIA	33	1	0	1	1	3
DOT	FHwA	NA	NA	NA	NA	NA	0
TOTAL		1,256	2,318	753	4,992	670	8,733
Regulatory							
Commerce	EDA	NA	NA	NA	NA	NA	0
FERC	NA	NA	NA	NA	NA	0	
Interior	MMS	179	40	NA	NA	NA	40
TOTAL		179	40	0	0	040	

NA - Agency reported that this category was not applicable to its program

ND - Agency reported that it had no data for this category

NOTE: The totals shown in this table are slightly different from those in earlier chapters because for this table SCS is included in the Development category.

Federal Archeological Programs and Activities

**Table 7.3 Federal Archeological Activities: Identification and Evaluation
Research Activities and Results, 1987**

<i>Department</i>	<i>Agency</i>	<i>Number of Id./Eval. Studies</i>	<i>Costs (in 000s)</i>	<i>Thousands of Acres Inspected</i>	<i>New Sites Found</i>	<i>New Sites Determined Eligible for NRHP</i>
Land Management						
Agriculture	FS	5,123	4,707	1,600	7,479	1,129
Defense	Air Force	110	1,215	95	421	44
	Army	28	2,000	15	1,100	50
	Marines	3	16	1	15	0
	Navy	66	207	66	151	16
Energy		181	746	24	540	51
Interior	BIA	1,921	1,269	93	1,173	494
	BLM	6,245	150	422	6,531	1,786
	BR	146	1,217	21	487	264
	FWS	135	428	20	325	39
	NPS	257	3,221	61	1,834	105
TVA		17	81	8	135	1
TOTAL		14,232	15,257	2,426	20,191	3,979
Development						
Agriculture	FmHA	301	39	9	18	4
	SCS	96	177	2,394	173	25
Defense	COE	729	8,152	720	3,766	430
EPA		95	350	2	759	58
GSA		2	12	NA	0	0
HUD		NA	0	NA	NA	NA
Interior	OTIA	33	3	1	26	17
DOT	FHwA	0	NA	NA	NA	NA
TOTAL		1,256	8,733	3,126	4,742	534
Regulatory						
Commerce	EDA	NA	0	NA	NA	NA
	FERC	NA	0	NA	NA	NA
Interior	MMS	179	40	980	0	0
TOTAL		179	40	980	0	0

NA - Agency reported that this category was not applicable to its program

NOTE: The totals shown in this table are slightly different from those in earlier chapters because for this table SCS is included in the Development category.

Table 7.4 Federal Archeological Activities: Data Recovery Activities, 1987

			Costs in Thousands of Dollars				
Department	Agency	Number of Id./Eval. Studies	Agency Personnel	Agency Support	Agency Contract	Land Use Applicant	Total Expended
Land Management							
Agriculture	FS	504	460	82	310	24	876
Defense	Air Force	2	0	0	220	49	269
	Army	13	ND	ND	ND	ND	0
	Marines	0	0	0	0	0	0
	Navy	7	ND	ND	221	ND	221
Energy		7	15	3	166	0	184
Interior	BIA	38	56	5	924	0	985
	BLM	154	210	45	216	ND	471
	BR	22	275	4	2,509	ND	2,788
	FWS	10	21	19	49	ND	89
	NPS	36	09	151	424	0	1,084
TVA		8	25	5	6	ND	36
TOTAL		801	1,571	314	5,045	73	7,003
Development							
Agriculture	FmHA	105	3	2	0	1	6
	SCS	2	1	1	27	0	29
Defense	COE	96	660	163	2,259	485	3,567
EPA		36	86	11	ND	810	907
GSA		1	4	7	36	0	47
HUD		NA	NA	NA	NA	NA	0
Interior	OTIA	3	0	0	0	13	13
DOT	FHwA	NA	NA	NA	NA	NA	0
TOTAL		243	754	184	2,322	1,309	4,569
Regulatory							
Commerce	EDA	NA	NA	NA	NA	NA	0
	FERC	NA	NA	NA	NA	NA	0
Interior	MMS	NA	NA	NA	NA	NA	
TOTAL		0	0	0	0	0	0

NA - Agency reported that this category was not applicable to its program

ND - Agency reported that it had no data for this category

NOTE: The totals shown in this table are slightly different from those in earlier chapters because for this table SCS is included in the Development category.

porting, and curation of recovered remains and records. Land managing agencies reported just over 800 such data recovery investigations during 1987, a small fraction of the identification and evaluation studies reported.

Managing Archeological Resources on Non-Federal Land

Federal agencies also fund, through development projects, or require, as part of applications for regulatory permits, additional thousands of archeological investigations. Most of these actions take place on non-Federal lands. The agencies that fund or require these investigations have functions such as the creation and maintenance of transportation, housing, communications, or energy systems, the improvement or maintenance of clean water and air, and the stimulation of economic development. We know from experience that some of these agencies, such as COE, the Federal Highway Administration (FHWA), the Environmental Protection Agency (EPA), and the Federal Energy Regulatory Commission (FERC), regularly fund or require archeological investigations.

