

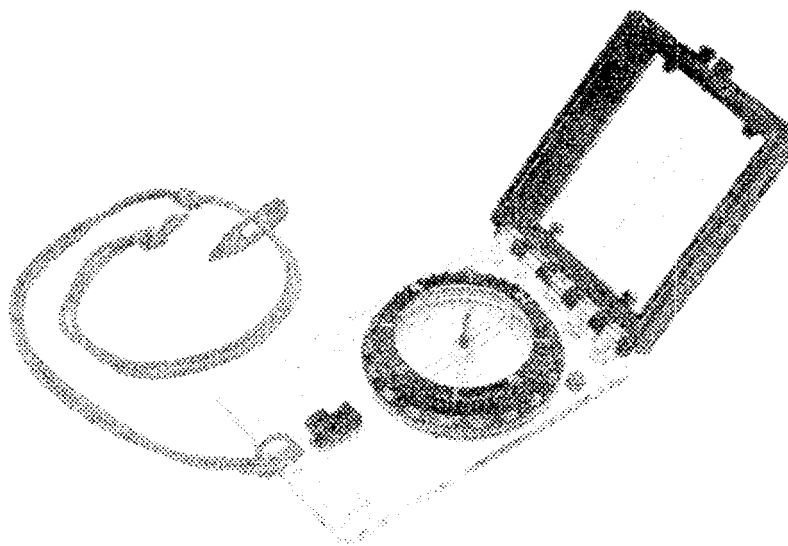
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# AN ARCHEOLOGICAL SURVEY PLAN FOR THE WESTERN REGION OF THE NATIONAL PARK SERVICE

**NPS Systemwide Archeological Inventory Program**

by  
**SUSAN J. WELLS**

with contributions by  
**Laura K. Laird**  
**Robert J. Hommon**



**Western Archeological and Conservation Center  
National Park Service  
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## ■ ABSTRACT

The National Archeological Survey Initiative (NASI) was established to develop a Systemwide Archeological Inventory Program (SAIP) which in turn should improve the National Park Service's (NPS) accountability for cultural resources. Each region of NPS is required to produce a regionwide survey plan.

The Western Region of the National Park Service has 46 park units comprising more than 8,000,000 acres. Archeologically the region has a great deal of cultural diversity and a large number of sites. Only two percent of the region's lands have been surveyed to modern standards. Approximately 12,000 archeological sites have been reported, although less than half of them are recorded to modern standards. More than 200 properties in the Western Region are on the National Register of Historic Places.

The survey plan for the Western Region is not a research design for the region. Instead, the Western Region Archeological Survey Plan is a planning document that incorporates information from Resource Management Plans (RMPs) and other sources. It follows the outline and criteria proposed in the SAIP document prepared by Aubry and others (1992). Much of the data are presented in tables that appear throughout the report. The plan includes a description of park lands, a regional overview and a report on the status of archeological inventory for the region. Regionwide strategies for inventory survey, proposed projects and categorization of regional priorities are discussed.

## ■ ACKNOWLEDGEMENTS

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Michele Aubry of the NPS Anthropology Division and the other members of the SAIP Task Force provided a good framework for preparing the survey plan.

The regional overviews of California and Hawaii are largely the work of Laura Laird (YOSE) and Robert Hommon (PAAR). Suggestions for rewrites of the draft report were submitted by Earl Neller (KALA), Jim Adams (USAR), Charlotte Hunter (PAAR) and Jan Balsom (GRCA). Daniel Lenihan, Chief of the NPS Submerged Resources Unit, reviewed and revised the scope and budgets of the project statements involving submerged cultural resources.

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## ■ INTRODUCTION

The National Park Service (NPS) is responsible for conserving, protecting, preserving and managing the cultural resources in its care for long-term scientific research, public interpretation and education. The laws ensuring that the NPS fulfills its obligations to cultural resources include section 110(a)(2) of the National Historic Preservation Act, section 2(a) of Executive Order 11593 and Section 14 of the Archeological Resources Protection Act (ARPA).

A 1991 Management Control Review of the NPS archeology program identified a critical high risk material weakness in basic inventory accountability of cultural resources on NPS lands. The National Archeological Survey Initiative (NASI) was established to develop a Systemwide Archeological Inventory Program (SAIP) that will set guidelines for an inventory program that will last for the next 20 to 30 years. A document prepared by the NASI Task Force (Aubry and others 1992) describes the systemwide program and outlines the requirements for the regionwide survey plans.

The goal of the program is to conduct systematic scientific research to locate, evaluate, and document archeological resources on National Park Service Lands; to nominate eligible properties for listing in the National Register of Historic Places; and to recommend appropriate strategies for conservation, protection, preservation *in situ*, management, and interpretation. The program is intended to augment, rather than replace, the Service's existing archeological policies, guidelines, and standards (*NPS's Systemwide Archeological Survey Program*, Aubry and others, 1992).

### THE WESTERN REGION ARCHEOLOGICAL SURVEY PLAN

The Western Region of the National Park Service has 46 park units comprising more than 8,000,000 acres. The region spans the distance from Great Basin National Park in Nevada to War in the Pacific National Historical Park in Guam, a distance of more than 5,800 miles. The region has the second largest land holdings, following the Alaska Region, with about 10 percent of the total land holdings of the park system. The Western Region has 12 percent of the park units in the system. The park units are divided almost equally between natural and cultural units with 24 natural park units and 22 cultural park units.

Archeologically the region has a great deal of cultural diversity and a large number of sites. Only two percent of the region's lands have been surveyed to modern standards. A large number of sites have been reported, although less than half of them are recorded to modern standards. With more than 12,000 archeological sites reported, the Western Region has 22 percent of the 53,000 sites reported systemwide.

The survey plan for the Western Region is not a research design for the region. Park- or project-specific research designs need to be developed to make this plan an effective management tool but that task is beyond the scope of this document.

Instead, the Western Region Archeological Survey Plan is a planning document that incorporates information from park Resource Management Plans (RMPs) and other sources. It follows the outline and criteria proposed in the SAIP document prepared by Aubry and others (1992). Much of the data are presented in large tables and the data in the tables are repeated when necessary to make each table useful as an independent unit. Small summary tables that appear throughout the report are unnumbered.

