



# Department of Defense Legacy Resource Management Program

PROJECT NUMBER 05-257

## **DESERT WIDE CULTURAL RESOURCE SITE PROTECTION: MOJAVE DESERT, CALIFORNIA**

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## MANAGEMENT SUMMARY

In compliance with the Archaeological Resources Protection Act (ARPA) of 1979 and the National Historic Preservation Act (NHPA) of 1966, as well as other acts and statutes, federal land managers in the Mojave Desert are charged with the protection of cultural resources. However, cultural resources in the Mojave Desert are threatened by a variety of factors such as looting, vandalism, off-highway vehicle use, hiking, erosion, and livestock grazing. Statistics put the number of disturbed sites at 25 to 75 percent. Edwards Air Force Base (AFB), through Legacy Program funding, conducted the present research effort to examine the utility and feasibility of developing an interagency, region-wide site protection plan for federal lands within the desert. The two primary tasks performed to accomplish this objective were to gather the opinions of regional federal land managers on site protection and to identify examples of site protection plans across the nation.

Research indicates that nationwide attempts to implement comprehensive site protection plans have been few and ineffective and have often met with resistance at the local level due to questions of jurisdiction, staffing, and funding. Additionally, there is significant disparity in the human and financial resources of the agencies operating within the Mojave Desert as well as logistical obstacles to effective coordination across this enormous area. However, there is consensus among federal land managers who responded to a questionnaire distributed for the present study that there is a site disturbance problem and that a regional cooperative strategy to improve the protection of cultural resources is desirable. The authors recommend four actions for improving site protection in the Mojave Desert, these recommendations focus on developing common protocols and sharing information and expertise in order to more efficiently allocate and prioritize available site protection resources:

- Prepare a site protection handbook describing relevant protocols, procedures, and contact information for technical expertise.
- Use the Mojave Desert Historic Resources Geographic Information System (MDHRGIS) to report and track regional ARPA incidents.
- Develop a site vulnerability model for the Mojave Desert based on proximity to population centers, roads, trails, and other factors and use standardized site vulnerability forms to prioritize site protection resources.
- Conduct regular interagency communication on site protection through PACRAT.

The success of this regional site protection effort is dependent upon the extent to which land managers can coordinate their efforts, share information, and adopt common protocols.



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## 1.0 INTRODUCTION

The Mojave Desert is a large physiographic region that occupies more than 22,000 square miles, mostly in southern California. Over 70 percent of the Mojave Desert is managed by federal agencies (Figure 1, The Mojave Desert). In compliance with the Archaeological Resources Protection Act (ARPA) of 1979 and the National Historic Preservation Act (NHPA) of 1966, as well as other acts and statutes, federal land managers in the Mojave Desert are charged with the protection of cultural resources such as archaeological sites, historic resources, rock art, and traditional cultural properties located on federal and tribal lands. Accordingly, a number of programs and initiatives have been implemented over the past few decades to afford the region's cultural resources an effective level of security.

Over the past 10 to 20 years, federal land managers and other agency and independent observers have argued periodically that existing site protection systems and procedures are not sufficient (see Domenici, Judge, and McAllister in *Protecting the Past* [Smith and Ehrenhard 2000] and Snedeker and Harmon 1990). Many feel that site loss due to looting, vandalism, inadvertent destruction, and casual collecting is causing

irreparable harm to the nation's cultural heritage, and that this trend has been increasing. In addition, a number of sources suggest that available information is only of limited utility in defining this problem, quantifying its scale, and evaluating solutions (see McManamon, King, and Nickens in *Protecting the Past* [Smith and Ehrenhard 2000]).

In light of the requirements of the ARPA and the challenges of protecting cultural resources across the region, Edwards Air Force Base (AFB), through Legacy Program funding, conducted the present research effort. The primary objective of this study is to determine the utility and feasibility of developing an interagency, region-wide site protection plan for federal lands within the Mojave Desert.

The two primary tasks performed to accomplish this objective were to gather the opinions of regional federal land managers in the Mojave Desert on site protection and to identify examples of site protection plans across the nation.

The title page recommended by the State Historic Preservation Office (SHPO) is included as Appendix A.

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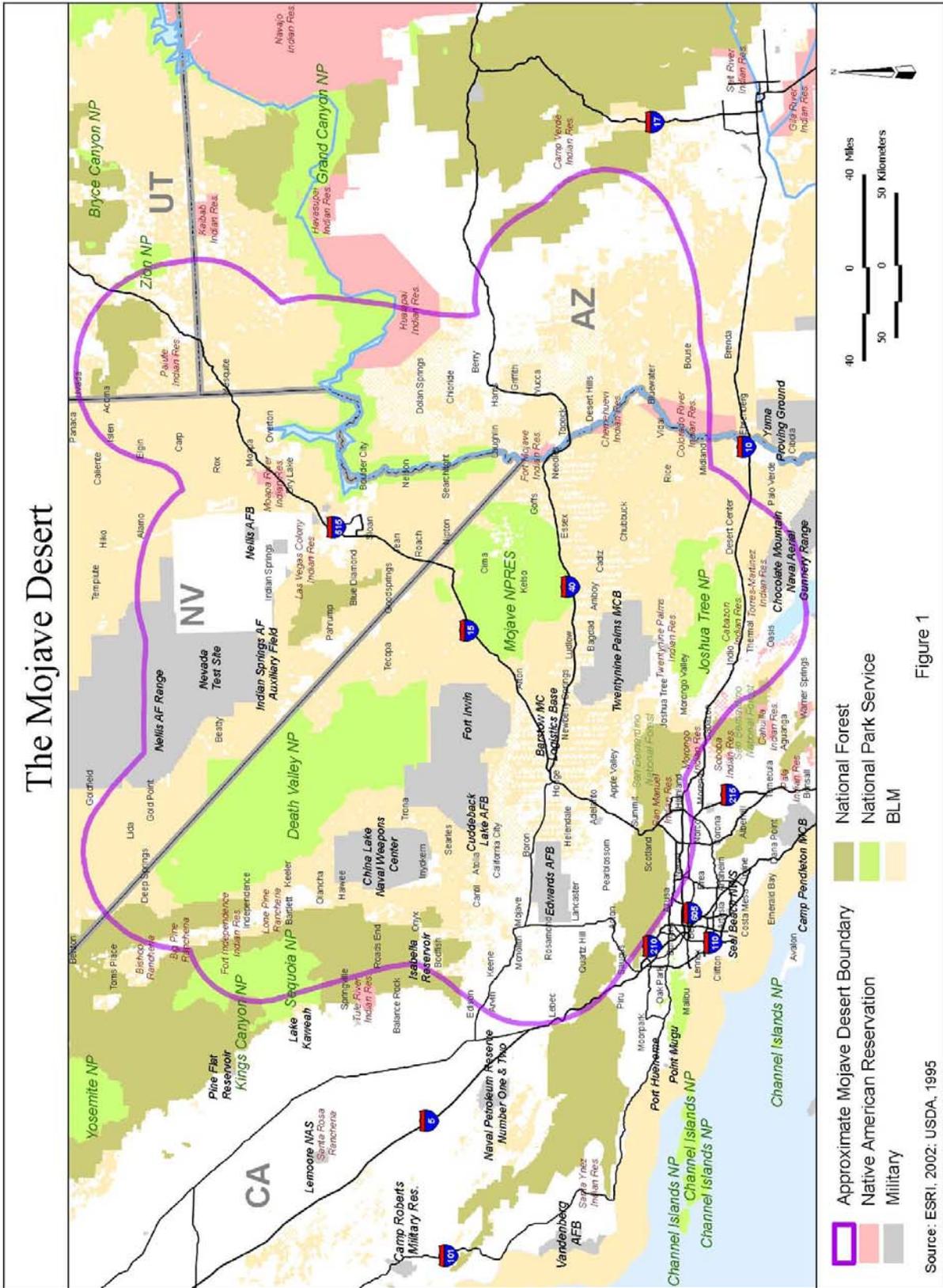


Figure 1

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## 2.0 OBJECTIVES/METHODS

### 2.1 Objectives

The goal of the present study is to collect and assess information concerning the protection of cultural resources within the Mojave Desert in order to evaluate the feasibility of developing a site protection plan for the region. Specifically, the four objectives of the present study are to:

- Investigate the nature and severity of site protection problems and issues in the Mojave Desert.
- Perform research to identify and understand successful site protection programs elsewhere in the US.
- Analyze the information and identify principles and alternatives for interagency cooperation in site protection.
- Summarize the findings, reach conclusions, and present recommendations.

### 2.2 Methods

Earth Tech utilized a variety of survey methods to gather the information needed to achieve these objectives. The first task was accomplished through preparation and distribution of a questionnaire. The questionnaire included multiple choice answers, where appropriate, in order to standardize responses. Respondents were also provided empty spaces for entry of additional information or explanations.

Prior to distribution, a draft of the questionnaire was sent to the Edwards AFB Base Historic Preservation Officer (BHPO) for review, and suggestions were incorporated into the final document.

Earth Tech generated an initial e-mail inquiry to determine the willingness of individuals to participate in this survey; a number of respondents asked not to be included in the mailing or identified another individual who would be better suited to respond. After a number of follow-up e-mails and phone calls, Earth Tech developed a final database of 40 federal land managers and distributed the questionnaire via US mail to all 40 individuals in the database.

Of the 40 original questionnaires, 15 were completed and returned. An additional three questionnaires were completed via telephone interview for a total of 18 respondents. Completed questionnaires were tabulated and a number of respondents were individually contacted to obtain additional detail on their responses, and attempts were made to contact individuals who did not respond at all.

Recipients of the questionnaire included members of the Paleontology and Cultural Resources Working Group, also known as the Paleontology and Cultural Resources Action Team (PACRAT, a working group established by the California Desert Managers Group [DMG]); a number of additional federal land managers; and other individuals identified during the course of the present study. This questionnaire is included as Appendix B.

Earth Tech addressed the second and third objectives through extensive background research using the internet and various libraries and repositories to find relevant information. Of particular help were assessments of regional and national programs prepared by federal agencies, advocacy groups, and individual experts in the field of site protection, specifically, Todd Swain, National Park Service (NPS)

Special Agent. In addition, phone interviews were conducted with experts in cultural resource management, law enforcement, site protection, and other related disciplines. A

number of individuals supplied supporting information such as articles, copies of plans, forms, and tables.

### **3.0 REGULATORY BACKGROUND**

A variety of federal, state, and local laws, executive orders, and other regulations exist that apply to the preservation of archaeological sites and the prevention of site disturbance. In addition, each federal agency or unit with land management responsibilities may have its own set of instructions or guidelines concerning the implementation or enforcement of cultural resource preservation laws. For example, Air Force Instruction (AFI) 32-7065, *Cultural Resources Management*, requires the Air Force to protect and manage cultural resources on its bases (Air Force Instruction 1994).

Section 3.0 of this document focuses solely on the primary federal acts, laws, and executive orders that include provisions for the protection of cultural resources or for prosecution of those who intentionally damage, vandalize, or loot archaeological sites.

For a detailed description of case law related to site disturbance, see *Cultural Resources Law Enforcement*, by Dee F. Green and Polly Davis (Green and Davis 2002) or *Archaeology, Relics and the Law*, by Richard B. Cunningham (Cunningham 1999) (also see Craib 1999 and Harris 1994). For a more thorough description of ARPA, see *National Park Service Technical Brief 11, Legal Background of Archaeological Resources Protection* (Carnett 1991) or Fowler in *Protecting the Past* (Fowler 2000).

#### **3.1 National Historic Preservation Act of 1966**

The National Historic Preservation Act (NHPA) of 1966 (16 USC 470 et seq.) was enacted to improve the protection of the

Nation's cultural resources. Under Section 106 of NHPA, and its implementing regulations (36 CFR Part 800), the head of any federal agency having direct or indirect jurisdiction over a proposed federal or federally financed undertaking is required, prior to the expenditure of any federal funds on that undertaking, to take into account its effect on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places. Under section 110 of NHPA, each federal agency is required to establish a program to locate, inventory, and nominate to the Secretary of the Interior, all properties under its ownership or control that appear to qualify for inclusion in the National Register.

#### **3.2 Archaeological Resources Protection Act of 1979**

The purpose of ARPA (16 USC 470 aa et seq.) is to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public and Indian lands, and to encourage increased cooperation and exchange of information among governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data which were obtained before the date and enactment of this act.

The genesis of ARPA can be traced to a challenge to the Antiquities Act in 1977 (*United States v. Diaz*), in which the Ninth Circuit Court of Appeals overturned a conviction and declared the act unconstitutional (Cheek 2000). This decision led to a redoubling of efforts within the archaeological community to introduce new legislation. On October 31, 1979, President Jimmy Carter signed the act into law.

Prosecution under ARPA allows for severe penalties for excavation or destruction of archaeological resources, and for unauthorized removal of such resources and their sale or purchase. The act also imposes penalties for interstate commerce, making the transport of stolen artifacts across state lines a violation, and includes provisions for the forfeiture of any vehicles or other equipment involved in a violation. Hutt (1994) discusses ARPA's civil prosecution process.