A number of important State level archeological programs, for example, were established to conduct the highway archeology funded by FHWA. With a few notable exceptions, such as COE, FERC, and SCS, these agencies have not developed their own internal programs to oversee their archeological activities. Nor do several of these agencies track the extent of the archeological activities that they are responsible for; note the many "NDs" and "NAs" under these categories in Tables 7.2, 7.3, and 7.4. Among the development and regulatory agencies, for example, EPA reported only 95 identification and evaluation investigations nationally during 1987. Two glaring omissions among these agencies result from the lack of reports from FHWA and FERC.

By and large, these agencies approach their archeological responsibilities quite differently from the land managing agencies. These Federal agencies do not administer the archeological sites that their actions affect and, except for concurring with whatever preservation provisions might be in Memoranda of Agreements that are developed for specific projects, they eschew any management responsibilities for the long term care of resources. Is there, then, any effective management of the archeological resources that are not on Federal or some other public land? There is, although it differs legally from the direct responsibility that Federal land managing agencies have for sites on the land they administer.

The management of archeological sites not on public land is undertaken in many States by the State Historic Preservation Offices (SHPO). The national network of SHPOs developed during the 1960s and 1970s based on the National Historic Preservation Act. For the most part, these officials do not have the authority to manage archeological sites as owners of the sites, but they are responsible for developing statewide inventories of archeological resources, as well as other kinds of cultural resources. They also develop resource management plans, sometimes referred to as "historic contexts," to provide background for evaluation of resources. Finally, and

importantly, SHPOs consult with Federal, and frequently also State, agencies when the actions of the latter will affect archeological resources.

The SHPOs provide essential management elements, an inventory of resources, a framework for evaluating these resources, and a procedure for making decisions about the treatment of resources, although they lack the power of ownership and cannot dictate the treatment that resources will receive. Through their function of assisting Federal agencies in the review of actions that affect archeological resources, SHPOs also influence the preservation of resources on Federal lands. They are an especially important factor in archeological preservation in the eastern two-thirds of the country where Federal land is scarce.

Archeological Management: The Big Picture

The management of America's archeological resources, at present, is carried out by Federal agencies that manage public lands and a network of State agencies responsible for managing cultural resources within individual States. The national information that has been collected in the recent reports of the Secretary of the Interior to Congress on Federal archeological activities (e.g., Keel, et al. 1989; this volume) provide general approximations of the level of effort in archeology by Federal and related public agencies. Public agencies conduct, contract for, or require a very large portion of the archeological work that is done in the United States. In 1986 and 1987, the funding for archeological activities reported by Federal agencies totalled about \$75 million per year, which for some of the items pointed out above is surely a minimum estimate. The reported data indicate a strong focus on inventory and evaluation activities with nearly half the reported costs going toward field surveys and nearly a quarter for literature and map research. For 1987, about 15,000 of these investigations were reported compared to about 1,000 data recovery actions. We can hope this difference means that, in most cases, sites identified during project planning were avoided and preserved during construction.

The focus on survey and inventory might partially answer one of the often-heard criticisms of Federal archeology: that it has not produced advances in the present understanding of the past equivalent to the funds expended. It may be that the kinds of research results, that is, records and map checking, survey, and limited testing from identification and evaluation activities, usually do not lead to advances in knowledge that come from a similar amount of attention to excavation and the analysis of excavation data. This need not be the case always, but survey data can require different kinds of analysis than excavation data. With so much Federal activity in the survey area, greater standardization in the recording of these data and improvements in the methods and techniques for their analysis are needed.

Although there have been many successes in the management of America's archeological heritage, we are not in a position to sit back and relax. Additional resources, if available, could be put to use profitably even within the framework of current activities. However, there are additional areas in which progress must be made.

Improving American Archeological Resource Management

Federal and other public agencies, SHPOs, archeologists, and historic preservationists all can do better at archeological resource management. There are areas that need additional emphasis. It is encouraging that progress has begun in each of them, but more attention to each is needed. In March 1990, Secretary of the Interior Manuel Lujan highlighted the most pressing ones (Lujan 1990). In a memorandum to the leadership of the Department of the Interior, he directed bureaus to emphasize activities and programs in several areas. The Secretary recently has followed up this memorandum with a policy statement on public archeology in the United States (Lujan 1991). He has sent the policy statement to other key cabinet Secretaries and senior Administration officials urging that they also emphasize the need for improvements in these areas within their own departments and agencies.

The Secretary enumerated six areas for attention in his policy statement: (1) public education and participation; (2) use of archeological paleoenvironmental data; (3) better preservation of the in situ archeological record; (4) improvements in the availability of information; (5) improvement in resource inventories; and (6) improvement in curation of archeological collections and records. These areas for more attention and improvement are similar, though more refined and based upon better information, to the concerns identified and reported in the Secretary's 1985/1986 report to Congress on Federal archeology (Keel et al. 1989). The points are elaborated on below for consideration by Congress in relation to this report.