This plan was prepared using data from the Western Archeological and Conservation Center (WACC) data bank and from park archeologists and cultural resource management specialists in the region. In some cases park resources staff provided information. The sections on the culture history of parks in California and Hawaii were written in large part by Laura Laird and Rob Hommon, respectively. There also has been input from Tom Mulhern, Chief of Park Historic Preservation for Western Region, from Regional Archeologist Roger Kelly and from George Teague, Chief of the Division of Archeology at WACC. Comments on the draft version of this report from State Historic Preservation Office staff, park superintendents, park archeologists and cultural resource specialists have been incorporated in the final version of the plan. This document is organized into five parts.

- **Part I, DESCRIPTION OF PARK LANDS**, is a summary of basic information regarding the 46 park units in the region. Information is summarized in Table I.1.
- **Part II, REGIONAL OVERVIEW**, summarizes the prehistory, history and environment of the four basic geographic units in the region and also examines each of the park units.
- **Part III, STATUS OF ARCHEOLOGICAL INVENTORY**, summarizes the archeological survey and site records for each park and lists the proposed survey projects for each park. The data for this section is summarized in Table III.1.
- **Part IV, REGIONWIDE STRATEGIES**, discusses overall guidelines for archeological survey projects and related projects proposed for the region's park units.
- **Part V, PROPOSED PROJECTS AND REGIONAL PRIORITIES**, includes Table V.1 which lists the proposed projects for each park and Table V.2 which classifies the projects into a number of categories that should help establish priorities for the region.

The Western Region SAIP plan is designed to be a dynamic document and should be revised at five year intervals. Project statements taken from RMPs and other sources are not appended to this document but are available at the parks, at the Western Archeological and Conservation Center and at the Western Regional Office.

#### **NEPA COMPLIANCE**

NPS has determined that the development of the Systemwide Archeological Inventory Program and its component regionwide plans qualifies as a categorical exclusion from the procedural requirements of the National Environmental Policy Act (NEPA). Neither an Environmental Assessment nor an Environmental Impact Statement has been prepared for the development of the systemwide program. Archeological surveys including small-scale test excavations also are categorical exclusions from the requirements of NEPA. It should be noted that some archeological surveys may not qualify as categorical exclusions and therefore may require environmental compliance.

#### **NHPA COMPLIANCE**

Development of the Systemwide Archeological Inventory Program and its component regionwide plans is not a Federal undertaking requiring compliance with section 106 of the National Historic Preservation Act. In fact the development of the program will enable NPS to fulfill its section 110 responsibilities under the Act. Consultation with the State Historic Preservation Officer for each state and territory in the Western Region is required under both NHPA and Executive Order 11593. The draft of the Western Region Archeological Survey Plan was reviewed by the appropriate SHPO offices.

## ■ PART I: DESCRIPTION OF PARK LANDS

(1) **NUMBER OF PARK AREAS:** There are 46 National Park Service areas in the Western Region. They are located throughout Arizona, California, Nevada and Hawaii as well as in American Samoa, the Commonwealth of the Northern Mariana Islands and Guam. These are shown in Figure I.1 and listed in Table I.1.

(2) **PARK SIZE:** The Western Region park units cover more than eight million acres and they range in size from less than one acre to parks with millions of acres. Refer to Table I.1 for acreage of individual units. The following is a general summary of unit size groupings:

ACREAGE	NUMBER	PARK UNITS
0 acres	1	USAR
Less than 100 acres	6	EUON, FOPO, PUHE, SAFR, TUMA, TUZI
Between 100 and 1,000 acres	10	AMME, CABR, CAGR, DEPO, FOBO, JOMU, MANZ, MOCA, MUWO, PUHO
Between 1,000 and 10,000 acres	6	CORO, KAHO, NASA, PIMA, TONT, WAPA
Between 10,000 and 100,000 acres	11	CHIR, GOGA, GRBA, HALE, KALA, LABE, PEFO, PINN, PORE, SAGU, WHIS
Between 100,000 and 1,000,000 acres	9	CHIS, HAVO, JOTR, LAVO, ORPI, REDW, SAMO, SEKI, YOSE
In excess of 1,000,000 acres	3	DEVA, GRCA, LAME

(3) **PARK TYPE AND ARCHEOLOGICAL VALUES IDENTIFIED IN THE ENABLING LEGISLATION:** The type of NPS units in the Western Region are grouped as follows.

- 11 National Parks
- 15 National Monuments
- 6 National Historical Parks
- 6 National Historic Sites
- 4 National Recreation Areas
- 3 National Memorials
- 1 National Seashore

The enabling legislation for each park was examined for references to significant archeological values. The legislation for boundary changes also was examined when available.

- One unit has no enabling legislation and is operated under a letter of agreement: USAR
- Archeological values are not mentioned in the enabling legislation for 14 units: CHIR, CORO, DEPO, GRCA, HALE, HAVO, LAVO, MUWO, PINN, PORE, REDW, SAGU, SEKI and YOSE
- A general statement regarding historic values or objects of historic or scientific interest is contained in the enabling legislation for 8 of the Western Region areas: AMME, DEVA, LABE, LAME, ORPI, PUHO, WAPA and WHIS
- Specific references to historic structures are found in the legislation for EUON, FOPO, JOMU, GOGA and SAFR
- References to significant archeological or cultural values, resources, or structures are contained in the legislation for 18 units: CAGR, CABR, CHIS, FOBO, GRBA, JOTR, KAHO, KALA, MANZ, MOCA, NASA, PEFO, PIMA, PUHE, SAMO, TONT, TUMA and TUZI