### **3.3 Native American Graves Protection and Repatriation Act**

The Native American Graves Protection and Repatriation Act (NAGPRA) (25USC 3001 et seq) and its implementing regulations (43 CFR part 10) were developed to establish a systematic process for determining the rights of lineal descendants, Indian tribes, and other organizations to certain Native American human remains and associative funerary objects. If Native American skeletal or associative remains are encountered on federal or tribal lands, this information must be passed on to the appropriate federal agency and to any identified lineal descendants or culturally affiliated Indian tribes so that determination may be made regarding the remains' disposition.

NAGPRA provides that Native American cultural items not claimed during this process shall be disposed of in accordance with regulations promulgated by the Secretary of the Interior, Native American groups, representatives of museums, and the scientific community.

### **3.4 American Antiquities Act of 1906**

The American Antiquities Act of 1906 (16 USC, Section 431-434) was the first piece of legislation to authorize a permit system for

investigation of archaeological sites on federal and Indian lands. The act specifically protects all lands owned or controlled by the federal government and gives authority for their proper care and management to the departments having jurisdiction. Penalties under the act are limited to criminal misdemeanor charges. The ARPA has replaced the Antiquities Act as the primary authority by which excavation or collection of archaeological remains is regulated on federally controlled land.

### **3.5 Executive Order 13007 – Sacred Sites**

Executive Order (EO) 13007 was developed to protect and allow access to Native American sacred sites by Native American religious practitioners (Clinton 1996).

The order makes provisions for access to and ceremonial use of Indian sacred sites on federal government land by Indian religious practitioners, and requires that land managers avoid adversely affecting the physical integrity of such sacred sites. The order also requires federal agencies to consult with tribes on a government-to-government basis whenever plans, activities, decisions, or proposed actions affect the integrity of, or access to, the sites.

### **3.6 18 U.S.C 1361 - Destruction of Government Property**

This statute states that “Whoever willfully injures or commits any depredation against any property of the United States, or of any department or agency thereof...shall be punished as follows:

If the damage to such property exceeds the sum of \$100, by a fine of not more than \$10,000 or imprisonment of not more than ten years, or both; if the damage to such property does not exceed the sum of \$100,

by a fine of not more than \$1,000, or by imprisonment for not more than one year, or both.”

### **3.7 California Desert Protection Act of 1994**

This California Desert Protection Act (CDPA) established Death Valley National Park, Joshua Tree National Park, and the Mojave Desert National Preserve as part of the National Park System. This act includes provisions for use of the land for traditional cultural and religious purposes by Native Americans. Upon notice to the Secretary of the Interior, specific portions of these lands must be closed to the general public to protect the privacy of traditional cultural and religious activities. Richardson (2005) considers the economic benefits of the act from a resource preservation and recreation perspective.

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## 4.0 THE MOJAVE DESERT

This section provides a general overview of the Mojave Desert, including its physical setting, an outline of federal land holdings within the desert, a listing of tribal groups with historic ties to the region, and a very brief characterization of the desert's cultural resources. A brief discussion of population trends for the desert has also been included, given the apparent correlation between population density and site disturbance.

For a more detailed discussion of the physical setting, history, and political environment of the desert see *Mojave Desert: An American Deserts Handbook* by Rose Houk (2000) or *The Mojave: the Definitive American Desert* by David Darlington (Darlington 1996). For more detailed information on the archaeology of the Mojave see *An Introduction to the Archaeology of the Western Mojave Desert, California* by Mark Q. Sutton (Sutton 1998).

### 4.1 Physical Setting

The Mojave Desert extends from the Sierra Nevada mountain range in central California eastward to the Colorado Plateau and southward to the San Gabriel-San Bernardino Mountains in southern California. The desert occupies more than 22,000 square miles, mostly in southern California, although it extends into portions of Arizona, Nevada, and Utah (Figure 1). Only the portion of the Mojave Desert lying within California is the subject of the current study (Figure 2, Population Trends Study Area).

The Mojave is a transition zone from the extreme climate of the Sonoran Desert to the more temperate climate of the Great Basin region (Houk 2000). The Mojave's climate is characterized by extreme variation in daily temperature and an average annual

precipitation of less than five inches. Almost all the precipitation occurs in winter. Freezing temperatures are common in winter, while summers are very hot, dry, and windy. The Mojave has a typical basin-and-range topography with sparse vegetation. Sand and gravel basins drain to central salt flats (Darlington 1996). The primary watercourses in the study area are the Mojave River, the Amargosa River, and the Colorado River.

### 4.2 Mojave Desert Population Trends

Population data compiled for the Mojave Desert reveal a study area that has experienced rapid growth over the period 1990-2000. The study area increased its population by 70 percent, which compares to a growth of 13.8 percent in California as a whole over the same period.

The study area is defined as parts of Inyo, Kern, Los Angeles, San Bernardino, and Riverside counties (Figure 2). Census data were compiled for the census tracts within the study area for the census years 1990 and 2000. These population data are shown in Table 4-1 and compared with data for the aggregate area of these counties, which represent the larger region of interest, and for which population projections are available.

Table 4-1 shows that the population of the study area increased by 70 percent over the 1990s, at a much faster rate than both the region (12 percent) and the state (13.8 percent). The population of the study area increased by 162,539 in this period, although it should be noted that the part of the study area lying in Inyo County, with its very small base population, experienced a decline of 197 persons. The part of the study area accounting for most of the growth was that part within San Bernardino County, which increased by 142,230, or 118.6

**Table 4-1. Mojave Desert Population Trends and Projections**

Jurisdiction State/Region/ Study Area	Population		Change 1990- 2000		Population Projections*					Percent Change 2000- 2050
	1990	2000	Number	Percent	2010	2020	2030	2040	2050	
California	29,760,021	33,871,648	4,111,627	13.8	39,246,767	43,851,741	48,110,671	51,538,596	54,777,700	61.7
Region										
Inyo County	18,281	17,945	-336	-1.8	18,396	18,404	18,256	17,899	17,699	-1.4
Kern County	543,477	661,645	118,168	21.7	808,808	950,112	1,114,878	1,325,648	1,549,594	134.2
Los Angeles Co.	8,863,164	9,519,338	656,174	7.4	10,461,007	10,885,092	11,236,734	11,380,841	11,423,198	20.0
Riverside County	1,170,413	1,545,387	374,974	32.0	2,165,148	2,675,648	3,180,411	3,717,961	4,305,161	178.6
San Bernardino Co.	1,418,380	1,709,434	291,054	20.5	2,133,377	2,456,089	2,762,307	3,029,750	3,289,254	92.4
Region Totals	12,013,715	13,453,749	1,440,370	12.0	15,586,736	16,985,345	18,312,586	19,472,099	20,584,906	53.0
Study Area										
Part Inyo	5,926	5,729	-197	-3.3	-	-	-	-	-	
Part Kern	61,179	61,452	-4,258	-0.4	-	-	-	-	-	
Part Los Angeles	40,585	54,260	13,675	33.7	-	-	-	-	-	
Part Riverside	4,579	11,137	6,558	143.2	-	-	-	-	-	
Pt. San Bernardino	119,974	262,204	142,230	118.6	-	-	-	-	-	
Study Area Total	232,243	394,782	162,539	70.0	-	-	-	-	-	

Sources: US Census Bureau 1990 Census STF3 and 2000 Census SF3; \*Projections from California Department of Finance, May 2004.



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percent. The part of the study area in Riverside County increased at an even faster rate (143.2 percent) but on a small population base. Table 4-1 also reflects population projections from the California Department of Finance. The projections extend to 2050 but are only available by county. The counties that comprise the region within which the study area is located are projected to increase their population from 13.45 million in 2000 to 20.58 million in 2050.

Three of the five counties (Kern, Riverside, and San Bernardino) have projected rates of growth that far exceed the state's projected 61.7 percent. In total, by 2050 the region is expected to add 7.1 million to its 2000 population of 13.45 million.

These population data indicate that the study area has already experienced a major increase in its resident population in recent years and is on course to grow at rates that are likely to be significantly higher than those for the state and its regional context.

### **4.3 Federal Land Holdings**

More than 20 million acres of land are managed by federal agencies in the Mojave Desert. The United States Department of the Interior (DOI), under the auspices of the NPS and the Bureau of Land Management (BLM), is the largest land manager in the Mojave Desert – administering nearly 16 million acres of land. The Department of the Navy and the United States Air Force, operating within the Department of Defense (DOD), are the next largest land managers, with responsibility for management of nearly three million acres. The United States Department of Agriculture (DOA) under the auspices of the United States Forest Service (USFS) manages the remaining federally administered land in the Mojave.

The following sections list federally administered lands in the Mojave Desert by agency, further broken down by intra-agency units as appropriate. A few smaller tracts of federally managed land are located along the California/Arizona border. The United States Fish and Wildlife Service (FWS) manages the 37,515-acre Havasu National Wildlife Refuge in the eastern portion of the study area, and portions of the Fort Mojave, Chemehuevi, and Colorado River Indian Reservations, managed by the Bureau of Indian Affairs (BIA), also lie within California's Mojave Desert. These smaller management units are not discussed in the following sections.

#### **4.3.1 US Department of Agriculture**

The USFS administers USDA lands in the Mojave Desert. USFS lands within the Mojave Desert are found on the margins of the desert near the forests and mountains in the west and north. The total size of the San Bernardino National Forest is 800,000 acres (Figure 2).

#### **4.3.2 US Department of the Interior**

Two USDI units manage land in the Mojave Desert, the BLM and the NPS. The BLM manages more than 10 million acres of land within the Mojave Desert. The *California Desert District* (CDD) of the BLM oversees the management of 10.4 million acres within the California Desert Conservation Area (CDCA). Field offices that lie within this desert district include Barstow, Ridgecrest, Needles, El Centro, and the Palm Springs/South Coast Field Office. All of these except the El Centro office are within the Mojave Desert. In addition to the four field offices that are within the CDD, a fifth BLM field office, Bishop, also manages lands in the Mojave.

The geographic areas managed by these five field offices are described below.

- *Barstow Field Office* – The Barstow Field Office region covers the area from the northern boundary of Joshua Tree National Park to the southern boundary of Fort Irwin Military Reservation, and from the eastern boundary of San Bernardino National Forest to north of Death Valley Junction, California, as far as the California/Nevada state line.
- *Needles Field Office* – The Needles Field Office region extends from the northern boundary of Joshua Tree National Park north and east to the Nevada and Arizona borders, encompassing the Mojave National Preserve.
- *Ridgecrest Field Office* – The Ridgecrest Field Office region stretches from the northern boundary of the Angeles and Los Padres National Forests to Death Valley National Park and the Nevada border.
- *Palm Springs/South Coast Field Office* – The Palm Springs/South Coast Field Region extends east from the Pacific Ocean in Los Angeles and San Diego to the Arizona border, encompassing the Coachella Valley and Palm Springs.
- *Bishop Field Office* – The Bishop Field Office region is bounded on all sides by the Inyo National Forest and the Toyabe National Forest, along the Nevada border.

The NPS is the second unit of the USDI that manages land in the desert. The unit subtypes the NPS manages include national

parks, national preserves, national historic sites, and national recreation areas.

The national parks and preserves total 5,711,470 acres of land and are:

- Death Valley National Park (DVNP) – 3,317,470 acres.
- The Mojave National Preserve (MNP) – 1,600,000 acres.
- Joshua Tree National Park (JTNP) – 794,000 acres.

There are two Mojave Desert region national historic sites and national recreation areas.

- Lake Mead National Recreation Area.
- Manzanar National Historic Site.

#### **4.3.3 US Department of Defense**

Department of the Navy lands in the Mojave Desert total 2,348,716 acres. They are:

- China Lake Naval Weapons Center – 1,102,716 acres.
- Twentynine Palms Marine Corps Base – 596,000 acres.
- Marine Corps Logistics Base (MCLB) Barstow – 6,200 acres.

The US Air Force lands in the Mojave Desert total 301,000 acres, all within the boundaries of Edwards AFB. The US Army lands total 650,000 acres, all within the Ft. Irwin Training Center.

#### **4.4 Tribal Groups**

Federal laws, executive orders, and various agency and DOD policies require consultation with tribal entities as part of

compliance efforts. The following is a list of federally recognized tribal groups and other Indian groups that have historical ties to the Mojave Desert and have identified themselves as interested parties with regard to management issues in the region in other management documents.

- Chemehuevi Reservation, Colorado River Agency
- Colorado Indian Tribes, Tribal Council
- Timbisha Shoshone Tribe
- Twentynine Palms Band of Mission Indians
- Cabazon Band of Mission Indians
- Morongo Band of Mission Indians
- San Manuel Band of Mission Indians
- Kawaiisu Tribal Council
- Soboba Band of Luiseno Indians
- La Jolla Band of Luiseno Indians
- Los Coyotes Band of Indians
- Tehachapi Indian tribe
- Kern Valley Indian Community
- The Cahuilla Inter-Tribal Repatriation Committee
- Native American Heritage Preservation Council

#### 4.5 Cultural Resources

The Mojave Desert is ecologically, culturally, and historically unique and contains a great diversity of cultural resources (Earle 1997). The mountains and

valleys that make up the region contain cultural resources spanning thousands of years, from 10,000-year-old Paleoindian period archaeological sites, to 4,000-year-old rock art complexes, to 19th century Euro-American wagon roads, to 20<sup>th</sup> century homesteads (Houk 2000). Prehistoric site types documented in the region include village sites, burial sites, temporary camps, quarries, and trails. Historic resources include water wells, ranches, mines, and historic transportation corridors. Archaeological sites and other cultural resources are found on virtually every type of landform in the desert; however, as in other regions, sites with ready access to water were the preferred locations for both prehistoric Native American and historic Euro-American settlements (although many prehistoric water sources are now dry due to climatic changes that took place several thousand years ago).