Public Education and Participation

Calls for efforts to open up archeology to the public have become widespread. At many recent professional meetings and in various publications, such enjoinders have been heard from a wide variety of differently placed advocates. The calls are completely accurate; there is a real need for more public education efforts. Thankfully, there are significant activities underway, although much remains to be done. The leaders of all the national professional archeological societies are backing public education efforts by their organizations. Several of these groups have banded together to coordinate their activities in this area. The recently incorporated Foundation for American Archaeology will have a variety of public education functions. Regional, State, and local archeological societies, public agencies, and individual archeologists are becoming more involved in public education efforts.

Federal agencies have the support of the political leaders in this Administration to emphasize public education and participation efforts. President George Bush, as well as Secretary Lujan, has named education as an important goal and has backed up these statements with some funding increases. BLM and FS have developed major national public education and participation programs, "Adventures in the Past" and "Passports In Time," respectively. Archeological projects and resources play a large role in each of these programs (Beckes and Peters 1990; Brook 1990; Bureau of Land Management n.d.; Forest Service 1991).

Public education and participation encompass a wide area of activity indeed; with so many archeological groups involved it will be essential that such efforts be well coordinated. Information is also needed about the general public and special publics that archeologists want to reach; it is necessary to know about their perceptions of the past and what they would like to learn about it (Stone 1989). Public officials, archeologists, and educators also need to consider carefully the messages that they want to communicate to various audiences (Potter 1990). They need to identify and focus upon specific audiences, such as educators and students, Native Americans, journalists, planners and developers, legislators, and managers in public agencies (Gelburd 1989; McManamon 1991a).

Reaching the general public also will require techniques, activities, and messages that archeologists have not used widely to date. Most people have at best a modest interest in archeology, but they seem to be positively inclined toward it. Reports and articles in national, regional, and local newspapers, magazines, and on radio and television regularly feature topics related to archeology in the Americas. Clearly there is a foundation of public interest in archeology and archeological sites to build upon. The task in reaching the general public is to maintain this positive inclination and strengthen the interest, understanding, and level of support.

The public education and participation topic includes a wide variety of activities success, a coherent plan and cooperative approach, and an understanding that the effort has both long and short range goals. This area should become a more important part of the management of America's archeological resources.

Public Use of the Archeological Paleoenvironmental Record

Archeological sites include a record of thousands of years of human adaptation to changing American environments. The ancient plant and animal remains in them identify the conditions in which people have lived and the changes made in society, diet, and technology in response to changing climate and natural resources. This record is a public trust to be understood and evaluated to help shape our present responses to changing environments.

Preserving the In Situ Record

The destruction of archeological sites by modern development and land use practices, looting, and natural processes, such as erosion, is a worldwide phenomenon that America has not escaped. The last decade has seen the growth of activity in fighting this destruction. The success of the Archaeological Conservancy in purchasing archeological sites for preservation is one of the best examples. While modest by the scale of the Nature Conservancy, the Archaeological Conservancy has grown and seems to have developed a solid base to support further growth. The more recent "Save the Past" initiative by the SAA (1990) and other organizations, including many public agencies, was another important attempt to focus the attention of the American public on the dangerously rapid loss of its archeological heritage. Within the discipline the same message needs to be picked up and action taken; there is evidence

that this is occurring (see the articles in the recently published volume edited by Smith and Ehrenhard [1990] for examples).

In the fight against looting on Federal lands, agency archeologists have been gratified by the support, interest, and actions of law enforcement personnel. Both BLM and NPS have made budget increases specifically to fight archeological looting.

The hints of progress in this area, however, are just that, beginnings. Another example illustrates the darker side of this topic. In December 1989, the Superintendent of Bandelier National Monument, about 50 miles northwest of Santa Fe, NM, stopped public access to the Tsankawi unit of the Monument. In a press release concerning the closing, the Superintendent noted that some people took advantage of the remote location of the unit to steal potsherds, knock over ruin walls, scratch graffiti on the rocks, and even pot hunt. He cited examples of surveillance cameras in the area having recorded people filling shopping bags with artifacts. This in a National Monument set aside for archeological preservation. Clearly attention is needed still on looting, and this attention to the preservation of the in situ record should be extended more explicitly to the impact of modern development and land use as well.

Making Information Available

The large number of archeological investigations reported each year by Federal agencies (for examples see Tables 7.1, 7.2, and 7.3) provides a graphic example of the growth of the primary literature on archeological investigations in the United States. The figures reported indicate almost 20,000 new investigations per year, the majority of which require a written report of some kind. Almost all of these reports are produced in very limited numbers and distributed to relatively few individuals and repositories. There are two primary needs in this area. First, more syntheses of these primary sources of information about the archeological record are needed. These syntheses will have to be the products of experts in certain geographical, temporal, and topical subjects. The Federal and State agencies responsible for the management of archeological resources have an obligation to support the production of these kinds of reports, but will need additional resources to have them done.

The second primary need is for an easier means of access to the reports or specific information about sites themselves. NPS has been laboring for many years on the National Archeological Database (NADB). This database is one outgrowth of the 1981 report, *Are Agencies Doing Enough or Too Much for Archeological Preservation* (General Accounting Office 1981). One of the recommendations in the report that Congress acted upon provided for the creation of a national database on Federal archeological activities in order to share information more rapidly and reduce redundancy. NADB-related activities have been described in Chapter 4 of this report.