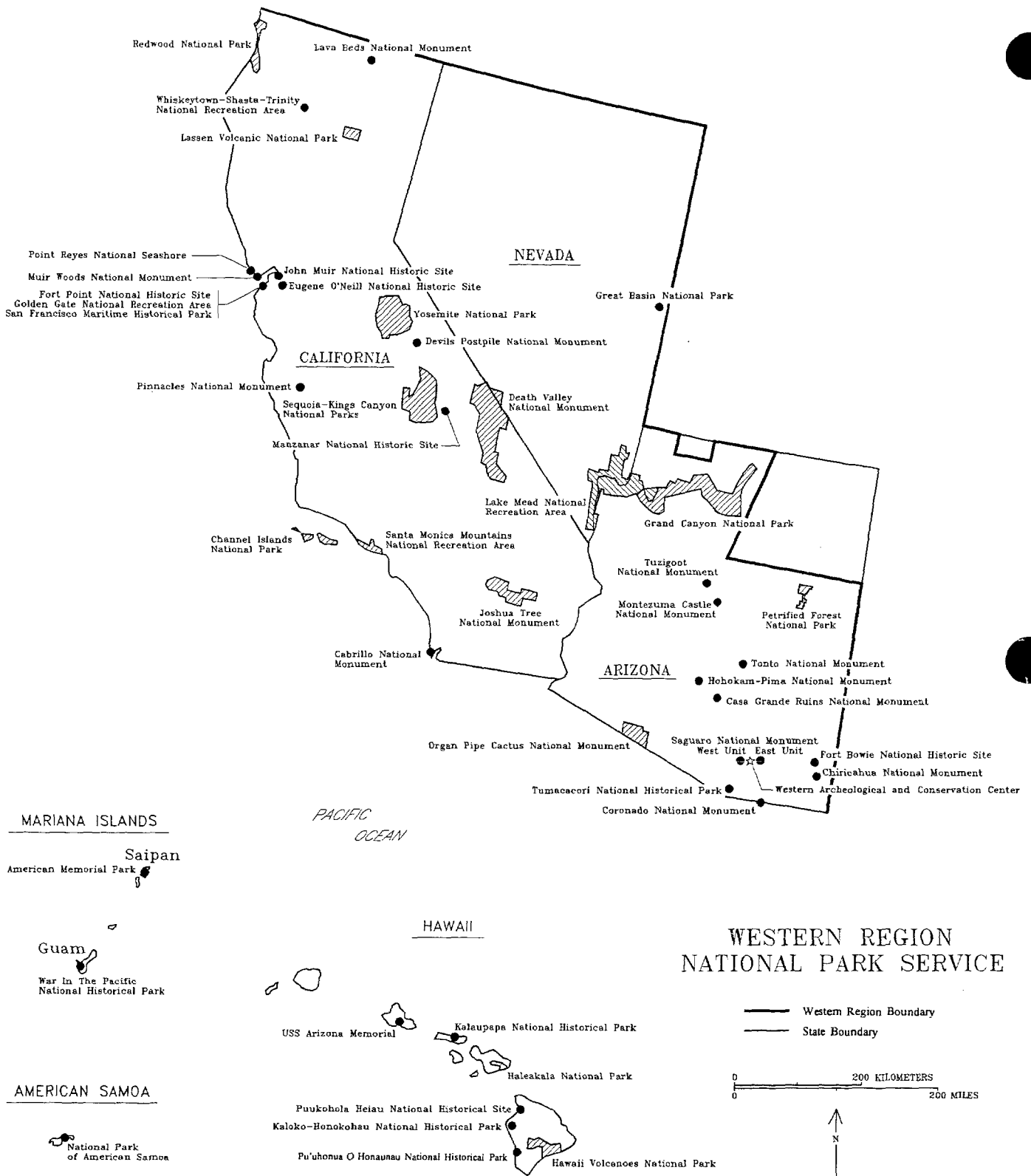


Figure I.1. Map showing location of the 46 park units of the Western Region, NPS.

TABLE I.1: DESCRIPTION OF PARK LANDS IN WESTERN REGION

PARK	SIZE IN ACRES	CULTURAL RESOURCES IN ENABLING LEGISLATION	LOCATION	ACCESSIBILITY	OWNERSHIP OF PARK LANDS	PHYSICAL ENVIRONMENT/ SURVEY CONDITIONS	NEIGHBORING LANDOWNERS
AMME American Memorial Park	133 acres [0.2 sq mi]	Historical values	Urban	No problems	All land belongs to Commonwealth of the Northern Mariana Islands	Coastal lowlands, tropical vegetation. Low visibility, survey conditions difficult.	Commonwealth of the Northern Mariana Islands
CABR Caballo National Monument	143 [0.22 sq mi]	Historical monuments and historical objects of the area	Suburban and military base	No problems	All NPS	Peninsula with steep slopes. Variable visibility, survey conditions fair.	U.S. Navy Department of Defense and State of California own the submerged lands
CAGR Casa Grande National Monument	472 [0.74 sq mi]	Casa Grande and prehistoric cultural remains	Outlying suburban	No problems	All NPS	Flat desert terrain. Good visibility, survey conditions good.	Private
CHIR Cuirichua National Monument	11,985 [18 sq mi]	None	Rural	Much of park is designated wilderness area	All NPS except 2.5-acre patented mining claim	Mountainous, steep terrain. Good to moderate visibility, survey conditions good to fair.	Coronado National Forest Private
CHIS Channel Islands National Park	246,984 [386 sq mi] land:124,114 ocean:122,870	Protect nationally significant archeological and cultural values	Remote islands	Difficult and expensive to get to islands; limited facilities; sensitive plant and animal populations restrict access.	NPS: Santa Rosa-53,000 San Miguel-10,000, Anacapa-700, Santa Barbara-650 California/NOAA: Offshore and seabed-122,870 Nature Conservancy: Santa Cruz-56,000 Private: 6,364	Rugged islands and submerged lands. Variable visibility, survey conditions moderate to difficult.	State of California owns the seabed; park waters are within the Channel Islands National Marine Sanctuary
CORO Coronado National Memorial	4,801 [7.5 sq mi]	None	Rural	No problems	NPS: 4,717 Private: 84	Steep terrain in 50% of the park. Visibility good, survey conditions good to fair.	Coronado National Forest State of Arizona Mexico Private
DEPO Devil's Postpile National Monument	798 [1.2 sq mi]	None	Remote	No access in winter	All NPS	Mountainous and forested terrain. Visibility good to fair, survey conditions good to difficult.	Sierra National Forest

Table I.1 Description of Park Lands in Western Region (Continued)