Comparable to the archaeological record from other desert regions in the southwest, stratified archaeological sites in the Mojave Desert are uncommon. As a result, the wide variety of material culture left by past activities is frequently visible on the ground surface. Surficial artifacts such as projectile points, stone tools, pottery fragments, bottles, structural remains, and other evidence of the region's archaeological past are common signs of past activity and sometimes constitute the entirety of the remaining site.

The federal government manages more than 75 percent of the Mojave Desert (more than 20 million acres within the state of California alone [USDA 1995]). In compliance with federal law, a great deal of survey work has been conducted across this vast area, resulting in the identification of many thousands of cultural resources, preparation of thousands of National

Register eligibility evaluations, listing of many resources on the National Register of Historic Places, and preparation of numerous thematic studies and syntheses for individual units.

However, due to differences in the size, administrative mission, funding, and land use of individual units, there are significant disparities between agencies and units in the percent of land holdings that have been surveyed and the protections afforded to known cultural resources. For example, 80 percent of the 6,200-acre MCLB Barstow has been systematically surveyed compared to only 5 percent of the NPS' 1.6-million-acre Mojave National Park. It is likely that tens of thousands of archaeological sites are present in the desert, although only a fraction of them have been documented to date (GAO 1987a). Furthermore, DOD properties such as Edwards AFB are secured with guarded gates, fences, and patrols, while BLM lands such as Ridgecrest are crossed by public roads and highways and visited by thousands every day, including off-highway vehicle (OHV) enthusiasts.

There have been several attempts to integrate the data collected across the desert into meaningful regional syntheses (Robinson 1987; Sutton 1988; and Warren 1984). However, as thousands of sites have been added to the archaeological record as a result of large-scale surveys since the late-1980s, these syntheses are at present outdated.

The Mojave Desert archaeological record is, for the most part, surficial and fragile, and therefore extremely vulnerable to adverse effects caused by both natural and man-made forces. As discussed in Section 4.2, populations in the region have increased significantly since 1990; this trend is projected to continue in the future. There has

been an equally great increase in visitation to federal lands in the area. It is likely that a greater number of visits to the Mojave Desert will result in additional impacts to the desert's cultural resources. Some of these threats are further discussed in the following chapter.

## 5.0 FINDINGS

The findings of the present study are presented in two parts, results of investigation and results of research. The first part presents the results of the previously discussed survey of federal land managers concerning site protection planning issues within the Mojave Desert. The second part of this chapter presents discussions on five topics: resource management in the Mojave Desert, nationwide examples of site protection plans, assessments of federal cultural resource management efforts, off-highway vehicle use, and a summary of site stewardship programs in California and other states.

### 5.1 Results of Investigation

Earth Tech drafted a one-page questionnaire concerning site protection issues which Edwards AFB BHPO then reviewed (subsection 2.2). After incorporating the BHPO’s comments, Earth Tech distributed

the final questionnaire to a list of recipients based on a membership database for the PACRAT working group and including a small number of additional individuals involved in the management of desert resources, but having no federal land management responsibilities.

As detailed in subsection 2.2, Earth Tech distributed 40 questionnaires, and 15 were completed and returned. An additional three questionnaires were completed via telephone interview, for a total of 18 respondents. Attempts were made to contact individuals who did not respond to the questionnaire.

Table 5-1 contains an abbreviated representation of the questionnaire. Appendix B contains the entire questionnaire and the multiple choice responses. Questions have been grouped below by topic, as presented in the accompanying discussion (responses to questions 5 and 6 are included in Table 5-2).

**Table 5-1. Questionnaire Summary by Topic.**

Topic	Question #
Access and Security	1. How many people visit your area daily?
	2. Does the number of visitors vary throughout the year?
	3. What kind of access does your area allow?
	4. What types of security measures are used?
	7. What cultural resource protection measures do you have?
Site Protection Problems	8. Do you have a site protection problem?
	9. What are the causes of site disturbance in your area?
	10. What types of cultural resources are most vulnerable?
Site Vulnerability and Damage Assessments	11. Have you performed site vulnerability assessments?
	12. Have you performed site damage assessments?
Site Protection Plan	13. Do you think a site protection plan is needed?
	14. What are your concerns about its implementation?
	15. Has your base/agency entered into similar interagency regional cooperative programs before?
	16. What are the most effective site protection measures?
	17. Please provide any additional thoughts.

**Table 5-2. Profile of Respondents.**

<b>Organization</b>	<b>Region/Area</b>	<b>Number of Respondents</b>	<b>Area (acres)</b>	<b>Number of Daily Visitors</b>	<b>Percent Surveyed</b>	<b>Number of Sites</b>
DOD	Edwards AFB	1	301,000	10-11,000	42	3,600
DOD	Twentynine Palms	2	596,000	20,000	39	1,700
DOD	China Lake	1	1,102,000	6,000	13	1,300
DOD	MCLB Barstow	1	6,200	1,200	80	51
NPS	Joshua Tree	2	794,000	3,536*	<3	650
NPS	Mojave NP	2	1,600,000	30	5	1,400
NPS	Death Valley	2	>3,000,000	2,200	5	>2,000
NPS	Lake Mead	1	1,500,000	21,917*	<5	1,200
USFS	San Bernardino	2	800,000	13,698*	8	700
SBCAIC	San Bernardino	1	n/a	n/a	10-15	>20,000
BLM	Lake Havasu	1	1,400,000	n/a	6	1,028
BLM	Ridgecrest	1	~1,500,000	10-20,000	5	2,000
BLM	Bishop	1	750,000	13,698*	5	13,000
<b>5 Agencies</b>	<b>13 Areas</b>	<b>18</b>	<b>&gt;13,000,000</b>	<b>&gt;103,000</b>	<b>&lt;8</b>	<b>&gt;48,000</b>
*Daily average calculated from yearly visit totals.						

### 5.1.1 Agencies Consulted

As previously stated, 18 questionnaires were completed and returned via mail or completed verbally over the telephone. Twelve were sent to DOD management personnel, of which 5 were completed; 13 were sent to NPS personnel, of which 7 were completed; 2 questionnaires were sent to USFS personnel and both were completed and returned; 3 of the 7 that were sent to BLM managers were completed, and of 6 questionnaires that were sent to non-federal government personnel, only one, from a representative at the San Bernardino Archaeological Information Center (SBAIC), was returned. Table 5-2 contains a profile of the respondents.

### 5.1.2 Access/Security

Questions 3, 4, and 7 of the questionnaire (Table 5.1) deal with the general level of access and security individual resource areas maintain throughout the desert. The respondent from the SBAIC did not reply to this portion of the questionnaire, as the questions did not apply to their agency's responsibilities.

Question 3 concerns the general level of access provided. The majority of respondents indicated that their resource area allows either unrestricted public access, access by permit/pass only, or a combination of the two (Table 5-3). Three of the four

military installations responded that access is granted only to military personnel, and the Bishop district of the BLM indicated that access to a portion of its resource area is limited to agency personnel.

Question 4 addresses general security measures used at each resource area. The overwhelming majority of the respondents indicated that restricted vehicular access is used as a security measure (Table 5-4). Most respondents also indicated the use of fencing and guards or patrols. Two NPS resource areas, Joshua Tree National Park and Mojave National Preserve, reported the use of video or photo surveillance, and Death Valley National Park indicated the use of aerial surveillance as a security measure.

Question 7 deals with the security measures specifically used to protect cultural resources in the desert. All of the respondents, except for the USFS, indicated the use of signage in their area of responsibility (Table 5-5). Only Edwards Air Force Base responded that physical barriers are not used to protect cultural resources. Reconnaissance patrols were indicated as a security measure in all areas but the Ridgecrest BLM district and the San Bernardino National Forest. Only the Twentynine Palms Marine base indicated the use of video or photo surveillance as a cultural resource protection measure.

### **5.1.3 Site Protection Problems**

This section of the questionnaire (questions 8-10) addresses the issue of site protection and was designed specifically to gauge the nature and severity of the problem.

Question 8 asks the respondents to rate the severity of the site disturbance problem in their area of responsibility. Management personnel from the Ridgecrest district of the BLM and from Death Valley National Park

indicated that they have a severe site disturbance problem (Table 5-6). The other respondents indicate that they have either a moderate problem (six responses) or a minor problem (seven responses) with site disturbance. No respondents reported that they have no problem.

Question 9 examines the causes of site disturbance in the Mojave Desert region. Respondents were asked to rate the choices provided on a scale of 1-6, with 1 representing the most significant cause and 6 the least. Earth Tech averaged the ratings to come up with an order of magnitude for the relative importance of specific site disturbance causes. With an average rating of 2.1, looting/pot hunting was indicated as the leading cause of site disturbance (Table 5-7). Vandalism and off-road vehicles were close behind with average ratings of 2.7 and 2.8, respectively. Respondents indicated that the fourth leading cause of damage to sites is erosion or natural disturbances, followed by damage caused by hikers and campers utilizing these resource areas. A respondent from the Mojave National Preserve checked the "other" box on the questionnaire and cited "cattle/livestock" as the second leading cause of disturbance for that resource area.

Question 10 asks that the respondents to rate the vulnerability of each resource type to site disturbance using the same 1-6 rating scale used for the previous question, with 1 indicating the most vulnerable site type (Table 5-8). The survey indicates that the most vulnerable kind of resource is archaeological sites, with a 1.9 rating, followed closely by rock art at 2.0. Architectural features were rated the next most vulnerable with a rating of 2.5, followed by stacked rock features at 3.7, and linear features at 3.8. A representative from

**Table 5-3. What kind of access does your area allow?**

Organization	Region/Area	Unrestricted	Access by Permit/Pass	Military/Agency Only	Other
DOD	Edwards AFB			X	
DOD	Twentynine Palms			X	
DOD	MCLB Barstow			X	
DOD	China Lake		X		
NPS	Death Valley	X	X		
NPS	Joshua Tree	X	X		X
NPS	Lake Mead	X			
NPS	Mojave NP	X			
BLM	Lake Havasu				X
BLM	Ridgecrest	X	X		X
BLM	Bishop	X	X	X	
USFS	San Bernardino	X	X		
SBCAIC	San Bernardino	-	-	-	-
<b>Totals</b>		<b>7</b>	<b>6</b>	<b>4</b>	<b>3</b>

**Table 5-4. What security measures are used in your area?**

Organization	Region/Area	Restricted Vehicular Access	Fencing	Guards/Patrols	Video/Photo Surveillance	Aerial Surveillance	Other
DOD	Edwards AFB	X	X	X			
DOD	Twentynine Palms	X	X	X			X
DOD	MCLB Barstow		X	X			
DOD	China Lake	X					
NPS	Death Valley	X	X	X		X	
NPS	Joshua Tree	X	X	X	X		
NPS	Lake Mead	X		X			X
NPS	Mojave NP	X	X	X	X		X
BLM	Lake Havasu	X	X	X			
BLM	Ridgecrest	X	X				
BLM	Bishop	X	X	X			
USFS	San Bernardino	X					
SBCAIC	San Bernardino Co.	n/a	n/a	n/a	n/a	n/a	n/a
<b>Totals</b>		<b>11</b>	<b>9</b>	<b>9</b>	<b>2</b>	<b>1</b>	<b>3</b>

**Table 5-5. What measures are in place to protect cultural resources?**

Organization	Region/Area	Signage	Physical Barriers	Reconnaissance Patrols	Video/Photo Surveillance	Other
DOD	Edwards AFB	X		X		
DOD	Twentynine Palms	X	X	X	X	X
DOD	MCLB Barstow	X	X	X		
DOD	China Lake	X	X	X		
NPS	Death Valley	X	X	X		
NPS	Joshua Tree	X	X	X		
NPS	Lake Mead	X	X	X		X
NPS	Mojave NP	X	X	X		X
BLM	Lake Havasu	X	X	X		
BLM	Ridgecrest	X	X			
BLM	Bishop	X	X	X		
USFS	San Bernardino		X			X
SBCAIC	San Bern. Co.	n/a	n/a	n/a	n/a	n/a
<b>Totals</b>		<b>11</b>	<b>11</b>	<b>10</b>	<b>1</b>	<b>4</b>

**Table 5-6. Do you have a site disturbance problem in your area?**

Organization	Region/Area	No Problem	Minor Problem	Moderate Problem	Severe Problem	Do not Know
DOD	Edwards AFB			X		
DOD	Twentynine Palms		X			
DOD	MCLB Barstow		X			
DOD	China Lake		X			
NPS	Death Valley		X	X	X	
NPS	Joshua Tree		X	X		
NPS	Lake Mead			X		
NPS	Mojave NP			X		
BLM	Lake Havasu		X			
BLM	Ridgecrest				X	
BLM	Bishop		X			
USFS	San Bernardino			X		
SBCAIC	San Bern. Co.					
<b>Totals</b>		<b>0</b>	<b>7</b>	<b>6</b>	<b>2</b>	<b>0</b>

**Table 5-7. What are the causes of site disturbance?**

Organization	Region/Area	Looting/Pot Hunting	Off-road Vehicles	Vandalism	Erosion or Natural Disturbances	Hiking/ Camping	Other
DOD	Edwards AFB	1	3	2	4	5	-
DOD	Twentynine Palms	-	1	5	3	6	6
DOD	MCLB Barstow	6	6	5	2	6	6
DOD	China Lake	-	-	1	-	-	-
NPS	Death Valley	1	4	2	3	3	-
NPS	Joshua Tree	1	5	2	3	4	-
NPS	Lake Mead	2	2	3	5	5	-
NPS	Mojave NP	4	-	3	1	5	2*
BLM	Lake Havasu	1	6	5	4	1	-
BLM	Ridgecrest	2	1	2	3	4	-
BLM	Bishop	3	1	2	4	5	-
USFS	San Bernardino	2	1	2	5	5	-
SBCAI	San Bern. Co.	1	1	1	4	6	-
<b>Average</b>		<b>2.1</b>	<b>2.8</b>	<b>2.7</b>	<b>3.4</b>	<b>4.6</b>	<b>4.6</b>
* Cattle/livestock grazing.							