Current efforts are focused upon the creation of a national network of NADB users and contributors who will help to build the database and provide initial access to the information. The SHPOs and some Federal agency offices will compose the initial

nodes of this network. However, a "read only" version of the database for more general distribution also is planned.

Other NPS offices are working with SHPOs on data standards for site inventories and other computerized systems to help in the management of cultural resources. If America's archeological resource managers are to have a well coordinated system of information flow, more effort will be necessary during this decade.

Improving Resource Inventories

On average, Federal agencies that manage land have conducted archeological inventories on less than 10% of their land (Keel, et al. 1989:26-28 and Chapter 3 of this report). In the Four Corner States it is estimated that only 6% of the FS, BLM, and NPS land has been surveyed (General Accounting Office 1987:39). The lack of information about where archeological resources are has been identified by many as one of the problems confronting agencies in protecting sites from looters. As mentioned above, during the 1980s most of those agencies that earlier had funded archeological resource inventories dropped these programs for lack of funds. With the relative loosening of purse strings, agency archeologists must again work within their offices to fund such investigations. In addition to assisting management in the preservation of sites, the data from these surveys can be used to improve the evaluation of inventory data from development and land use projects.

Better inventories of archeological resources on Federal land will provide for better management and protection; they also are called for by recent amendments to the Archaeological Resources Protection Act and have been a part of the requirements of the National Historic Preservation Act since the 1980 amendments to that statute.

What is needed is renewed and reinvigorated commitment to activities that will lead over the long term to a fuller inventory of America's archeological heritage. Inventories that are done should provide data that are comparable. It is unfortunately true that much of the existing inventory data are difficult, if not impossible, to compare on a large scale. One means of overcoming this would be to focus on more explicit physical descriptions of the archeological record. For example, the use of density measures to characterize sites rather than only anthropological terms such as "camp" or "lithic reduction station" would be helpful (eg., McManamon 1984:278; 1986). Use of the former does not preclude use of the latter for interpretive purposes but, with only the former, comparisons of such relevant topics as the intensity of prehistoric land use between areas or projects is impossible.

Improving Curation of Archeological Collections

Federal agencies also are responsible for the curation of vast numbers of artifacts, other remains, and records of investigations from sites on the land they manage or from sites that their activities have disturbed. For sites that have been destroyed, these remains and records are the heritage left to future generations about the archeological record. The percentage of the archeological record that is in collections rather

than in situ grows daily; at least this is true for the prehistoric portion of the archeological record.

Many artifacts removed from public lands are considered the property, and therefore the responsibility, of the public agency that administers the land. Millions of dollars have been used to collect such artifacts and other remains. With proper study this material can provide further information about important aspects of the past. Research on collections will be successful only if the remains and records about their original archeological context are linked, both can be found, and both are in useable condition. Adequate curation of remains and records is essential for these conditions to be met. A recent investigation by the General Accounting Office (General Accounting Office 1987:69-95) found that Federal agencies were not doing a good job in caring for their archeological collections. At the eight local agency offices that were visited, General Accounting Office investigators found no adequate systems to account for the location or composition of the archeological collections from their lands. Also, the agencies did not have guidelines for determining the adequacy of facilities to curate collections and did not systematically inspect facilities either before they deposited collections with them or afterward (General Accounting Office 1987:78).

NPS, which has the most detailed estimate of the size of this curatorial challenge, projects that decades of time and millions of dollars will be needed to overcome the curation challenge presented by the mountain of archeological data already in its collections. Other Federal agencies are beginning systematic programs in archeological curation as well. The recent publication of regulations on the curation of Federal archeological collections (36 CFR 79) should stir archeological and management interest in making progress on this topic.

The focus in this section has been on the need to improve accountability and management for Federal, and other public, archeological collections. Yet, recent passage of the Native American Graves Protection and Repatriation Act requires Federal agencies and museums that receive Federal funds to work with Indian Tribes, Native Hawaiian organizations, and traditional Native American religious leaders to address the issues related to the rightful ownership of archeological materials. Increasingly, Indian groups are claiming for themselves all or parts of archeological collections. These groups often have legitimate claims and understandable complaints about the way the archeological heritage of their Tribes has been kept from them. However, some balance must be achieved so that all Americans can have the benefit of the prehistoric and early historic past of the country.

Summary

The present structure for management of America's archeological heritage is complex. It involves public agencies at the Federal, State, Tribal, and local levels of government. Both direct and indirect management responsibilities exist. The strength of this arrangement is that many agencies are responsible legally for preserving, or at

least considering the preservation of, archeological resources as part of their function. The potential weakness of this system is that leadership and coordination must be exercised effectively to keep all the components from flying apart.

The coming decade and the next century pose new challenges along with the ones that have confronted those concerned about archeological preservation during the last 20 years. The areas currently addressed must continue to be addressed. For the most part, Federal archeologists cannot afford to shift precious resources away from these activities to meet additional challenges, although some shifting may be necessary.