PARK	SIZE IN ACRES	CULTURAL RESOURCES IN ENABLING LEGISLATION	LOCATION	ACCESSIBILITY	OWNERSHIP OF PARK LANDS	PHYSICAL ENVIRONMENT/ SURVEY CONDITIONS	NEIGHBORING LANDOWNERS
DEVA Death Valley National Monument	2,067,628 [3,250 sq mi]	Objects of historic and scientific interest	Remote	Proposed wilderness	NPS: 2,049,009 State of California: 13,285 Private: 5,413	Harsh and variable conditions from 200' below sea level to 11,000'. Visibility good to fair, survey conditions good to fair.	Fort Irwin BLM Private
EUON Eugene O'Neill National Historic Site	13 [0.02 sq mi]	Tao House and other improvements	Suburban	No problems	All NPS	Area heavily modified. Visibility unknown, survey conditions good.	County: Las Trampas Regional Wilderness Private
FOBO Fort Bowie National Historic Site	1,000 [1.5 sq mi]	Preserve the ruins at Fort Bowie	Rural	No problems	All NPS	Foothills. Visibility good, survey conditions good.	Coronado National Forest BLM Private
FOPO Fort Point National Historic Site	29 [0.04 sq mi]	Fort Point and Battery East; may later get additional acres and structures from the Army	Urban	No problems	Land: All NPS Offshore: U.S. Army Tidelands: State of California	Peninsula, areas modified. Visibility variable, survey conditions fair.	U.S. Army: Presidio of San Francisco State of California: Tidelands
GOGA Golden Gate National Recreation Area	73,183 [114 sq mi]	Areas with historic values including Alcatraz Island; parts of all of Forts Cronkhite, Barry Mason, Funston and Baker, Miley; Crissy Field	Urban, suburban and rural	No problems	Federal: 28,436* Nonfederal/public: 41,332** Private: 3,337 * NPS, Army, Navy, USGS, GSA, Treasury, BLM ** State of California, city, county and municipal, utility districts See 1992 Statement for Management pp. 23-28	Peninsula and island, areas modified. Visibility variable, survey conditions fair.	Federal: DOD, USGS, GSA, BLM, Treasury State Cities County Municipal Utilities Private
GRBA Great Basin National Park	77,100 [120 sq mi]	Lehman Caves, archeological resources	Rural	Mountain access difficult, potential wilderness.	All NPS	Mountains and pediments. Visibility good, survey conditions good to fair.	Humboldt National Forest BLM Private
GRCA Grand Canyon National Park	1,215,734 [1,900 sq mi]	None	Rural/ remote	Difficult access to much of park by foot or helicopter; much of the park is proposed wilderness	NPS: 1,178,429 State of Arizona: 11,860 Navajo Nation: 24,888 Private: 457	Canyon and plateau. Visibility variable, survey conditions good to difficult.	Lake Mead NRA Glen Canyon NRA Kaibab National Forest BLM Navajo Nation Havasupai Reservation Hualapai Reservation



Table I.1 Description of Park Lands in Western Region (Continued)

PARK	SIZE IN ACRES	CULTURAL RESOURCES IN ENABLING LEGISLATION	LOCATION	ACCESSIBILITY	OWNERSHIP OF PARK LANDS	PHYSICAL ENVIRONMENT/ SURVEY CONDITIONS	NEIGHBORING LANDOWNERS
HALE Haleakala National Park	27,208 [42.5 sq mi]	None	Remote	Much of park is designated wilderness area. Sensitive native flora limits archeological survey. Remote, special transport required.	NPS: 27,208 (Proposed Additions: State of Hawaii: 201; Private: 2,147)	Elevation from sea level to 10,023' with rain forest, grasslands, cinder cones and volcanic slopes. Variable visibility and survey conditions.	State of Hawaii The Nature Conservancy
HAVO Hawaii Volcanoes National Park	217,297 [339 sq mi]	None	Rural/remote	Much of the park is designated wilderness area. Dense vegetation and changing landforms make location difficult. Remote, special transport required.	NPS: 217,297 (Authorized additions: State of Hawaii: 4; Private: 11,875)	Diverse with 2 active volcanoes. Sea level to 13,677 feet with rain forest, grasslands, barren lava and cinder areas. Variable visibility and survey conditions.	State of Hawaii
JOMU John Muir National Historic Site	340 [0.53 sq mi]	Muir Home and Martinez Adobe	Urban	No problems	NPS: 338 Santa Fe RR R-O-W: <1 Muir Trust: 1	Valley altered by construction and agriculture. Visibility unknown, survey condition good to fair.	Private land adjacent to park but near East Bay Regional Park units
JOTR Joshua Tree National Monument	559,954 [875 sq mi]	Historic and prehistoric structures and various objects of historic and scientific interest	Rural	Large part of park is designated wilderness area	NPS: 548,531 State of California: 7,841 County: 279 Private: 3,303	Basin and range with mountains, Sonoran and Mohave deserts. Visibility good, survey conditions good to fair.	BLM and private land adjacent. California State Park and Marine base nearby
KAHO Kaloko- Honokohau National Historical Park	1,160 [1.78 sq mi] land: 634 sea: 526	Preservation, interpretation and perpetuation of traditional native Hawaiian activities and culture	Rural	No problems	NPS: 616 State of Hawaii, offshore waters: 526 Private: 18	Old lava flows, beach, man-made fishponds, abundance of archeological features. Visibility good except for lava flows. Survey conditions good.	State of Hawaii State Department of Transportation, Harbors Division Private
KALA Kalaupapa National Historical Park	10,726 [17 sq mi]	Kalaupapa Settlement, historic structures and traditional Hawaiian sites	Rural and remote	Access to park is limited to steep foot trail or air transport; also limit of 100 people per day	NPS: 22.2 State of Hawaii: 9,334 Dept. of Hawaiian Home Lands: 1,297 US Coast Guard: 0.7 Private: 72	Peninsula and valleys backed by sea cliffs. Wind, rain, wild pigs and heavy vegetation. Visibility poor, survey conditions difficult.	U.S. Coast Guard Private

Table I.1 Description of Park Lands in Western Region (Continued)