Death Valley National Park added “backcountry cabins and mine sites” to the *Other* column, giving a rating of 1 for those resources. A respondent from Twentynine Palms Marine Base added “quarry” to the *Other* column, giving it a rating of 6.

#### 5.1.4 Vulnerability/Damage Assessments

Questions 11 and 12 ask whether respondents have performed site

vulnerability assessments and/or site damage assessments and, if they have, to describe these efforts (Tables 5-9 and 5-10).

Of the 12 resource areas Earth Tech received responses from, 10 indicate that they have performed some sort of site vulnerability assessment. Only the Twentynine Palms Marine Base and the China Lake Naval Weapons Air

**Table 5-8. Which types of cultural resources are most vulnerable to disturbance?**

Organization	Region/Area	Archaeological Sites	Rock Art	Stacked Rock Features	Architectural Features	Linear Features	Other
DOD	Edwards AFB	1	5	3	2	4	-
DOD	Twentynine Palms	4	1	4	2	6	6
DOD	MCLB Barstow	6	5	-	-	-	-
DOD	China Lake	-	-	-	-	-	-
NPS	Death Valley	1	1	6	2	4	1
NPS	Joshua Tree	1	2	4	3	5	-
NPS	Lake Mead	3	1	4	3	4	-
NPS	Mojave NP	1	2	5	3	4	-
BLM	Lake Havasu	1	1	3	3	3	-
BLM	Ridgecrest	1	2	4	3	-	-
BLM	Bishop	2	1	3	3	3	-
USFS	San Bernardino	1	3	-	-	4	-
SBCAI	San Bern. Co.	1	1	1	1	1	-
<b>Average</b>		<b>1.9</b>	<b>2.0</b>	<b>3.7</b>	<b>2.5</b>	<b>3.8</b>	<b>3.5</b>

**Table 5-9. Have you performed site vulnerability assessments?**

Organization	Region/Area	Yes	No
DOD	Edwards AFB	X	
DOD	Twentynine Palms		X
DOD	MCLB Barstow	X	
DOD	China Lake		X
NPS	Death Valley	X	
NPS	Joshua Tree	X	
NPS	Lake Mead	X	
NPS	Mojave NP	X	
BLM	Lake Havasu	X	
BLM	Ridgecrest	X	
BLM	Bishop	X	
USFS	San Bernardino	X	
SBCAI	San Bern. Co.		X
<b>Totals</b>		<b>10</b>	<b>3</b>

**Table 5-10. Have you performed site damage assessments?**

<b>Organization</b>	<b>Region/Area</b>	<b>Yes</b>	<b>No</b>
DOD	Edwards AFB	X	
DOD	Twentynine Palms	X	
DOD	MCLB Barstow		X
DOD	China Lake	X	
NPS	Death Valley	X	
NPS	Joshua Tree	X	
NPS	Lake Mead	X	
NPS	Mojave NP	X	
BLM	Lake Havasu	X	
BLM	Ridgecrest	X	
BLM	Bishop	X	
USFS	San Bernardino	X	
SBCAIC	San Bernardino Co.		X
<b>Totals</b>		<b>11</b>	<b>2</b>

Station indicate that they have never performed any kind of site vulnerability assessment. Eleven of the 12 area managers indicate that they have performed some kind of damage assessment. Only the respondent from MCLB Barstow has not performed a damage assessment.

### **5.1.5 Site Protection Plan**

The last section of the questionnaire, questions 13-17, is devoted to assessing the perceived need for a site protection plan, gauging the respondent's concerns with the implementation of such a plan, and identifying some of the more effective measures used to protect cultural resources.

Question 13 asks respondents if they feel there is a need for a Mojave Desert Site Protection Plan. Three managers, all of whom are military personnel, do not feel one is needed (Table 5-11). The other desert land managers and the SBCAIC representative responded that a plan is needed.

Question 14 asks the respondents to indicate each aspect of implementing such a plan that

concerned them from the provided list (Table 5-12). Respondents identified funding and enforcement as the top concerns, with nine checks for each of them. Effectiveness and administration were tied for second, with eight managers selecting those choices. Prosecution was selected as the next biggest concern, with five respondents selecting it (none of the DOD respondents selected prosecution as a concern).

Question 15 asks the respondents to indicate whether they had ever entered into a regional cooperative program similar to the proposed Mojave Desert Site Protection Plan. Three of the managers said they had entered into such a program (Joshua Tree National Park, and the Ridgecrest and Bishop BLM districts), and the remaining ten said they had not (Table 5-13).

Finally, the respondents were asked to rate selected site protection measures in terms of their effectiveness (Table 5-14). For this question, the 1-6 rating system was again used. Public education/outreach was

**Table 5-11. Do you think a Site Protection Plan for the Mojave Desert is needed?**

Organization	Region/Area	Yes	No
DOD	Edwards AFB	X	
DOD	Twentynine Palms		X
DOD	MCLB Barstow		X
DOD	China Lake		X
NPS	Death Valley	X	
NPS	Joshua Tree	X	
NPS	Lake Mead	X	
NPS	Mojave NP	X	
BLM	Lake Havasu	X	
BLM	Ridgecrest	X	
BLM	Bishop	X	
USFS	San Bernardino	X	
SBCAIC	San. Bern. Co.	X	
<b>Totals</b>		<b>10</b>	<b>3</b>

**Table 5-12. What are your concerns about the implementation of such a plan?**

Organization	Region/Area	Administration	Funding	Effectiveness	Enforcement	Prosecution	Other
DOD	Edwards AFB	-	-	-	-	-	-
DOD	Twentynine Palms	X	-	X	X	-	X
DOD	MCLB Barstow	-	X	-	-	-	-
DOD	China Lake	X	X	-	X	-	-
NPS	Death Valley	-	-	-	-	-	-
NPS	Joshua Tree	X	X	X	X	-	-
NPS	Lake Mead	-	X	X	-	-	-
NPS	Mojave NP	X	X	X	X	X	-
BLM	Lake Havasu	-	X	-	X	X	-
BLM	Ridgecrest	-	X	-	X	X	-
BLM	Bishop	X	X	X	X	X	X
USFS	San Bernardino	X	X	X	X	X	X
SBCAIC	San. Bern. Co.	-	-	-	X	-	-
<b>Totals</b>		<b>6</b>	<b>9</b>	<b>6</b>	<b>9</b>	<b>5</b>	<b>3</b>

**Table 5-13. Has your base/agency entered into similar regional cooperative agreements with other agencies before?**

Organization	Region/Area	Yes	No
DOD	Edwards AFB		X
DOD	Twentynine Palms		X
DOD	MCLB Barstow		X
DOD	China Lake		X
NPS	Death Valley		X
NPS	Joshua Tree	X	
NPS	Lake Mead	-	-
NPS	Mojave NP		X
BLM	Lake Havasu		X
BLM	Ridgecrest	X	
BLM	Bishop	X	
USFS	San Bernardino		X
SBCAIC	San. Bern. Co.	-	-
<b>Totals</b>		<b>3</b>	<b>10</b>

indicated as the most effective site protection measure, with an average score of 1.8. Monitoring/patrols was close behind with an average score of 2.0. Signage and physical barriers both received an average rating of 3.2. Prosecution was rated the least effective site protection measure with an average rating of 3.3. A respondent from Twentynine Palms placed a rating of 1 in the “other” box and indicated that “limiting public access” would be another effective site protection measure.

### 5.1.6 Summary

Though just under half of the federal land managers who received the questionnaire responded to it, the resulting group of respondents includes each of the federal agencies that manages land in the Mojave Desert, and represents the majority of the federal property in this region (over 12 million acres out of a total of 20 million acres). Within the California BLM, only managers from the Ridgecrest and Bishop districts completed the questionnaire.

Responses were not received from the Needles, Barstow, or Palm Springs field offices, nor did a representative from the California Desert District office complete the questionnaire. Unfortunately, these field offices account for the majority of BLM land in California’s Mojave Desert and represent a significant portion of the total amount of land managed by the federal government in the desert. However, despite this apparent deficit in coverage, it is reasonable to assume that the responses received to this questionnaire are, overall, representative of the community of federal land managers in the Mojave as a whole.

A number of conclusions can be drawn from the responses to the questionnaire, many of which are generally intuitive. Respondents representing the BLM, NPS, and the USFS report that there is unrestricted access to much of their areas. The DOD areas, on the other hand, have greater security across the Mojave and are far more secure than areas managed by other federal agencies.

**Table 5-14. What are the most effective site protection measures?**

Organization	Region/Area	Physical Barriers	Monitoring/Patrols	Signage	Public Education/Outreach	Prosecution	Other
DOD	Edwards AFB	5	1	3	4	2	-
DOD	Twentynine Palms	3	1	3	1	5	1*
DOD	MCLB Barstow	1	1	5	5	-	-
DOD	China Lake	4	2	1	1	5	-
NPS	Death Valley	4	1	2	1	1	-
NPS	Joshua Tree	4	2	4	1	3	-
NPS	Lake Mead	2	2	3	1	3	-
NPS	Mojave NP	4	2	3	1	5	-
BLM	Lake Havasu	1	4	3	3	2	-
BLM	Ridgecrest	3	2	4	1	6	-
BLM	Bishop	3	4	2	1	5	-
USFS	San Bernardino	4	2	3	1	1	-
SBCAI	San Bern. Co.	3	2	6	-	1	-
<b>Average</b>		<b>3.2</b>	<b>2.0</b>	<b>3.2</b>	<b>1.8</b>	<b>3.3</b>	<b>1</b>
* Limit public access.							

A wide variety of site protection measures are utilized in the Mojave Desert to prevent or control access to certain areas and to protect cultural resources. Least common are remote surveillance technologies; most common are signs, barriers, and reconnaissance patrols. It should be noted, however, that the questionnaire did not ask how widely specific security measures are used, how much area is secured by these measures, or how many cultural resources are afforded protection by these measures.

No one responded that there is not a site disturbance problem. Over half of the respondents feel that they have a moderate to severe site disturbance problem, while just under half feel that it is only a minor problem. Of the four respondents representing DOD installations, three of

them feel that site disturbance is a minor problem in their portion of the region.

Several causes of site disturbance were identified in the questionnaire, of which looting/pot hunting, vandalism, and OHVs were found to be the most significant. Within the range of cultural resource types found to be vulnerable to site disturbance, archaeological sites and rock art were identified as most vulnerable and linear resources as least vulnerable.

To a certain extent, the causes of site disturbance across the desert are a reflection of the local resource base and land use patterns and restrictions. For example, in terms of resources, Twentynine Palms has significant rock art resources while Edwards AFB does not. With regard to land use and

restrictions, for example, the Ridgecrest and Bishop BLM districts both identified OHVs as the number one site disturbance issue, while Death Valley and Joshua Tree National Parks indicated looting and pot hunting as the number one site disturbance issue and did not indicate OHVs as a significant site disturbance factor. Off-road driving of any kind is prohibited within Death Valley and Joshua Tree National Parks, so it is not surprising that this would not be a major issue in these two resource areas.

Almost all of the land managers who responded to the questionnaire have prepared site vulnerability and damage assessments. Almost all of the respondents also stated that a site protection plan is needed for the Mojave Desert region, although most of them have not previously entered into a similar cooperative regional agreement. Only three respondents do not feel that a site protection plan is needed; these three are all from the DOD and unsurprisingly also responded that site disturbance is a minor problem. One of these DOD respondents said they felt that the money that would be devoted to such a plan should instead be spent directly on in-field site protection measures such as monitoring or patrols.

Another DOD respondent indicated that the individual agencies already have sufficient mechanisms, through their own planning documents, to achieve the goal of protecting cultural resources. A third DOD manager cited difficulties such as lack of funding and achieving interagency cooperation as a reason not to pursue such a plan.