More and better public education and participation, better preservation of the in situ record, improvements in information availability, more progress in resource inventories, and improvements in the curation of collections and records require new efforts. Progress in all of these areas has the potential for substantial benefits if they can be addressed effectively.

In order to continue and improve the system of archeological resource management that has developed in the United States during the past 25 years, the Administration, Federal and other public agencies, Congress, archeologists from each of the major areas of employment: public agencies, academic departments, private firms, and museums, and historic preservationists must work cooperatively. There is much to do, but it is necessary work if the nation's archeological heritage is to have a useful future.

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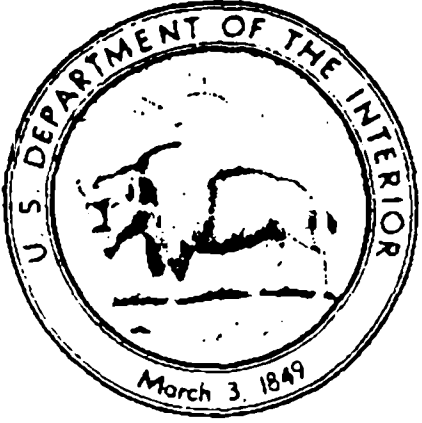
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APPENDIX A

Letters Transmitting Report to Congress





THE SECRETARY OF THE INTERIOR
WASHINGTON

JAN 11 1993

Honorable George Miller
Chairman, Committee on Interior
and Insular Affairs
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

This letter transmits Current Federal Archeological Programs and Activities. This report was prepared in accordance with Section 13 of the Archaeological Resources Protection Act (ARPA) and Section 5(c) of the Archeological and Historic Preservation Act. It also enhances information exchange in the area of archeological preservation and will improve the coordination of Federal archeology as directed by Sections 2 and 101(h) of the National Historic Preservation Act.

Since 1985, extensive annual data about Federal archeological activities have been requested from all participants in the Federal archeology program, using a standardized format. The resulting reports, of which this is the second, have increased substantially in content. We are taking steps to have the reports completed and transmitted in a more timely fashion in future years.

This report is organized according to several categories of information that relate to a national strategy for Federal archeology that I have developed and promoted. This strategy calls for greater attention as part of Federal archeology programs and projects in:

- * Providing for public education and participation;
- * Using the paleoenvironmental record from archeological sites to better understand present-day changing environments;
- * Preserving in situ archeological remains;
- * Improving the communication of archeological information;
- * Improving archeological resource inventories; and
- * Improving the curation of archeological collections.

Along with the report, I enclose a copy of the National Strategy.

The report records important improvements in the protection of our archeological heritage that have been implemented. Amendments to the ARPA have enhanced enforcement of the statute by making it easier to obtain convictions, making the attempted looting of a site a crime, and requiring increased efforts in public education about the significance of archeological resources located on public and Indian lands and the need to protect such resources. The means of sharing information about archeology among public agencies also have been improved through the National Archeological Database, the Federal Archeology Report, and technical and programmatic publications produced and

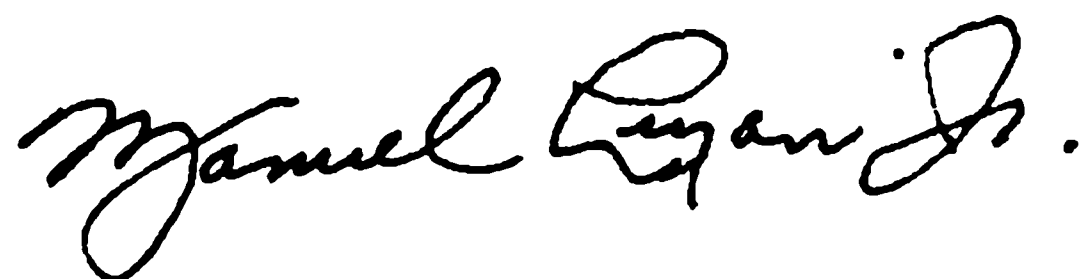
distributed by the Departmental Consulting Archeologist and Archeological Assistance Program of the National Park Service, who function in this area as my representatives. There also have been advances in public education. For example, the interagency Public Awareness Working Group began a number of programs in 1987 including the production and distribution of a series of archeological resource protection bookmarks and a 28-minute videotape, Assault on Time, promoting archeological resource protection. The bookmarks and video were produced and distributed cooperatively by several agencies including the National Park Service, Fish and Wildlife Service, Bureau of Land Management, Bureau of Reclamation, Forest Service, the Department of the Treasury, and the Department of the Army.

The 1990s and the next century pose new challenges along with the ones that have confronted those concerned about archeological preservation during the last 20 years. The areas currently addressed must continue to be addressed. For the most part, Federal program managers and archeologists cannot afford to shift precious resources away from these activities to meet additional challenges, although some shifting may be necessary.

In order to continue and improve the system of archeological resource management that has developed in the United States during the past 25 years, the Administration, Federal and other public agencies, Congress, and archeologists from each of the major areas of employment including public agencies, academic departments, private firms, and museums and historic preservationists must work cooperatively. There is much to do, but it is necessary work if the nation's archeological heritage is to have a useful future.