PARK	SIZE IN ACRES	CULTURAL RESOURCES IN ENABLING LEGISLATION	LOCATION	ACCESSIBILITY	OWNERSHIP OF PARK LANDS	PHYSICAL ENVIRONMENT/ SURVEY CONDITIONS	NEIGHBORING LANDOWNERS
LAME Lake Mead National Recreation Area	1,496,600 [2,338 sq mi]	General reference to historic features	Rural and remote	Rugged and remote terrain. Special transportation. Many sites inundated by lakes.	Federal: 1,468,910 State (NV and AZ): 14,285 Private and patented claims: 13,405	Basin and range, plateau, reservoir impoundment. Visibility good, survey conditions variable.	Bureau of Reclamation Nevada Dept. of Wildlife Management US Fish and Wildlife BLM Grand Canyon National Park Boulder City State of Nevada State of Arizona
LAVE Lava Beds National Monument	46,560 [73 sq mi]	General reference to objects of historic and scientific interest	Rural	Much of park is designated wilderness area	All NPS	Open land with sparse vegetation. Visibility good, survey conditions good.	Modoc National Forest BLM US Fish and Wildlife Bureau of Reclamation
LAVO Lassen Volcanic National Park	106,000 [166 sq mi]	None	Rural/remote	Limited roads; much of park is designated wilderness area	NPS: 105,994 Private: 6	Volcanic features, forested areas. Visibility moderate to poor, survey conditions variable.	Lassen National Forest
MANZ Manzanar National Historic Site	500 [0.78 sq mi]	Manzanar Internment Camp	Rural	No problems	Presently owned by City of Los Angeles pending land exchange	Flat valley floor. Always windy with temperature extremes. Visibility good, survey conditions good.	BLM; some internment camp features on BLM lands
MOCA Montezuma Castle National Monument	857 [1.33 sq mi]	Prehistoric ruins and ancient cliff dwellings including Montezuma Castle and Montezuma Well	Rural	No problems	NPS: 841 Private: 16	Riparian areas, cliffs, terraces. Visibility good, survey conditions good.	Coconino National Forest Private
MUWO Muir Woods National Monument	553 [0.86 sq mi]	None	Rural	No problems	NPS: 523 State Park: 30	Old growth Redwood forest. Visibility poor, survey conditions moderate to difficult.	Tamalpais State Park
NASA National Park of American Samoa	8,803 [14 sq mi]	Preserve and protect archeological and cultural resources of American Samoa	Rural and remote	Tram broken and ridge road virtually impassable. Access ranges from limited to nonexistent.	All park lands and waters are communally owned by the Samoans	Steep slopes, dense tropical vegetation. Visibility poor, survey conditions difficult.	Land is communally owned by the Samoans.

Table I.1 Description of Park Lands in Western Region (Continued)

PARK	SIZE IN ACRES	CULTURAL RESOURCES IN ENABLING LEGISLATION	LOCATION	ACCESSIBILITY	OWNERSHIP OF PARK LANDS	PHYSICAL ENVIRONMENT/ SURVEY CONDITIONS	NEIGHBORING LANDOWNERS
ORPI Organ Pipe Cactus National Monument	330,689 [516 sq mi]	General reference to objects of historic interest	Rural and remote	95% of park is wilderness; border with Mexico	NPS:329,306 State of Arizona: 1,280 Private:95 Customs and Immigration:8	Sonoran desert with basins, bajadas and mountains. Visibility good, survey conditions good to fair.	Air Force US Fish and Wildlife Tohono Oodham Nation BLM Mexico
PEFO Petrified Forest National Park	93,533 [146 sq mi]	Prehistoric structures	Rural	Limited number of roads; much of park is designated wilderness area	All NPS	Shortgrass prairie and mixed desert shrub. Visibility good, survey conditions good.	Navajo Reservation Arizona State Trust Land BLM Private
PIMA Hohokam-Pima National Monument	1,500 est. [2.34 sq mi]	Snaketown	Rural	Access to archeologists denied by Gila River Indian Community	Gila River Indian Community	Sonoran desert; river terraces. Visibility good, survey conditions good.	Gila River Indian Community
PINN Pinnacles National Monument	16,250 [25 sq mi]	None	Rural	In some areas access is restricted by lack of roads or trails and thick brush. Much of the park is designated wilderness area.	All NPS	Valleys and steep slopes. Visibility good to fair, survey conditions moderate to difficult.	BLM and private
PORE Point Reyes National Seashore	68,000 [106 sq mi]	None	Rural	Minor roads closed to vehicles; some of park is designated wilderness area.	NPS: 64,466 U.S. Coast Guard: 335 State and Local Govt: 2,824 Private-protected: 463 Private-excluded from acquisition: 3,317	Peninsula with beaches, wooded ridges, grasslands. Visibility moderate, survey conditions good.	State park Private Local government
PUHE Pu'ukohola Heiau National Historic Site	84 [0.13 sq mi]	Pu'ukohola Heiau and John Young Homestead	Rural	No problems	NPS: 60 State of Hawaii: 24	Hot and dry coastal zone with limited vegetation. Visibility good, survey conditions good.	State of Hawaii lands within and adjacent to park
PUHO Pu'uhonua o Honaunau National Historical Park	181 [0.28 sq mi]	General reference to historic sites and objects of historic significance	Rural	No problems	All NPS Does not include offshore waters	Hot and dry coastal zone with little soil on volcanic surface. Visibility good, survey conditions good.	No government neighbors

Table I.1 Description of Park Lands in Western Region (Continued)