Despite the general consensus that a site protection plan is needed, respondents identified several issues concerning implementation of such a plan. Funding and

enforcement were cited most frequently as concerns, followed by administration and effectiveness. When asked what the most effective site protection measures were, respondents indicated that public education/outreach and monitoring/patrols were the most effective. Representatives from all three National Parks and from the Ridgecrest and Bishop BLM districts identified public education and outreach as the most effective site protection measure. Respondents from the military installations at Twentynine Palms, Barstow, and Edwards AFB indicated that monitoring and patrols were the most effective.

This difference is likely due to the fact that public access to the military is heavily restricted, whereas the mission of the BLM and NPS is essentially to provide public access. The military would focus on patrol and monitoring to keep violators out of restricted areas, while the BLM and the park service might feel it is more important to educate the public, whom they know will be visiting their resource areas, about the importance of preserving our nation's cultural resources.

To summarize, responses to the questionnaire indicate consensus that a site protection plan is needed but little agreement regarding the factors that cause site disturbance, the most effective site protection measures, or potential problems with implementation of a site disturbance plan.

## **5.2 Results of Research**

Earth Tech conducted research to obtain an understanding of the history and general background of site protection planning both within the Mojave Desert and across the nation. Research and communication with a number of specialists in the field indicate that although no federal agency has yet

formally implemented a site protection plan, a wide variety of site protection policies and strategies have been developed and some put into effect through other planning documents. Earth Tech reviewed a number of these planning documents and procedures, as well as a number of government reports concerning the history and scale of the problem. The following text provides the results of this data gathering effort.

**5.2.1 Mojave Desert Resource Management**

Federal agencies within the Mojave Desert routinely prepare a variety of resource management planning documents. A number of these documents that contain information and mandates pertinent to site protection issues are summarized below. In addition, a brief summary of a recent assessment of the condition of natural and cultural resources located on National Parks within the California Desert prepared by the National Parks Conservation Association (NPCA), a non-profit advocacy group, also appears below.

**5.2.1.1 Five Year Plan, California Desert Managers Group**

The California Desert Managers Group (DMG) was established in 1994 as a mechanism for addressing desert-wide issues. The mission of the group is to integrate and coordinate desert conservation, visitor services, and public safety efforts in the California deserts.

Management entities that are partners in the DMG include San Bernardino, Kern, and Imperial Counties, the state of California (Departments of Parks and Recreation, Fish and Game, and Transportation), the DOD, the DOI, and the USFS. The DMG formed working groups to tackle specific

management issues within the state’s deserts. One of these groups is PACRAT, as previously discussed.

The DMG compiled a list of goals and accomplishments as part of its five-year plan (Hamill and Everly 2001). Goal Five, dealing with cultural and paleontological resources, reads: “Protect Cultural Resources and enhance public awareness of the sensitivity and value of paleontological and cultural resources in the California deserts” (DMG 2006).

The list of accomplishments for Fiscal Year 2005 included:

- Selection of a contractor to develop a web based Mojave Desert Historic Resources GIS (MDHRGIS) application. Delivery of the system is scheduled for the fall of 2006.
- Support of the inaugural Three Corners Conference – a conference that included a series of presentations on a wide range of anthropological topics.
- Formation of a sub-committee to organize the first annual two-day PACRAT workshop (DMG 2006).

PACRAT appears to be the only multi-agency regional body concerned with the cultural resources of the Mojave Desert region.

**5.2.1.2 Death Valley National Park General Management Plan, NPS**

Based on policy initiatives developed during the 1980s, each NPS unit is required to develop management plans. DVNP’s general management plan was released in April of 2002 and is a good example of the plans developed for the Mojave region. The

plan is described as “Death Valley National Park’s overall management strategy for a ten to fifteen year period” (NPS 2002).

In the section of the plan pertaining to cultural resources, under the subtitle Plan Actions, the preparers describe a few of the site protection strategies and mandates for the protection of cultural resources in the future. One item in this section calls for development of an “integrated program to identify, inventory, monitor, evaluate, and nominate archaeological sites, historic properties, cultural landscapes, and ethnographic resources...and preserve such properties in a way that will preserve their documented archaeological, architectural, ethnographic, historic or research values” (NPS 2002).

Another portion of the document calls for implementation of a “systematic, applied cultural research program to ensure that there will be adequate baseline information on location, condition, threats, and significance/integrity of resources...” and for “appropriate means ...to manage, protect, preserve, and interpret Native American heritage or other ethnographic resources” (NPS 2002).

### **5.2.1.3 Integrated Cultural Resource Management Plan, Edwards AFB**

The DOD Environmental Conservation Program requires each installation to prepare and periodically update a five-year cultural resource management plan, called an integrated cultural resource management plan (ICRMP). This plan describes resource management actions and procedures and integrates them with on-going and planned mission activities at each facility.

The Edwards AFB ICRMP was completed in June of 2002 (Loechl et al 2002) and is a

good example of such a DOD plan within the Mojave region. Section 2.2.1.1 of the document, titled Site Protection, details the efforts to protect cultural resources sites at the base. Within this subchapter, six main components of the site protection plan are identified. They consist of:

- Site monitoring.
- Site record updating.
- Site investigation.
- Maintaining a looted sites database.
- Education and outreach.
- Law enforcement.

Additionally, Appendix D - Chapter 1.7 of that document contains specific protocols for monitoring of sites and reporting violations. The chapter states “In the course of fieldwork and general travel, cultural resource staff will watch for activity that may be impacting cultural resources and that may not conform to legal requirements. Incidents of apparent noncompliance (ARPA violations) will be reported verbally to the BHPO or his designated representative immediately. A memo describing the incident will be prepared and sent to the BHPO within 5 working days” (Loechl et al 2002).

### **5.2.1.4 Northern and Eastern Mojave Desert Management Plan Environmental Impact Statement (EIS), BLM**

The EIS for the Northern and Eastern Mojave (NEMO) Desert Management Plan is a document that deals specifically with the planning efforts of the BLM in the California Desert Conservation Area (BLM 2001). The NEMO planning effort addresses

specific events that altered the management situation in the desert. These events include new species being listed as threatened or endangered under state and federal endangered species acts, passage of the CDPA, adoption of new BLM policies with regard to landfills, and implementation of BLM policy to identify potentially eligible rivers for the Wild and Scenic Rivers System.

Chapter 5.2 of the EIS, titled Interagency Coordination and Consultation, discusses the roll of interagency cooperation in achieving the goals of the planning effort. The chapter specifically addresses the importance of cooperation between the BLM and the NPS in recovery of the threatened desert tortoise. The document states “The most important cross-jurisdictional issue in this document is the recovery of the East Mojave population of the Federal and State threatened desert tortoise. The strategies BLM has identified can meet recovery goals only if recovery strategies are also adopted by the Mojave National Preserve. Several of these strategies are expected to require continued interagency coordination and consultation on a local and regional level to be successfully implemented” (BLM 2001).

This is an example of a planning document’s making provisions for interagency cooperation in order to manage a conservation issue that spans an entire region and involves multiple management units that share boundaries.

#### **5.2.1.5 California Desert Parks Resource Assessment**

The NPCA recently completed an assessment of natural and cultural resources located at Joshua Tree National Park, Death Valley National Park, and Mojave National Preserve. In the report’s introduction, it

states that all three parks “feel the effects of skyrocketing regional population growth” (NPCA 2006). The report assessed the current condition of park resources and their projected condition over the next ten years through analysis of park policies, documents, and interviews.

The NPCA assessment evaluated several elements of each park’s cultural resources: cultural landscapes, ethnography, historic structures, archaeology, archival and museum collections, and history. Ratings for each element were averaged for an overall rating. Out of a total of 100 points, Joshua Tree’s cultural resources overall rating was 58, indicating “poor” conditions. Death Valley received an overall rating of 71, indicating “fair” conditions, the third highest rating of the 21 parks assessed by NPCA to date. Mojave National Preserve was given a rating of 50, indicating “poor” conditions.

The report identifies funding and staffing shortfalls as limiting cultural resource protection activities. With greater staffing and funding, the parks would be able to collect better baseline data on the condition of their resources and develop a more representative picture of the resources present in this very large region. The report also commends the parks for each having at least one staff archaeologist, while noting that these individuals are often program managers, with a number of responsibilities outside of cultural resources.

#### **5.2.2 Site Protection Plans, Nationwide**

As stated earlier, research and consultation with persons knowledgeable of site protection policy nationwide conclude that a site protection plan *per se* has never been implemented by a federal agency. However, this research and consultation effort did gather information on the unique site

protection efforts currently underway at Edwards AFB, known as the Range Rider Program, and several other site protection efforts that were never implemented.

#### **5.2.2.1 Edwards AFB Range Rider Program**

Edwards AFB is located in the westernmost portion of the Mojave Desert and covers 301,000 acres. It is a restricted area with access controlled by manned gates, fences, and other safeguards. Despite these protective measures, cultural resources at Edwards AFB are threatened by on- and off-site factors similar to those threatening the rest of the region, and approximately 20 percent of their identified archaeological sites show signs of unauthorized disturbance.

Threats to cultural resources at Edwards AFB have been organized into two broad categories:

- Vandalism – including graffiti, destruction of walls, using historic bottles for target practice, trash dumping, and driving OHVs through sites.
- Unscientific removal of artifacts – including casual artifact collecting and unauthorized excavation.

Both vandalism and unscientific removal of artifacts irreparably degrade or destroy the scientific value of the cultural record and are against the law.

Based on the results of a 12-week monitoring program of four vulnerable archaeological sites conducted in 1995, it was recommended that the base develop an “aggressive, proactive site monitoring program and ARPA enforcement program” (McDonald 1997 in Bark et al. 2005),

ultimately initiated in 1997. Between 1997 and 2000 the program focused on performing site damage assessments and examined the benefits of public outreach and education and opportunities for coordination between base archaeologists and security forces.

In 2002 the base initiated a three-month trial “range rider” program to increase archaeological site monitoring adjacent to base boundaries, the area of greatest risk of disturbance by unauthorized activity. The trial was subsequently expanded to a full program and is still active today. Primary components of the program include:

- GIS tracking of the spatial distribution of damage to the perimeter fence to identify patterns associated with unauthorized activity.
- Preparation of an agreement document between the Edwards AFB security forces squadron and environmental management division regarding site protection responsibilities.
- ARPA training for security forces personnel.
- Use of electronic surveillance equipment and hidden, motion-activated cameras.
- Routine site monitoring along the base’s perimeter fence by range riders and documentation of signs of unauthorized activity.
- Notification of security personnel of OHV use outside of designated areas.

- Obscuring or removing signs of unauthorized activity through site stabilization to prevent previously disturbed sites from attracting new incidents.
- Installing signs warning of the unlawfulness of unauthorized site disturbance at vulnerable sites and along access roads that lead to those sites.
- Documenting observations made during monitoring efforts, including field check forms, updating site record forms, and completing damage assessment reports.

According to the 2005 fiscal year report on the range rider and site protection support program, after 9/11 it became increasingly difficult to coordinate site protection efforts with base security forces due to the deployment of trained security personnel to other locations. In addition, electronic surveillance equipment and motion-activated cameras proved undependable and difficult to staff with adequately trained personnel.

Conclusions in the 2005 fiscal year report focused on differences between 2004 and 2005. During this time period there was a 36 percent decrease in recorded fence and gate damage, an 8 percent decrease in unauthorized activity, but a 21 percent increase in sightings of unauthorized activities. Decreases in damage and unauthorized activity were attributed to the presence of the range riders. The report also makes the important observation that “there appears to be a direct relationship to major population centers and the frequency of fence damages incurred” (Bark et al. 2005). This observation is further supported by the infrequency of fence damage along the eastern portion of

the base, an area 50 miles from the closest population center.

### 5.2.2.2 California/Nevada Desert ARPA Strategic Plan

The PACRAT established a law enforcement sub-committee in 1996 to develop strategies to more effectively implement ARPA. The sub-committee was led by Todd Swain, NPS Special Agent, who prepared and widely distributed a strategic plan to federal land managers within the region. Several components of the plan such as creation of an investigative database to link vehicles, suspects, and methods of operation to looted sites were implemented prior to its issuance. Though the program was never implemented and received little feedback, it is clearly relevant to the present study.

The plan consisted of six strategies and actions to achieve them, as summarized below:

- 1) *Interagency Cooperation and Investigations* – Establish a field-level task force that would develop and implement ARPA protocols; use various means to support interagency investigations and prosecutions; and develop an interagency “incident command system” to assign staff experts to time critical cases.
- 2) *Information Sharing and Partnerships* – Share information within and among agencies and with outside entities including NPS’ LOOT and the National Incident Based Reporting System (NIBRS).
- 3) *Training and Education* – Provide comprehensive ARPA-related training and education to a range of

employees, concessionaires, contractors, and permittees.

- 4) *Investigative Technologies* – Enhance investigative capabilities by developing a regional, inter-agency intelligence database; making available a list of scientific and forensic experts; conducting undercover investigations; and sharing technical investigative equipment.
- 5) *Prosecution* – Increase successful prosecutions and win restitution monies by educating state and federal prosecutors and judges and making greater use of the civil provisions of ARPA and NAGPRA.
- 6) *Site Protection* – Better protect archaeological and paleontological resources through site stewardship programs, sharing information on successful and unsuccessful site protection measures, and sharing site protection materials and manpower.

According to Swain, the primary reason this ARPA strategic plan was never implemented concerned difficulties resolving issues of jurisdiction between law enforcement and cultural resource managers (Swain 2006a).