Thank you for your continued support of the Federal archeological and historic preservation programs. A similar letter is being sent to Honorable J. Bennett Johnston, Chairman of the Committee on Energy and Natural Resources, United States Senate.

Sincerely,

A handwritten signature in cursive script, reading "Samuel Ragan Jr." with a period at the end.

Enclosures

cc: Honorable Don Young
Ranking Minority Member



THE SECRETARY OF THE INTERIOR
WASHINGTON

JAN 11 1993

Honorable J. Bennett Johnston
Chairman, Committee on Energy
and Natural Resources
United States Senate
Washington, D.C. 20510

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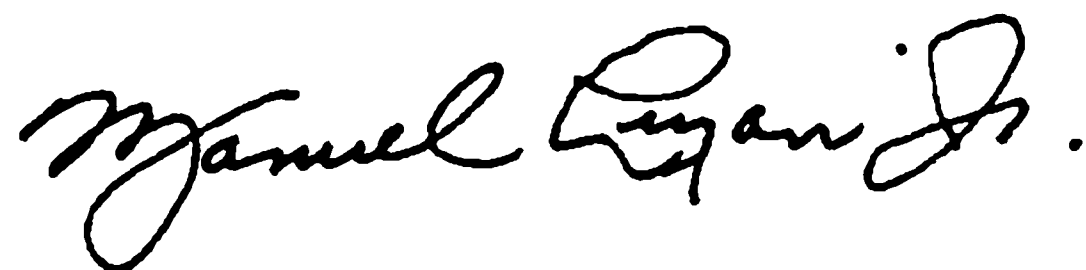
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In order to continue and improve the system of archeological resource management that has developed in the United States during the past 25 years, the Administration, Federal and other public agencies, Congress, and archeologists from each of the major areas of employment including public agencies, academic departments, private firms, and museums and historic preservationists must work cooperatively. There is much to do, but it is necessary work if the nation's archeological heritage is to have a useful future.

Thank you for your continued support of the Federal archeological and historic preservation programs. A similar letter is being sent to Honorable George Miller, Chairman of the Committee on Interior and Insular Affairs, United States House of Representatives.

Sincerely,

A handwritten signature in cursive script, reading "Samuel R. Gann Jr." followed by a period.

Enclosures

cc: Honorable Malcolm Wallop
Ranking Minority Member

APPENDIX B

Questionnaire Used to Collect FY 1987 Data



Department/Agency _____ Date Submitted _____
Contact Person _____ Phone () _____
Date Received _____

**Annual Report to Congress
by the Secretary of the Interior
on the Federal Archeology Program for Fiscal Year 1987**

A number of statutes, such as the National Historic Preservation Act, give the Secretary of the Interior responsibility to lead and coordinate Federal historic preservation activities. This is especially so regarding the Federal Archeology Program. The Secretary is required by Section 5(c) of the Archeological Recovery Act 16 USC 469-469c and Section 13 of the Archeological Resources Protection Act (ARPA) 16 USC 470aa-11, to report to Congress various activities of the Federal Archeology Program. This questionnaire is designed to provide data for the Secretary's report. Under the National Historic Preservation Act 16 USC 470, as amended, Federal agencies have the general responsibility to cooperate with the Secretary by providing information concerning archeological activities as well as other historic preservation activities. To some extent the questions here may also be relevant to wider preservation issues. The topics covered by the questionnaire and the specific questions have been developed with comments by archeologists and historic preservation officers throughout the Federal government. The format and questions below have been modified based upon analysis of the FY 1986 questionnaire with the intent of making the questionnaire easier to understand, complete, and data more comparable. Unless otherwise stated, each question refers to activities in FY 1987.

A. Permitting.

This section aims to summarize the amount of archeological activity undertaken using various legal authorities.

- | | <u>Number</u> |
|--|---------------|
| 1. Total number of permits issued or in effect during FY 1987 for archeological activities, including active multiple authority permits issued during previous fiscal years
(NOTE: this value should be the sum of 1.a.-1.c.) | _____ |
| a. Number issued under ARPA
(NOTE: include multiple authority permits) | _____ |
| b. Number issued under the Antiquities Act
(NOTE: include multiple authority permits) | _____ |

A. Permitting (continued)

	<u>Number</u>
c. Number issued under agency policy, procedure, or guideline (e.g., special use permit)	<u> </u>
2. Number and percentage of permittees field-checked	<u> () %</u>
3. Number of permits issued for investigations related to compliance activities	<u> </u>
4. Number of permits issued for investigations not related to compliance activities (research for scientific or scholarly purposes)	<u> </u>
5. Total number of investigations begun or underway during FY 1987 for which no permits were issued, but which complied with conditions and standards required by ARPA (NOTE: this value should be the sum of 5.a. plus 5.b.)	<u> </u>
a. Number of such investigations conducted by agency personnel	<u> </u>
b. Number of such investigations conducted by contractors	<u> </u>
6. Number of permit applications received (all types)	<u> </u>
7. Number of permit applications denied (all types)	<u> </u>
8. Number of permits suspended (all types)	<u> </u>
9. Number of appeals of denial or suspension	<u> </u>
10. Number of notifications to Indian tribes of an application for a permit under ARPA that may possibly harm or destroy sites having religious or cultural importance for the tribes (as required by Sec. 7 of the Final ARPA Uniform regulations, based on Sec. 4(c) of the Act)	<u> </u>
11. Number of notifications to Indian tribes of an archeological investigation by agency personnel or a contractor being done in conformance with ARPA requirements, but without a permit, that might possibly harm or destroy sites having religious or cultural importance for the tribes	<u> </u>