PARK	SIZE IN ACRES	CULTURAL RESOURCES IN ENABLING LEGISLATION	LOCATION	ACCESSIBILITY	OWNERSHIP OF PARK LANDS	PHYSICAL ENVIRONMENT/ SURVEY CONDITIONS	NEIGHBORING LANDOWNERS
REDW Redwood National Park	110,000 [172 sq mi]	None	Rural	No problems	NPS: 75,325 State of California: 27,000 state park, 5,939 submerged/offshore Private: 34 County/state roads: 911	Redwood forest. Visibility poor, survey conditions moderate to difficult.	Six Rivers National Forest State of California: Fish and Game; Parks and Recreation Yurok Indian Reservation
SAPR San Francisco Maritime National Historical Park	50 [0.08 sq mi]	Historic structures, ships and objects	Urban	No problems	NPS: 50	Urban area, heavily modified	Golden Gate NRA City of San Francisco Private
SAGU Saguaro National Monument	83,576 [131 sq mi]	None	Outlying suburban	Steep mountain slopes; much of park is designated wilderness area	NPS:82,036 State:1,320 Private:160 County:58 (Authorized addition: 3,540)	Sonoran desert; desertscrub to pine and fir forest. Visibility good, survey conditions good to moderate.	County Park Coronado National Forest Private
SAMO Santa Monica Mountains National Recreation Area	150,000 [234 sq mi]	Archeological benefits; historical setting	Outlying suburban	Precipitous terrain; most of the land is privately owned	NPS: 20,438 State Parks: 30,000 Other Public: 2,000 Conservancy: 2,000 Private:80,400	Coastal through chaparral and mountain woodlands with riparian areas. Variable visibility and survey conditions.	US Navy BLM State of California: Parks and Recreation; Lands Commission; Fish and Game; Coastal Commission and Conservancy City and County lands
SEKI Sequoia and Kings Canyon National Parks	846,970 [1,323 sq mi]	None	Rural	Much of park is designated wilderness area	NPS:846,683 Private:249 Patented claims:38	Mountainous from 1,280' to 14,495'. Visibility moderate to poor, survey conditions moderate to difficult.	Sierra, Sequoia and Inyo National Forests BLM Private
TONT Tonto National Monument	1,120 [1.75 sq mi]	Upper and Lower ruins	Rural	No problems	All NPS	Rugged terrain. Visibility and survey conditions good.	Tonto National Forest

Table I.1 Description of Park Lands in Western Region (Continued)

PARK	SIZE IN ACRES	CULTURAL RESOURCES IN ENABLING LEGISLATION	LOCATION	ACCESSIBILITY	OWNERSHIP OF PARK LANDS	PHYSICAL ENVIRONMENT/ SURVEY CONDITIONS	NEIGHBORING LANDOWNERS
TUMA Tumacacori National Historical Park	46 [0.07 sq mi]	Tumacacori, Calabazas and Guevavi Missions; lime kiln	Rural	Access through private and City of Nogales land for Guevavi	NPS: 24 (Tumacacori and Guevavi) Arizona Historical Society: 22 (Calabazas)	Santa Cruz River basin with grassland, riparian and pinyon-juniper transition. Visibility and survey conditions good.	City of Nogales Private
TUZI Tuzigoot National Monument	58 [0.09 sq mi]	Tuzigoot pueblo	Rural	Access through Phelps- Dodge land	NPS: 58 [Proposed addition: Phelps-Dodge: 704; Arizona State Parks: 48]	Ridge, floodplain and terrace. Visibility and survey conditions good.	Coconino National Forest Private Arizona Game and Fish
USAR USS Arizona Memorial	0 acres	No enabling legislation; letter of agreement	Urban	Ship remains are underwater	All owned by U.S. Navy	USS Arizona located underwater. Diving equipment required.	Pearl Harbor Navy Base
WAPA War in the Pacific National Historical Park	1,925 [3 sq mi]	General reference to historic values	Urban and rural	No problems	NPS: 601 U.S. Navy: 204 Government of Guam: 874 Private: 238 Unknown: 8	Sea level to 1,028' with dense vegetation. Visibility poor, survey conditions moderate to difficult.	Government of Guam U.S. Navy
WHIS Whiskeytown- Shasta-Trinity National Recreation Area	42,500 [66 sq mi]	General reference to historic values	Outlying suburban	Variable from easy access to 4WD to dense chaparral	NPS: 42,456 State of California: 29 Private: 15	Chaparral and forest with reservoir impoundment. Visibility poor, survey conditions moderate to difficult.	BLM State of California Bureau of Reclamation
YOSE Yosemite National Park	761,170 [1,189 sq mi]	None	Remote	Much of park designated wilderness area	NPS: 746,239 County of San Francisco: 1,512 Mariposa County: 1 Private: 204	Great variety of landforms and terrain. Visibility and survey conditions variable.	Sierra, Inyo, Toiyabe and Stanislaus National Forests
46 NPS Areas	8,684,213 acres						

**(4) PARK LOCATIONS AND ACCESSIBILITY PROBLEMS:** Most of the park units in Western Region are in rural or remote settings. A few are in urban, suburban, or outlying locations, while some are in settings with both urban and rural components. The park units are categorized below:

LOCATION	NUMBER	PARK UNITS
Urban	5	AMME, FOPO, JOMU, SAFR, USAR
Suburban	2	CABR, EUON
Outlying Suburban	4	CAGR, SAGU, SAMO, WHIS
Rural	23	CHIR, CORO, DEPO, FOBO, GRBA, JOTR, KAHO, LABE, MANZ, MOCA, MUWO, PEFO, PIMA, PINN, PORE, PUHE, PUHO, REDW, SEKI, TONT, TUMA, TUZI, YOSE
Rural/remote	7	GRCA, HAVO, KALA, LAME, LAVO, NASA, ORPI
Remote	3	CHIS, DEVA, HALE
Urban/rural	1	WAPA
Urban/suburban/rural	1	GOGA

Archeological survey requires individuals to walk over an area spaced at fairly close intervals. Problems that complicate survey include dense or sensitive vegetation and steep slopes. Sometimes there is a problem getting to the survey area. This can be due to remoteness, special transportation requirements such as boat, helicopter or 4-wheel-drive vehicle, or private land issues. Wilderness designations of large parcels of land may restrict access to a survey area to foot travel making it necessary to add the complications of backpacking to a field project.

Conditions of accessibility vary considerably from park to park. Twenty-one units have no real access problems. Access to backcountry areas in 16 parks is restricted to foot travel because of wilderness designations. In addition to wilderness designations there are a few parks with remote areas, dense vegetation or sensitive plants that further complicate the access problems. Several parks are so remote that special transportation by boat, helicopter or 4-wheel-drive vehicle is required.

Access through private lands has been negotiated at several parks and private land ownership of major portions of lands within one park creates a major problem for access. Access for archeological surveyors has been denied at one of the undeveloped park units.