### 5.2.2.3 National ARPA Task Force

More recently, Swain initiated an effort to improve the nation's response to ARPA violations through creation of a national federal interagency ARPA task force. In a proposal dated February 2004, Swain put forth five alternatives for the structure of this task force, ranging from very proactive to a continuation of the status quo. This task force would consist of special agents and representatives of each of the DOI land

management bureaus – BLM, BIA, FWS, and NPS – with additional support from the USFS, FBI, IRS, and customs (part of Homeland Security).

The following is a brief summary of the five alternatives Swain proposed:

- 1) Staff a federal interagency ARPA task force with various regions of the NPS, BLM, and USFS, BIA, IRS, and FBI as equal partners. The task force would be comprised of a number of regionally based special agents and specialists and would improve case management, share data with agencies, establish an ARPA intelligence system, and be proactive.
- 2) Establish this task force with agreements and personnel from each agency's Washington office in order to limit possible "political infighting" (Swain 2006a).
- 3) Establish this task force with agreements and personnel from each agency's Washington office and field management from the regional and state managers. This alternative would also limit possible political infighting but would require a greater coordination effort.
- 4) Prepare cooperative agreements between each agency without the addition of any new special agents. This alternative would only offer a temporary improvement to the status quo.
- 5) Enable each agency to develop its own independent ARPA task force. Swain sees this alternative as the least preferable since ARPA

enforcement remains highly fragmented among numerous regions and agencies.

The proposal lists the following authorities as providing a basis for the required memoranda of agreement to support this task force:

- Reciprocal Fire Protection Act, 42 USC 1856
- Economy Act, 31 USC 1535
- USDA- USFS law enforcement cross-designation, 16 USC 559d and 559g
- USDI-NPS law enforcement cross-designation, 16 USC 1a-6
- USDI-BLM law enforcement cross-designation, 43 USC 1733
- USDI-F&WS law enforcement cross-designation, 16 USC 7421(b)
- USDI-BIA law enforcement cross-designation, 18 USC 3055 and 25 USC 13
- Master Memorandum of Agreement Between the United States Department of Agriculture and the United States Department of the Interior, February 27, 1990

To date, Swain's proposal has not been implemented.

#### **5.2.2.4 Grand Canyon Site Protection Plan**

A primary goal of the present research effort was to identify site protection plans developed for federal agencies or units of federal land in other portions of the country and to evaluate features of such plans that

may be relevant to site protection issues at the Mojave Desert. Unfortunately, research failed to identify any such plans that have been implemented. This finding was supported by conversations with several experts in the field, including Martin McAllister, President of Archaeological Resource Investigations (2006) and Francis McManamon, Chief Consulting Archaeologist for the NPS (2006), as well as other contacts. Although a site protection plan does not seem to ever have been formally implemented, during the late 1990s, McAllister was contracted to prepare a site protection plan for Grand Canyon National Park. This plan is summarized below and its table of contents has been included as Appendix C.

McAllister's 1998 site protection plan methodically describes, from the perspective of successfully prosecuting ARPA violations, the several primary aspects of site protection: field procedures, response to violations, crime scene investigation, case preparation, and prosecution. In addition, the plan provides a discussion of site protection strategies such as research into the characteristics of looters, consultation with area tribes, prevention awareness training, and a very thorough section on physical protection. The plan also includes a series of 21 appendices covering a wide range of topics from methods of collecting evidence to civil prosecution procedures.

McAllister is unaware of why the plan was not implemented (2006), however, conversations with Helen Fairley, Director of the Socio-cultural Program, Grand Canyon National Park, suggests that the park focused instead on a large scale monitoring effort associated with the Glen Canyon Dam project (Fairley 2006). Since preparing the plan in 1998, McAllister has distributed well over 100 copies of it to

federal agencies and land managers. The plan is clearly of interest to these groups but has still not been implemented.

### **5.2.3 Assessments of Federal Cultural Resource Management Efforts**

A number of federal agencies and other organizations have periodically completed assessments of the threats facing cultural resources located on public lands or audits of their success at confronting such threats. Earth Tech reviewed a selection of these reports, which provided insight into some of the difficulties facing federal agencies in protecting cultural resources and also contained a number of recommendations. The reports reviewed in this section were prepared by the General Accounting Office (GAO), the National Trust for Historic Preservation (NTHP), the BLM, and the National Parks Conservation Association. For a comprehensive description of the overall federal government's cultural resource stewardship efforts, see the Advisory Council on Historic Preservation's 2001 report entitled *Caring for the Past Managing for the Future, Federal Stewardship and America's Historic Legacy* (ACHP 2001).

#### **5.2.3.1 General Accounting Office Reports**

The GAO has periodically completed comprehensive assessments of the threats facing the NPS' natural and cultural resources; the first one was prepared in a 1980 *State of the Parks* report when "significant and demonstrable damage was occurring" (GAO 1987a). These assessments have been presented in state of the parks reports and in several topic-specific reports.

In February 1987, the GAO released a report entitled *Documenting and Mitigating*

*Threats to the Parks* (1987a). This report presents a review of NPS actions to address threats to the system's natural and cultural resources identified in the 1980 report and its progress in meeting remedial goals outlined in a subsequent 1981 *State of the Parks* report on the prevention and mitigation of natural and cultural resources management problems.

The 1980 report listed more than 4,000 threats to the park's aesthetic qualities, cultural resources, and other resources. The report concluded that more than half of these threats originated from outside the parks themselves, and that only 25 percent of them were adequately documented (GAO 1987a). The 1981 report presented a two-phased plan to address threats to natural and cultural resources. In the short term, NPS planned to develop, rank, and prioritize resource management needs on a service-wide basis. In the long term, the service sought to prepare comprehensive resource management plans for all units to aid in formulating annual budgets. The service also outlined a number of initiatives primarily involving the improvement of data collection, data tracking, monitoring, and training.

The 1987 report recounts a number of efforts made at addressing resource management problems, such as a 1984 park protection working group consisting of DOI and DOA agencies and a 1985 report that concluded that better communication between and within agencies is required to avoid conflicts, and not new systems or laws. The 1987 report is critical of the progress made by NPS since 1980 to address threats to park resources and in complying with plans and initiatives developed by the NPS. The report discusses several failures of the NPS in documenting and mitigating threats discussed in this report, including:

- Not developing basic information concerning the park service's resources and their condition.
- Not preparing or updating resource management plans or following park guidance on their preparation.
- Not building multidisciplinary teams able to react quickly to identified threats and available to other organizations and agencies (GAO 1987a).

In 1987 the GAO issued a second report specifically concerning the protection of archaeological resources on lands managed by the BLM, NPS, and USFS in the Four Corners region of Arizona, Colorado, New Mexico, and Utah. Analysis determined that the extent of looting in this region is far greater than suggested by agency records and that these activities are destroying scientific information (GAO 1987b).

This report also found the level of information available regarding the resources present in this region and the extent of prevention and prosecution efforts to be insufficient.

At the time the report was published, only approximately 6 percent of the area had been surveyed and only an estimated 7 percent of the likely resources present had been identified. Of the thousands of identified resources in the region, one third had been documented as having been impacted by looting. A questionnaire distributed by the USFS in 1978 referenced in this report found that almost 29 percent of the individuals who vandalized cultural resources were motivated by a desire for personal acquisition, 11 percent by profit, and 60 percent by curiosity, a desire to

“show off,” or by a sense of rebellion against the federal agency (GAO 1987b).

Four factors were identified as influencing the extent of looting on NPS lands: public attitudes, the probability of prosecution, the existence of a profitable artifact market, and, to a lesser extent, economic and seasonal factors (GAO 1987b).

A number of recommendations were made to better protect cultural resources in the Four Corners area:

- Improve the documentation of looting incidents through development of interagency guidelines and use of standardized forms.
- Periodically revisit recorded sites to update records.
- Jointly develop and fund an office that would compile and analyze looting incident information and conduct undercover investigations.

GAO recommended establishment of this multi-agency site protection office based (1) on the observation that past law enforcement efforts had caused looting to migrate to areas not as adequately protected and (2) on the fact that prosecution efforts have historically been limited. Neither the DOI nor the DOA agreed with the GAO's recommendation for such a multi-agency office (GAO 1987b).

In the mid 1990s, more than ten years after the 1980 GAO report first identified threats to the NPS's cultural resources, the GAO issued assessments of the progress made in confronting internal and external threats (GAO 1994; 1996). These reports found that the state of natural and cultural resources had continued to deteriorate. It attempted to present the relative severity of the damage

these threats have caused, changes in the severity of these threats over the previous decade, and actions taken by the park service to mitigate them (GAO 1996).

These goals were made difficult due to a continuing lack of systematic documentation of these threats: the NPS “lacked the data needed to assess the types and severity of the external threats and the extent of the damage that such threats were causing to the parks’ resources” (GAO 1996). The report found that the greatest threats to the service’s resources were indirect: shortages in staffing, funding, and lack of knowledge of the affected resources.

In-depth analysis of resources at eight specific parks found damage to cultural resources more likely to be severe and permanent. It also concluded that mitigation measures have generally been limited to such actions as closing trails to reduce erosion, installing more rugged equipment to reduce vandalism, and posting signs to inform visitors of the damage resulting from inappropriate activities.

### **5.2.3.2 Preservation of Cultural Resources on BLM Lands**

Two recent reports, one by the National Trust for Historic Preservation (NTHP) and the other prepared by the BLM, provide assessments of the BLM’s nationwide efforts at cultural resource management and site stewardship.

The NTHP’s assessment and needs analysis of BLM lands nationwide identified a number of factors as inhibiting the BLM’s ability to effectively manage its cultural resources, including:

- Too few cultural resource managers and law enforcement personnel.

- Not enough funding for Section 106 and Section 110 compliance.
- Not enough survey work conducted at the landscape level, addressing broad cultural themes.
- Lack of knowledge of the BLM’s cultural resources and their National Register eligibility status.

The most significant threat facing the cultural resources of the BLM, according to this study, is recreation. According to the report, “the greatest threat to cultural resources today is coming from the rapid increase in recreational access, with essentially no regulatory control, or enforcement capacity in place to deal with growing impacts” (NTHP 2006).

Although recreation is increasing on BLM lands at a far greater rate than it is on other federal lands, according to this report there are few rules in place regarding these recreational activities. Penalties exist for the theft or destruction of cultural resources, but they are not an effective deterrent. In addition, there are far too few law enforcement officers for the size of BLM land holdings.

In compliance with Executive Order No. 13287, the BLM itself prepared a report reviewing its regulations, policies, and procedures regarding its NHPA compliance efforts as well as its progress in identifying and protecting its cultural resources (BLM 2004). The report provides a generally favorable assessment the BLM’s program with an emphasis on the link between cultural resources and heritage tourism and local economic development.

The BLM’s cultural resource management process consists of inventorying its resources, determining their scientific and

public importance, planning, protection, and utilization. Additional cultural resource responsibilities include detection of unauthorized use, and pursuit of criminal and civil remedies carried out jointly by law enforcement and other staff (BLM 2004).

According to the BLM's report, sensitive cultural resources are afforded both administrative and physical protection. Administrative protection includes withdrawals, closures to public access, special designations, land acquisitions, easements, protective covenants, and public outreach. Physical protection measures include site-specific stabilization, signing, fencing, adaptive reuse, and law enforcement surveillance and patrols.

In a discussion of the condition of BLM cultural resources and efforts to monitor changes to their condition over time, the BLM concedes, "With an inventory of known cultural properties in excess of 263,000 over more than twelve states, recording or updating site condition is a significant challenge for BLM" (BLM 2004). Although BLM staff does conduct some monitoring, most monitoring is conducted by volunteer site stewardship programs. Sites to be protected by stewards are selected based on scientific importance, site visitation levels, degree affected by looting and vandalism, likelihood of attracting looting or vandalism, and location within reasonable driving distance from population centers.

Two somewhat positive observations made in this report are that approximately 80 percent of BLM cultural properties are considered stable, while only about 20 percent are deteriorating. This assessment was based on monitoring data stretching back to 1988. A caveat to these statistics is that only a small percentage of the BLM's

lands have been surveyed, and those that have been monitored may not be representative of all BLM cultural resources (BLM 2004). The second observation is that funding for the cultural resource program has been increasing since 1982. Adjusted for inflation, the 2002 budget is 165 percent greater than the budget for 1982.

Planned cultural resource actions detailed in this report generally consist of efforts to advance heritage tourism.

### **5.2.3.3 Archeological Resource Protection Listing of Outlaw Treachery Information Clearinghouse**

Section 13 of ARPA (ARPA; 16 USC 470aa-mm) and Section 7.19 of the Uniform Regulations that implement ARPA (43 CFR 7) requires that the Secretary of the Interior report to Congress on the scope and effectiveness of the federal archaeology program and suspected violations of the law. This report is prepared by the NPS Departmental Consulting Archaeologist and is based on an annual data call distributed to federal land managers and agencies nationwide in the form of a questionnaire. The program tasked with collecting and tabulating this information is called the Archeological Resource Protection Listing of Outlaw Treachery (LOOT) Information Clearinghouse. LOOT data is provided on a voluntary basis and, according to Richard C. Waldbauer, "There is no statutory requirement in the Department of Justice to report specifically upon archeological protection cases, so LOOT is the best database available" (Waldbauer 1996). For a history of LOOT see Knoll (2000).