A. Permitting (continued)

Caveats concerning permitting data

B. Enforcement

This section aims to summarize the amount of destruction of archeological properties due to vandalism and looting that is detected, and the extent to which vandals and others are being apprehended and successfully prosecuted for their activities.

	<u>Number</u>
1. Number of documented violations of ARPA, the Antiquities Act, or other statutes protecting archeological properties reported during FY 1987 on land administered or owned by your agency (As defined in Sec. 6 of ARPA, a violation is any excavation, removal, damage to, alteration, or defacement of an archeological property on Federal land without a permit issued or an exemption listed in Sec. 4 of ARPA. Examples of violations are fresh holes dug into a site or vehicle tracks.	<hr/>
2. Number of arrests made in cases of documented vandalism or looting	<hr/>
3. Number of citations issued in cases of documented vandalism or looting	<hr/>
4. Number of prosecutions in cases of documented vandalism or looting	<hr/>
5. Number of convictions under ARPA during FY 1987 (NOTE: this number should be the sum of 5.a. plus 5.b. convictions may be the result of arrests and citations in previous fiscal years.)	<hr/>

B. Enforcement (continued)

	<u>Number</u>
a. Number of misdemeanors	_____
b. Number of felonies	_____
c. Number of second offenses included in 5.a. or 5.b.	_____
6. Number of cases of vandalism, destruction, theft, etc. of archeological property that were prosecuted using an authority other than ARPA	_____
7. Amount of money that was collected in criminal fines	\$ _____
8. Number of civil penalties applied (as permitted by Sec. 7 of ARPA or other authorities)	_____
9. Amount of money that was collected in civil penalties	\$ _____
10. Costs for restoring or repairing archeological properties in cases in which civil penalties have been assessed for violations of ARPA or other authorities	\$ _____
11. Amount of money given in rewards (as permitted by Sec. 8 of ARPA)	\$ _____
12. Commercial value of artifacts seized and retained by the government	\$ _____
13. Commercial value of other personal property seized and retained by the government	\$ _____
14. Cost to your agency of law enforcement for archeological resource protection	\$ _____
15. Percentage of the overall cost of law enforcement within your agency associated directly with ARPA or the Antiquities Act	_____ %

Caveats concerning enforcement data

C. Agency Personnel Education

This section aims to collect information on the extent to which agencies are making their personnel, especially law enforcement personnel, aware of ARPA and able to enforce it effectively and efficiently.

1. Number and percentage (percent of personnel category) of agency personnel who have received ARPA enforcement training during the fiscal year:

	Law Enforce. Personnel	Cultural Resource Personnel	Others
a. FLETC or other comparable 40-hour course	() %	() %	() %
b. other course or portion (8-16 hours)	() %	() %	() %

Number

2. Number of Law enforcement personnel on staff* _____
3. Number of cultural resource personnel on staff*
(non-archeologists) _____
4. Number of archeologists (GS/GM 0193) on staff* _____

*include both part-time and full-time employees

Caveats concerning agency education data

D. Identification and Evaluation Investigations

This section aims to provide data for the estimation of the level of effort put into identification and evaluation archeological investigations by agency personnel or contractors working for agencies.

	<u>Number</u>
1. How many agency undertakings included documented literature or map research of archeological properties in the project area (documented research is meant to be research that resulted in a letter to the files, a report, or another type of written product to document its results)	_____
a. How many agency FTE and how many dollars for personnel services were used for these kinds of activities (in parentheses, give total salary and benefits cost of FTE used) (NOTE: The costs listed in 1.a.-1.d. should be mutually exclusive)	_____ (\$ _____)
b. How much in support costs was expended in conducting these activities with agency personnel	\$ _____
c. How much was expended by your agency in contracting for these kinds of activities	\$ _____
d. How much was expended by land use applicants in contracting for these kinds of activities	\$ _____
2. How many agency undertakings included field studies to identify and evaluate archeological properties	\$ _____
a. How many agency FTE and how many dollars for personnel services were used for these kinds of activities (in parentheses, give total salary and benefit cost of FTE used) (NOTE: The amounts listed in 2.a.-2.d. should be mutually exclusive)	_____ (\$ _____)
b. How much in support costs was expended in conducting these activities with agency personnel	\$ _____
c. How much was expended by your agency in contracting for these kinds of activities	\$ _____
d. How much was expended by land use applicants in contracting for these kinds of activities	\$ _____

D. Identification and Evaluation Investigations (continued)

	<u>Number</u>
3. How many acres were inspected by these identification and evaluation investigations	<hr/>
4. How many new archeological sites were identified during F Y 1987	<hr/>
5. How many sites were determined eligible by the Keeper of the National Register or considered eligible through agreement between the agency and the appropriate SHPO during F Y 1987 (NOTE: It is recognized that some sites may have been identified during previous fiscal years.)	<hr/>

Caveats concerning identification and evaluation data

E. Data Recovery

This section aims to provide data for the estimation of the level of effort being devoted to data recovery projects and the kinds of research topics being investigated by these projects.