ACCESSIBILITY CATEGORY	NUMBER	PARK UNITS
No accessibility problems	21	AMME, CABR, CAGR, CORO, DEPO, EUON, FOBO, FOPO, GOGA, JOMU, KAHO, MANZ, MOCA, MUWO, PUHE, PUHO, REDW, SAFR, TONT, USAR, WAPA
Wilderness designation or proposed wilderness	16	CHIR, DEVA, JOTR, GRBA, GRCA, HALE, HAVO, LABE, LAVO, ORPI, PEFO, PORE, PINN, SAGU, SEKI, YOSE
Remote, special transport required	5	CHIS, KALA, LAME, NASA, WHIS
Access through private land	2	TUMA, TUZI
Most lands private	1	SAMO
Access denied by landowners	1	PIMA

(5) **LAND OWNERSHIP:** Ownership of park lands varies widely in the Western Region. Fewer than one third of the park areas are entirely NPS lands. Lands may be owned by NPS with the original owners reserving the right of use for a number of years or for their lifetime. Other federal landholders within designated park units include the Department of Defense (Army and Navy); the Department of Treasury; other agencies of the Department of Interior (United States Geological Survey, Bureau of Land Management, and Bureau of Reclamation); the Department of Transportation (Coast Guard); and the General Services Administration. State and territorial governments, as well as Native American communities and the Department of Hawaiian Home Lands also are landholders. In addition, city and county governments, and local utilities hold title to some lands. Private lands and patented mining claims exist within some designated NPS units. Some coastal parks have special arrangements regarding offshore waters and tidal lands. Land status for each park is listed in Table I.1 and summarized below.

LAND OWNERSHIP CATEGORY	NUMBER	PARK UNITS
All NPS land/property	17	CABR, CAGR, DEPO, EUON, FOBO, FOPO, GRBA, HALE, HAVO, LABE, LAVO, PEFO, PINN, PUHO, SAFR, TONT, TUZI
More than 90% NPS	16	CHIR, CORO, DEVA, GRCA, JOMU, JOTR, LAME, MOCA, PORE, MUWO, ORPI, REDW, SAGU, SEKI, WHIS, YOSE
Some NPS, some other	7	CHIS, GOGA, KAHO, KALA, PUHE, SAMO, WAPA
No NPS land	4	AMME, NASA, PIMA, USAR
Land exchange pending	2	MANZ, TUMA

(6) **NATURE OF THE PHYSICAL ENVIRONMENT:** The physical environment of the park units in the Western Region is highly variable, and ranges from seashore to high mountain peaks, low desert to high plateau. Many of the parks were established to protect unique environmental zones and geological features.

Physical features such as slope, ground cover, lava flows and vegetation density have direct implications for archeological survey. Steep terrain in mountainous areas makes access to survey areas, and survey itself, challenging. Dense ground cover in plains grasslands, and dense conifer and tropical forests compromises ground visibility and the success of any inventory. While temperature extremes must be considered, desert areas generally present good survey conditions. Volcanic fields and associated lava flows not only have the potential to destroy resources, but these features also can make archeological inventory a hazardous undertaking.

The park units lie within a number of natural regions which may or may not cross state lines. The natural regions as defined in Part Two of the National Park System Plan (NPS 1972) are used for this discussion. The extent of these regions is shown in Figure I.2.

**Arizona** has the Sonoran Desert in the south and Colorado Plateau in the north. A small area of southeastern Arizona lies within the Chihuahuan Desert-Mexican Highland region.

**Nevada** has parks in the Great Basin and on the northeastern edge of the Mohave Desert.



Figure 1.2. Map showing location of Western Region park units in relation to natural regions as defined in the National Park System Plan (NPS 1972).



**California** has the Mohave Desert in the southeast, the North and South Pacific Border regions along the coast and both the Sierra Nevada and Cascade Range. Small areas of eastern California lie within the Great Basin Region.

The **Pacific Islands** offer a great deal of diversity as well with coastal parks, parks with active volcanic features and parks with dense tropical vegetation. The Hawaiian Islands have been subdivided into five subregions. Guam has been designated a natural region but neither Saipan nor American Samoa are classified in the 1972 report.

These natural regions are very broad categories but it is possible to generally characterize each and to give a brief description of the archeological survey conditions found in each province. This discussion follows the categories in the table that follows. It is important to note that modification of park lands can alter ground surfaces making surface survey difficult if not impossible without remote sensing or testing.

NATURAL REGION	UNITS	UNIT ACRONYMS
Mohave-Sonoran Desert	13	CAGR, CORO, DEVA, JOTR, LAME, MANZ, MOCA, ORPI, PIMA, SAGU, TONT, TUMA, TUZI
Chihuahuan Desert-Mexican Highland	2	CHIR, FOBO
Colorado Plateau	2	GRCA, PEFO
Great Basin	2	GRBA, LABE
North Pacific Border	4	MUWO, PORE, REDW, WHIS
South Pacific Border	9	CABR, CHIS, EUON, FOPO, GOGA, JOMU, PINN, SAFR, SAMO
Sierra Nevada	3	DEPO, SEKI, YOSE
Cascade Range	1	LAVO
Hawaiian Islands	7	HALE, HAVO, KALA, KAHO, PUHE, PUHO, USAR
Other Pacific Islands	3	AMME, NASA, WAPA

**Mohave-Sonoran Desert.** Thirteen park areas lie within the desert regions of California and Arizona. Conditions vary but generally speaking the low desert parks have good ground visibility and good survey conditions if temperature extremes are taken into account when planning the fieldwork. Many of these desert parks, specifically CORO, DEVA, JOTR, LAME, ORPI, SAGU and TONT, include mountainous areas with steep terrain and vegetation cover that varies from sparse to heavy.

**Chihuahuan Desert-Mexican Highland.** The two parks in this natural region, CHIR and FOBO, are located in southeastern Arizona in the Chiricahua Mountains which are known for their spectacular rock formations and pinnacles. Ground visibility varies from good to fair in most areas but steep terrain makes survey in some areas difficult.

**Colorado Plateau.** Two national parks in Western Region lie on the Colorado Plateau, GRCA and PEFO. These parks are known for their natural history but both also have a rich culture history. A variety of vegetation communities make survey conditions at Grand Canyon variable. There are, of course, logistical problems involved in surveying the inner canyon. PEFO has excellent ground visibility for archeological survey.

**Great Basin.** The Great Basin Region is made up of more than 150 desert basins surrounded by 160 mountain ranges. GRBA is located in the South Snake Range of eastern Nevada with mountains and pediments and a number of vegetation communities; survey conditions vary considerably. Open land with sparse vegetation make ground visibility for survey good at LABE.