An amendment to ARPA (Public Law 100-555) concerns the documentation of ARPA violations, and specifically "documents for the reporting of suspected violations of

ARPA to be completed by officers, employees, and agents of their respective agencies” (Waldbauer 1996).

The LOOT database tracks an extensive range of ARPA-related information, including data on identification and evaluation efforts, data recoveries, the number of acres surveyed, and the number of identified sites. Relevant to the present discussion is information collected on cultural resource law enforcement. This portion of the database contains information on the violation of ARPA and the Antiquities Act, as well as other laws and statutes, and consists of 22 fields, covering such information as the number of documented violations, citations, prosecutions, and convictions, as well as fines imposed, restitution, the cost of site restoration, and the federal agency’s law enforcement costs.

Tabulations of LOOT data are available on the NPS website for the years 1996 and 1997. The NPS also provided preliminary tabulations of this data concerning archaeological cultural resource law enforcement nationwide for the six years from 1998 to 2003. This data is still considered to be in draft form, as the NPS is in the process of crosschecking and compiling collected information. Although the data call goes out to 40 separate federal agencies, much of the data were provided by the following six agencies: AF, BIA, BLM, USFS, NPS, and the USMC. This information shows that almost 5,000 violations were reported over this six-year period, almost half from the NPS alone, followed by the USFS (about 25 percent), BLM (almost 20 percent), BIA (about 6 percent), and AF and USMC with less than 1 percent of the total number of violations. Of this total, only about 1,200 prosecutions occurred, resulting in fewer than 500

misdemeanor convictions and fewer than 100 felony convictions. The data also reports that more than 11 million dollars in restoration and repair costs were levied against violators and more than \$16 million in law enforcement costs were incurred by federal agencies.

The NPS also provided information on cultural resources protection and law enforcement efforts (Section L21). The following list summarizes the efforts of the agencies that responded to this portion of the data call for the years 1998 through 2003 (no information was provided for BLM and the NPS):

- USAF – The AF used a full complement of strategies including monitoring, remote sensing, tracking incidents with GIS software, and specialized training for law enforcement officers (LEOs).
- BIA – Efforts were focused on public outreach, monitoring, and training.
- Bureau of Records (BOR) – Managers reported utilizing monitoring and patrols in conjunction with the county sheriffs office, signage, a coordinated reporting system, and site steward programs.
- Department of Energy (DOE) – The DOE employed ground and air reconnaissance patrols, ARPA training for key personnel, and the distribution of informational flyers.
- DOJ – DOJ offered training in ARPA and NAGPRA to FBI special agents.

- USFS – USFS employed a wide array of site protection and law enforcement strategies, including: ARPA training for forest employees and LEO's, site stewards, monitoring and patrols, surveillance cameras, interagency task forces, and interagency agreements for cooperative law enforcement.
- FWS – Efforts focused on monitoring and development of a form designed specifically for reporting ARPA violations.
- Tennessee Valley Authority (TVA) – TVA implemented several plans and strategies to protect cultural resources. It has instituted permitting procedures for those who wish to use metal detectors on TVA lands and developed monitoring and reporting forms to be used for ARPA violations. The LEOs have received ARPA training, and TVA has posted signage, used surveillance cameras, and conducted surveillance and monitoring patrols.
- USN – The Navy has developed partnerships, through a Memorandum of Agreement, with 12 states to manage their historic ship and aircraft wrecks. Additionally they have improved procedures for pursuing site protection and compliance enforcement.

However, through examination of available LOOT data, conversations with Todd Swain, NPS Special Agent (2006a) and Karen Mudar of the NPS Federal Archaeology Program (2006), and a review of a draft copy of an article on federal ARPA violation statistics prepared by Swain, it is apparent that there are a number of problems with the data compiled by NPS. Among the problems

Mudar pointed out is that the data can be skewed easily. For example, at some point during this six-year period from 1998 to 2003, the USFS charged thousands of participants in an outdoor festival with trespassing, and this number was included in the LOOT questionnaire in the total number of ARPA violations (Mudar 2006).

According to Swain, simple confusion in terminology and reporting procedures frequently leads to distortions in the tabulated data (Swain 2006b). An example of this is the number of violations with arrests and the number of individuals cited. According to Swain, under California State law, a citation is considered an arrest, although the LOOT questionnaire tabulates citations and arrests separately (Swain 2006a). Based on an analysis of incident reports from Gila National Forest, Buffalo National River, and Joshua Tree National Park, Swain estimates that less than one fifth of all ARPA violations are actually reported on the LOOT database (Swain 2006b).

#### **5.2.4 Off-Highway Vehicles**

The adverse effect of OHV use on public lands is a growing problem in the Mojave Desert and across the country. A 1999 study of OHV use in the National Park system surveyed 108 NPS units nationwide (Long et al 1999). Of the 69 units that replied to the survey, 40 units indicated OHV use is damaging park resources.

The state of California provides funding through its California Off-Highway Motor Vehicle Recreation Division (OHMVRD) grant program to help improve conditions for OHV activities and to mitigate the adverse effects of OHV use on public lands throughout California. Following is a summary of the USFS and BLM grant programs, including some examples of grant proposal guidelines, grant proposals

currently being considered for funding, and past accomplishments using this funding mechanism.

The San Bernardino National Forest, in conjunction with the California OHMVRD, accepts grant applications from cities, counties, special districts, federal agencies, and non-profit organizations for restoration projects and trail conservation projects (OHMVRD 2005). The grant program advocates “good stewardship and acknowledges the tie between proper trail maintenance and preventative resource protection, whether to benefit watersheds, prevent soil loss, or to respect the integrity of adjoining plant and animal habitats.” Annually the division receives about 200 grant and cooperative agreement applications totaling more than \$40 million, resulting in awards of between \$16 and \$18 million in grants and cooperative agreement funding.

Suggested conservation activities for the grant writers include soil monitoring, cultural resources monitoring, and monitoring of USFS greenhouse sites. The provisions in the text indicate that “Known cultural sites adjacent to OHV trails...be monitored to assure that OHVs are not creating adverse impacts. When impacts are identified, appropriated mitigation measures will be recommended by a District or Forest archeologist and implemented by OHV staff and Volunteers.” The USFS is also providing archaeology site steward training to several OHV volunteer and adopt-a-trail members, who will assist USFS staff in monitoring cultural resource sites.

The California OHMVRD has provided the USFS with a total of \$3,800,000 over the last six years toward the goal of producing a statewide OHV route designation guidebook for USFS lands (USFS 2004). The primary

purpose of the route designation process is to provide for resource protection by ensuring that vehicles are operated only on designated routes. An interdisciplinary team of regional and forest level specialists in recreation, engineering, environmental analysis, law enforcement, heritage resources, and wildlife, as well as representatives from the Office of the General Counsel, developed the guidebook.

The BLM also solicits grant applications in conjunction with the state of California's OHVMRD. The grants support OHV management activities on public lands administered by BLM, such as law enforcement, resource protection, planning and monitoring, visitor services, and maintenance.

An ongoing project in the Bishop BLM District, funded by the OHV grant program, provides for cultural resources survey and site monitoring. The district has applied for \$35,000 to continue the program in 2007.

The California Archaeological Site Stewardship Program (CASSP), in partnership with the BLM, continues to receive OHV grant funding to pursue its mission. In 2006, the CASSP conducted five site steward training classes, including two classes that provided advanced training for site stewards. The CASSP also used grant money to improve and update its website and produce three newsletters. The CASSP has requested \$88,000 for 2007 to continue its training program and to continue to provide monitoring of cultural resource sites. Some of the money requested for the upcoming year would go toward a training video that would help reduce the cost of future training sessions.

While the adverse effect of OHV use in the desert is an ongoing problem, the funding

provided by the California OHMVRD grant is an important vehicle for federal agencies to use in securing monies for cultural resources protection efforts.

### **5.2.5 Site Stewardship Programs**

Site stewardship programs can be an important tool for monitoring and protecting cultural resource sites and promoting public awareness of archaeology and the fragile, sensitive nature of these non-renewable cultural resources. The following section contains a description of some of the longer-running, more established stewardship and public archaeology programs in the country. This section will also summarize the California stewardship program, which was founded by the Society for California Archaeology (SCA).

#### **5.2.5.1 Texas**

The Texas Archaeological Stewardship Network (TASN) was created in 1983 to help the Office of the Texas State Archaeologist with public education, outreach, and preservation of archaeological sites. The Texas program was the first large scale, state-level stewardship program in the United States. At its inception, the program was somewhat informal, with the volunteer stewards reporting on a fairly casual basis to the state coordinator (Reger and Corbett, 1999).

The TASN has evolved into a well-organized tool for protecting cultural resources in the state of Texas. The TASN volunteers provide support to the Texas Historical Commission by recording archaeological sites, monitoring sites, conducting salvage excavations, assisting in cultural resource surveys, and seeking protective designations for important sites. The stewardship network also promotes public awareness of archaeology by giving

talks at local preservation groups, schools, and civic groups.

#### **5.2.5.2 Arizona**

The Arizona Site Steward Program was established in 1985. Under this program, volunteers monitor prehistoric and historic archaeological and paleontological sites in Arizona and report destruction or vandalism to land managers (Hoffman, 2000). Arizona's public land managers sponsor this stewardship program, and volunteers are selected, trained, and certified by the SHPO and the Governor's Archaeology Advisory Commission.

Volunteers receive ten hours of classroom and in-field training. The training sessions include instruction in map reading, a review of antiquity laws, methods of site and feature identification, and crime scene management.

A system is in place whereby a regional coordinator supervises steward activities and reports to a statewide coordinator at the Arizona SHPO. Land managers with the USFS, BLM, state of Arizona Lands Department, the Hopi Indian Tribe, and several county and municipal governments work closely with the stewardship program to identify sites in need of monitoring and provide documentation about the sites to volunteer coordinators.

The Arizona site stewards are also involved in various other preservation and public outreach efforts. Some engage in hands-on restoration, interpretative, and preservation projects such as posting preservation signs, interpreting cultural resource sites for public visitors, shoring collapsing walls at prehistoric and historic period sites, and recording privately held artifact collections.

### 5.2.5.3 Arkansas

The program in Arkansas is not a stewardship program, but rather a public archaeology program (Davis 1990). The program is sponsored by the Arkansas Archaeological Survey and its goals include providing interested citizens an opportunity to work in archaeology and training volunteers to assist the survey in preserving Arkansas' cultural resources. The group conducts research excavations and surveys at selected sites, training as many as 140 people at a time (Reger and Corbett 1999). Initial training for the volunteers includes mapping, excavation techniques, and artifact analysis. A certification program expands on that training by offering seminars and further opportunities for field and lab work. Participants advance through four levels to become a certified field archaeologist based on progress recorded in their logbooks. In Arkansas, certified field archaeologists are qualified to plan, execute, and publish original fieldwork.

### 5.2.5.4 California

The California Archaeological Site Stewardship Program (CASSP) was formed in 1999 with an initial grant from the BLM. The program uses trained volunteers and professional archaeologists to monitor and protect archaeological and historical resources in the state of California. The first teams of site stewards were formed in the Ridgecrest and El Centro BLM districts. Teams of CASSP volunteers now regularly work with the BLM, California state parks, and the NPS, assisting in site monitoring and public outreach efforts. A memorandum of understanding (MOU) specifies the goals and responsibilities of agencies and organizations that participate in CASSP and support its activities.

The program involves regular site visitation during which volunteers and professionals observe and record changes in condition and integrity of the resource. CASSP volunteers use a standardized site monitoring report to track the condition of more than 225 sites throughout California. There are approximately 325 active volunteers in the CASSP program. The CASSP hopes to conduct 11 new volunteer training sessions in 2007. The program also offers additional training opportunities to its volunteers in prehistory and natural resources (Halford 2005) and advanced workshops in laboratory procedure and artifact identification (SCA 2003).

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

### 6.1 Conclusions

The ARPA, as well as other acts and statutes, charge federal land managers in the Mojave Desert region with the protection of cultural resources such as archaeological sites, historic resources, rock art, and traditional cultural properties located on federal and tribal lands. These resources are threatened by a variety of factors such as looting, vandalism, OHV use, hiking, erosion, and livestock grazing.

Complicating site protection efforts in this region is the fact that populations in the area are increasing at a greater rate than in the state as a whole (by more than 70 percent from 1990 to 2000, see Subsection 4.2). These population increases and other factors have led to significant growth in recreation demands on BLM, USFS, and NPS lands in the region (BLM 2004).

Nationwide attempts to implement comprehensive site protection plans have been few and ineffective (GAO 1987a, 1987b, and 1994; Swain 2006a; Schalk 2000) and have often met with resistance at the local level due to questions of jurisdiction, staffing, and funding. Currently each park, unit, and installation in the Mojave Desert is addressing site protection independently, employing a wide range of strategies including monitoring and patrols, signs, electronic surveillance, and various methods of inhibiting access to sensitive areas. In addition, the BLM, NPS, and USFS utilize site stewardship programs (see Subchapter 5.2.5). Some of these methods are more effective than others. For example, electronic surveillance technology does not appear to hold up well in the desert environment (Bark et al. 2005) and staffing and training problems have resulted in more

than \$100,000 of equipment lying unused in storage closets across the desert (Swain 2006a). Perhaps even more importantly, a successful ARPA prosecution has never been based on remote surveillance technology (ibid). On the other hand, it is generally difficult to quantify the effectiveness of site protection measures and an attempt to identify relevant statistics was not successful.