- | | <u>Number</u> |
|--|---|
| 1. How many agency undertakings begun or underway in FY 1987 included archeological data recovery projects? Data recovery projects are meant to be investigations designed to mitigate an adverse impact or to achieve a determination of "no adverse" effect (NOTE: The total in 1. should be the sum of the numbers of projects listed in 1.e.-1.g.) | <u> </u> |
| a. How many agency FTE and how many dollars for personnel services were used for these kinds of activities? (in parentheses, give the total salary and benefits cost of FTE used) (NOTE: The costs listed in 1.a.-1.d. should be mutually exclusive.) | <u> (\$)</u> |
| b. How much in support costs was expended in conducting these activities with agency personnel | <u>\$ </u> |
| c. How much was expended by your agency in contracting for these activities | <u>\$ </u> |
| d. How much was expended by land use applicants in contracting for these activities | <u>\$ </u> |
| e. How many data recovery projects were conducted solely by agency personnel | <u> </u> |
| f. How many data recovery projects were funded solely by the agency through contract | <u> </u> |
| g. How many data recovery projects were funded solely by land use applicants | <u> </u> |
| h. How many data recovery projects were funded by any combination of 1.e., 1.f., or 1.g. | <u> </u> |

E. Data Recovery (continued)

2. The types of research questions investigated through data recovery projects is an indication of the information that is considered important and can be derived from archeological data. With this question we are trying to identify the major research topics being investigated through data recovery projects. The list of topics below is admittedly crude; we expect to refine it, but want to use it to begin to identify the major topics being emphasized in investigations at the present. Record the number of data recovery projects that included major emphasis on a topic. Projects may have included major emphasis on more than one topic.

	<u>Number</u>
a. Economy	_____
b. Site/Settlement	_____
c. Cultural adaptation	_____
d. Paleodemography	_____
e. Cultural processes	_____
f. Social organization	_____
g. Cultural chronology	_____
h. Technology	_____
i. Trade/Exchange	_____
j. Ritual/Ceremonial	_____
k. Architecture	_____
l. Cultural ecology	_____
m. Significance/Management	_____
n. Paleo-environmental research	_____

Caveats concerning data recovery data

F. Unanticipated Discoveries

This section aims to provide data for estimation of the extent to which archeological properties are discovered during the implementation of an agency undertaking subsequent to completion of the Sec. 106 review and compliance process.

- | | <u>Number</u> |
|---|------------------|
| 1. Subsequent to Sec. 106 compliance, how many agency undertakings resulted in the discovery of unanticipated archeological resources during FY 1987 | _____ |
| a. In how many of these instances were the resources judged important enough for data collection to be conducted or design changes made to avoid them | _____ |
| b. How many agency FTE and how many dollars for personnel services were used for this kind of activity (in parentheses, give the total costs for FTE used)
(NOTE: The amounts listed in 1.b.-1.e. should be mutually exclusive.) | _____ (\$ _____) |
| c. How much additional costs were expended in conducting this activity with agency personnel | \$ _____ |
| d. How much was expended by your agency in contracting for this activity | \$ _____ |
| e. How much was expended by land use applicants in contracting for this activity | \$ _____ |

Caveats concerning unanticipated discoveries data

G. Estimating the Archeological Resource Base

This is a totally new section. It aims to provide baseline information about the extent of archeological resources within the lands controlled by Federal agencies and the quality of our knowledge about them. It is recognized that the questions below call for estimates. We ask agency specialists to make the best estimates possible through FY 1987 and write any caveats concerning them in the space provided for narrative at the bottom of this page.

	<u>Number</u>
1. Total acres controlled by the agency	_____
2. Amount and percentage of total acres investigated sufficiently to identify: (NOTE: 2.a.-2.d. should sum to 100%)	
a. 100% of the archeological properties	(_____) %
b. More than 50% of the archeological properties	(_____) %
c. Less than 50% of the archeological properties	(_____) %
d. Amount and percentage of land <u>not</u> investigated	(_____) %
3. Total number of known archeological properties on land controlled by the agency	_____
a. Number and percentage of the total listed on the NRHP (NOTE: 3.a.-3.e. should sum to 100%)	(_____) %
b. Number and percentage of the total determined eligible for the NRHP by the Keeper or considered eligible through documented consultation with the SHPO	(_____) %
c. Number and percentage of total adequately evaluated, but not listed, considered, or formally determined eligible (i.e., fitting neither 3.a. nor 3.b.)	(_____) %
d. Number and percentage of the total determined ineligible for the NRHP by the Keeper or through documented consultation with the SHPO	(_____) %