A troubling potential outcome of a “go it alone” policy of site protection across the Mojave Desert is that one unit’s aggressive site protection efforts may simply lead to greater destruction of sites in less protected areas (GAO 1996). Another potential outcome is that individual efforts could have a diminished impact if vigilance in surrounding areas is lower.

There is significant disparity in the human and financial resources of the agencies operating within the Mojave Desert (Meyers 2005; BLM 2004), illustrated by nationwide statistics. According to the BLM, both the BLM and USFS have approximately one law enforcement officer per million acres of land while the NPS has approximately one ranger per 56,000 acres (Jarvis 2006; Swain 2006b). The DOD is most likely far closer to the NPS than BLM in terms of the ratio between area managed and number of security personnel. There are also significant differences in the missions of the agencies operating within the Mojave, ranging from military preparedness with its inherent need for security, to open public access where an array of recreational activities is not only permitted but often encouraged.

Despite past and current efforts to protect cultural resources it has been estimated that anywhere between 25 and 75 percent of the resources located on federal lands have already been adversely impacted to some

extent; the percentage may be higher for those site types targeted by looters (King 2000; GAO 1996; Swain 2006a). Looting is still occurring, and probably far more frequently than is reported (ibid). It is not possible to determine the actual extent of looting and the number of ARPA violations because the vast majority of the desert has not been formally surveyed and probably will not be for the foreseeable future; the GAO estimates that it would take thousands of staff-years to complete a Class III survey of BLM, USFS, and NPS lands (GAO 1987b). Regardless of the actual percentage of sites that have been looted, over time, even low-level site loss has a cumulatively devastating effect upon non-renewable resources such as archaeological sites.

There is a consensus among federal land managers within this region who responded to the questionnaire for the present study that there is a site disturbance problem and that a regional cooperative strategy to improve the protection of cultural resources is desirable (see Tables 5-6 and 5-11 in Subchapter 5.1). However, three respondents to the questionnaire raised the following four concerns regarding such a program:

- There is not enough money available to fund a new program.
- All available money should be devoted to in-field site protection measures such as monitoring or patrols.
- Individual agencies already have sufficient mechanisms, through their own planning documents, to achieve the goal of protecting cultural resources.
- It will be difficult to achieve interagency cooperation.

Several respondents were also skeptical of the ability to enforce such a plan and the success of prosecution efforts in general (see Table 5-12 in Subchapter 5.1.5). In addition, there are practical limitations in sharing human and physical resources across this enormous area.

These criticisms and concerns have merit; it is unlikely that the agencies operating within the Mojave Desert will be able to adequately fund and staff a comprehensive, region-wide site protection program involving appropriate levels of site monitoring with sufficient investigative support and effective prosecution measures. Attempts at such programs have been unsuccessful in the past (see Subchapter 5.2.2). However, there may be consensus for a more modest approach focusing on the easiest resources to share across this region: information and expertise. Such an approach is a prudent first step and may more likely be implemented.

## 6.2 Recommendations

The federal agencies of the Mojave Desert consulted during the present study have very different histories, missions, and levels of financial and human resources. However, they share several hundred miles of boundaries and a remarkable cultural resource base threatened by a variety of site protection challenges. The success of the regional site protection effort described below is dependent upon the extent to which land managers can coordinate their efforts, share information, and adopt common protocols.

Based on the results of the investigation and research presented in Chapter 5, and on the conclusions presented above, the authors recommend the following four actions for improving site protection in the Mojave Desert.

### **Prepare a Site Protection Handbook**

Site protection efforts across the Mojave Desert would benefit from a coordinated approach to site protection and responses to ARPA violations. Coordination should include preparation and distribution of a site protection handbook, the general contents of which are listed below. This handbook should be prepared with acknowledgement that each federal agency has a very structured operational environment, with well-defined lines of authority, operating procedures, instructions, and guidelines. Therefore, it is recommended that the handbook be prepared as a template, allowing each unit to modify according to their own specific policies. This measure will also better ensure reasonably widespread buy-in among regional agencies.

The handbook should include but not necessarily be limited to:

- Checklists and uniform protocols for site disturbance detection, assessment, and documentation.
- Uniform procedures for notification of site disturbance.
- Uniform procedures for site stabilization.
- Contact information for regional and national experts in crime scene investigation, case preparation, and prosecution.
- Contact information for cross-jurisdictional support, i.e. local and state police departments.
- Best management practices overview.

Earth Tech recommends that this handbook be prepared with consideration of the site protection plan Martin McAllister prepared for Grand Canyon National Park. The table of contents of that plan has been included as Appendix C.

### **Use the Mojave Desert Historic Resources Geographic Information System (MDHRGIS) to Report and Track ARPA Incidents**

Edwards AFB, Joshua Tree National Park, and perhaps other units in the desert have successfully used GIS to track ARPA incidents. Through examination of GIS information, Edwards AFB was able to identify a correlation between threats to cultural resources at the installation and population centers and use this data to more effectively allocate limited site protection resources.

On a desert wide basis, plotting the location of individual ARPA incidents may, over time, lead to the identification of site damage hot spots or unanticipated patterns. As at Edwards AFB, such data could theoretically be used to improve regional site protection efforts. The utility of such a system would be limited by its accessibility and to the degree that relevant data is entered.

The PACRAT is working with a contractor (Gnomon Inc.) to develop a web-based GIS application (MDHRGIS) designed to be used by cultural resource managers throughout the Mojave Desert to view and upload cultural resource information. This system is intended as a means of improving the management of cultural resources through better access to data. It is recommended that this system be modified to allow the entry and viewing of an ARPA-related incidents shape file and associated

database. According to Eric Ingbar, Principal of Gnomon Inc., such a modification would not be difficult, since the underlying framework has already been constructed (Ingbar 2006). With this added functionality, resource managers would hopefully be able to better protect cultural resources, share ARPA information, and identify specific areas where interagency cooperation would be beneficial.

### **Develop a Site Vulnerability Model for the Mojave Desert and use Standardized Vulnerability Assessment Forms**

Predictive models are widely acknowledged to have utility in the identification of areas sensitive for the presence of cultural resources. Similarly, the BLM California Desert District has recently used a GIS to create a mechanical model of the effects upon cultural resources of establishing 2,500 miles of OHV, travel, and grazing corridors through BLM land in the desert (Queen 2006). (The results of this effects assessment have not yet been released.)

It is recommended that a site vulnerability model for the Mojave Desert be developed to identify areas particularly susceptible to site damage. Alternatively, this could be accomplished separately for each management unit or regional cluster of management units, with resultant coordination challenges. This model could be based on such readily available information as recreation areas, proximity to population centers, proximity to roads/trails, and perhaps the nature of the topography or groundcover. Such a model, if designed to stratify the region according to its vulnerability to site disturbance, could aid site protection efforts and form the basis of resource allocation decisions.

The Louisiana Army National Guard (LAANG) and Kisatchi National Forest, Louisiana, have made the assessment of site vulnerability a routine component of performing site visits. Through use of a standardized worksheet, cultural resource personnel assign metrical values to various physical characteristics of a site, ultimately assigning it an overall risk value. These values are used to identify those sites that merit protective priority. This program has been in effect for several years and appears to have resulted in more effective site protection (Dorian 2006). The form used by LAANG and Kisatchi National Forest is provided as Appendix D.

The CHC archaeological site record form (Form 523c) has a field concerning site condition. The provided responses are good, fair, or poor, with a field for an explanation. Collection of additional information regarding vulnerability and level and type of previous disturbance to individual sites across the desert will ideally allow land managers to prioritize site protection. It is recommended that federal land managers in the Mojave Desert implement a program of documenting site vulnerability similar to that employed by LAANG. Availability of this data may also strengthen the ability to model site vulnerability discussed above.

### **Conduct Regular Interagency Communication on Site Protection through PACRAT Meetings**

PACRAT is a well-established and effective interagency vehicle for the dissemination of information related to cultural resources in the Mojave Desert. According to Robert Bryson, Mojave National Preserve, currently President of PACRAT, this organization would be an appropriate forum for discussing looting and other ARPA related issues (Bryson 2006). It is recommended

that the discussion of site disturbance be made a regular agenda item at PACRAT meetings. Site protection efforts in the Mojave Desert can only benefit from consistent and open sharing of information.

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**APPENDIX A**

**STATE HISTORIC PRESERVATION OFFICE RECOMMENDED  
TITLE PAGE**



**DRAFT**

**SITE PROTECTION PLAN STUDY  
MOJAVE DESERT, CALIFORNIA**

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**APPENDIX B**

**SITE PROTECTION PLAN QUESTIONNAIRE**





## **Questionnaire**

**APPENDIX C**

**GRAND CANYON NATIONAL PARK SITE PROTECTION PLAN  
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**GRAND CANYON NATIONAL PARK SITE PROTECTION PLAN**  
**Prepared March 1999**

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**APPENDIX D**

**LAANG SITE VULNERABILITY ASSESSMENT FORM**



Risk # \_\_\_\_

**LOUISIANA ARMY NATIONAL GUARD (LAANG)  
NATIVE AMERICAN HISTORICAL INITIATIVE (NAHI)  
CULTURAL SITE VULNERABILITY ASSESSMENT  
WORKSHEET**

Site Vicinity \_\_\_\_\_

Date \_\_\_\_\_

Site number/name \_\_\_\_\_

**Instructions**

The assessment should be made jointly by a team consisting of law enforcement, tribal liaison, and archeological specialists. If several sites are in close proximity and share characteristics, one form may suffice. The following factors and considerations are generic and the users should modify them as appropriate to suit local conditions. Since many of the variables are subjective, user knowledge is vital to the ranking process.

Risk assessment is comprised of eight (8) considerations. Assign a value to each consideration and add all values. Sites with the highest values will be those most at risk, and will receive protective priority.

**Risk Summary**

	<u>Value</u>
Site accessibility	_____
Site density	_____
Site visibility	_____
Site condition	_____
Local knowledge of site	_____
Artifact type/value	_____
National register Status	_____
EO 13007/TCP status	_____

(Adapted for use by the LAANG/NAHI from a prototype developed by the USDA Forest Service; Kisatchie National Forest, Louisiana)

## PHYSICAL SITE CONSIDERATIONS

### 1. Site Accessibility – How easy is it to get to the site? Data source: GIS

- |  |         |
|--|---------|
| a. Easily accessible – within A feet of access point                   | Value 5 |
| b. Accessible – within B feet of access point                          | Value 4 |
| c. Accessible with some effort – within C feet of access point         | Value 3 |
| d. Accessible with considerable effort – within D feet of access point | Value 2 |
| e. Very remote - within E feet of access point                         | Value 1 |

### 2. Site Density - Is the site in an area known to contain other sites? Data source: GIS

- |   |         |
|---|---------|
| a. Very high site density – A sites within ¼ mile | Value 5 |
| b. High site density – B sites within ¼ mile      | Value 4 |
| c. Moderate site density – C sites within ¼ mile  | Value 3 |
| d. Low site density – D sites within ¼ mile       | Value 2 |
| e. Only site in vicinity - E sites within ¼ mile  | Value 1 |

### 3. Site Visibility – Can visible evidence be seen by the casual observer? Data source: LA Site Record Form

- |        |         |
|--------|---------|
| a. Yes | Value 5 |
| b. No  | Value 0 |

### 4. Site Condition – Degree of disturbance. Data source: LA Site Record Form

- |                           |         |
|---------------------------|---------|
| a. Site is already looted | Value 5 |
| b No evidence of looting  | Value 1 |

### 5. Local knowledge of the site – Is the site or local area known to contain resources? Data source: ????????????

- |                                |         |
|--------------------------------|---------|
| b. Site is known in local area | Value 4 |
| c. Site is not generally known | Value 3 |
| e. Site known by very few      | Value 1 |

**6. Artifact type/value – Is there potential for discovering marketable or collectable artifacts, including human remains? Data source: LA Site Record Form**

- |                                    |         |
|------------------------------------|---------|
| a. High potential                  | Value 5 |
| b. Some potential for unique items | Value 4 |
| c. Potential for common items      | Value 3 |
| d. Unknown potential               | Value 1 |

**7. National Register status – Is the site listed, or eligible for listing, on the National Register of Historic Places for either its scientific value or value as an American Indian Cultural Site? Note: a value of 1 (not eligible) means site cannot be protected under auspices of the Archeological Resources Protection Act, although protection under other statutes or regulations may be possible.**

- |   |         |
|---|---------|
| a. Listed on the NRHP                         | Value 5 |
| b. Determined eligible, but not listed        | Value 4 |
| c. Eligibility undetermined (but is possible) | Value 3 |
| d. Not eligible                               | Value 1 |

**8. Executive Order 13007/TCP status – Has the site been declared “sacred” under provisions of the Order or designated as an American Indian TCP?**

- |        |         |
|--------|---------|
| a. Yes | Value 5 |
| b. No  | Value 0 |

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