**North Pacific Border.** Interesting seashores, redwood forest and Pacific forests are some of the features making survey conditions only moderate to good at MUWO, PORE and REDW. Chaparral, forest and reservoir impoundment create poor visibility at WHIS making survey conditions moderate to difficult.

**South Pacific Border.** Extending from San Francisco south to San Diego, this region is characterized by the coast, forests, grasslands and chaparral. Ground visibility varies by vegetative community and is affected by ground disturbance at urban parks such as EUON, FOPO, GOGA, JOMU and SAFR. Rugged terrain is one of the main characteristics found at CABR, CHIS, PINN and SAMO.

**Sierra Nevada.** Three parks are found on the western slopes of the Sierra Nevada: DEPO, SEKI and YOSE. The eastern slopes of the range are not included in any park of the Western Region. The mountainous terrain has a variety of vegetation associations. There is considerable variability in survey conditions.

**Cascade Range.** LAVO is the only Western Region park unit in the Cascade Range. Volcanic features and forested areas provide limited to poor ground visibility and variable survey conditions.

**Hawaiian Islands.** The five subregions of the Hawaiian Islands include 1) the Island of Hawaii with tropical to alpine vegetation and active volcanoes (HAVO, KAHO, PUHO, PUHE); 2) the Maui Island group, which includes Maui (HALE), Moloka`i (KALA), Lanai and Kahoolawe; 3) O`ahu (USAR), 4) Kauai, Niihau; and 5) the Leeward Islands. The Hawaiian Islands can have low to nonexistent ground visibility if dense tropical vegetation or lava are present. However, conditions for survey are good in dry, leeward, coastal areas. Parks in Hawaii vary considerably in terrain and can have extreme climatic conditions. There are alpine deserts and lush mountain rain forests. Coastal areas often are cultural landscapes that have been altered almost totally by Hawaiians and by more recent historic-period arrivals.

**Other Pacific Islands.** WAPA, located on Guam, is characterized by dense tropical vegetation which causes low ground visibility and poor survey conditions. The coastal lowlands of AMME in the Northern Mariana Islands are similarly vegetated with poor survey conditions. The dense vegetation, compounded by steep slopes, makes survey difficult at NASA on American Samoa.

**(7) NEIGHBORING GOVERNMENT LANDHOLDINGS:** Table I.1 summarizes the government entities managing land bordering NPS lands. This list of federal landholders ranges from the Department of Agriculture (U.S. Forest Service) to the Department of Interior (U.S. Fish & Wildlife Service, Bureau of Reclamation, and Bureau of Land Management) and the Department of Defense. Several park units share a common boundary, Grand Canyon and Lake Mead as well as Golden Gate and Muir Woods. State and territorial landholdings abut park areas in Arizona, California, Hawaii, Nevada, the Northern Mariana Islands, Guam and Samoa. Two parks are bordered by the Republic of Mexico. Indian Reservations and Hawaiian Home Lands are found in the vicinity of a number of parks. County and city governments also own lands near parks. Many of the parks are bounded by privately-owned lands or have privately-owned inholdings.

## ■ PART II: REGIONAL OVERVIEW

The purpose of this survey plan is to quantify each region's material weakness (in terms of archeological knowledge) and outline a strategy to address information gaps. Accordingly, this regional overview, describing the prehistory, history, and status of archeological research for each park, will be more detailed and specific than most other sections. Regionwide Strategies (Section IV) and Proposed Projects and Regional Priorities (Section V) will be built on data presented in this section.

The Western Region's park units are found in Arizona, California, Nevada and Hawaii as well as in American Samoa, Guam and the Commonwealth of the Northern Mariana Islands. The diversity of culture groups represented in the prehistory and history of these parks needs to be discussed by geographical/cultural areas. These areas differ from the natural areas used to describe the region's physical environment in Part I. The discussion of each area will be general in nature and include:

- 1) A discussion of the prehistory and history of the area.
- 2) Physiography, ecology, topography or landscapes associated with past human occupations and use.
- 3) Nature of archeological resources associated with each type of physiographic province, ecological zone, topographic feature or landscape identified.
- 4) A summary of the nature and adequacy of prior archeological research in the region in terms of quality, quantity and geographic coverage.
- 5) Identification of gaps and weaknesses in the scientific knowledge about the region's prehistory and history, and identification of research problems, questions or topics (especially those of regional and national importance) in need of further archeological study.

There are four major culture areas represented in the Western Region (Willey 1966:6). These culture areas correspond to major geographic areas. They are the Southwest, the Great Basin, California and the Pacific Islands. Each of these areas has a great variety of environmental zones that were exploited differentially in the past.

- **California:** including the Pacific coast, interior valleys and mountains, northeastern plateau region and the deserts of southern California
- **Southwest:** including all of Arizona and part of Nevada
- **Great Basin:** encompassing most of Nevada and parts of neighboring states
- **Pacific Islands:** stretching from Hawaii to Guam and Saipan

Parks in each of these geographic units are listed below.

GEOGRAPHIC/CULTURE AREA	NUMBER	PARK UNITS
California	21	CABR, CHIS, DEPO, DEVA, EUON, FOPO, GOGA, JOMU, JOTR, LABE, LAVO, MANZ, MUWO, PINN, PORE, REDW, SAFR, SAMO, SEKI, WHIS, YOSE
Southwest	14	CAGR, CHIR, CORO, FOBO, GRCA, LAME, MOCA, ORPI, PEFO, PIMA, SAGU, TONT, TUMA, TUZI
Great Basin	1	GRBA
Pacific Islands	10	AMME, HALE, HAVO, KAHO, KALA, PUHE, PUHO, NASA, USAR, WAPA

# CALIFORNIA

Laura K. Laird and Susan J. Wells



*Pictographs from the Gallery Site at Death Valley National Monument.*

California is perhaps the most diverse state in the Western Region. Its physical geography includes a 700 mile coastline, myriad coastal mountain ranges, interior valleys epitomized by the Sacramento and San Joaquin, upland plateaus, southern deserts and the Sierra Nevada mountain range. California is drained by several major river systems, and supports an immense biotic diversity.

Its long and complex prehistory is evidenced in the linguistics of the area. Moratto notes that "In many ways the linguistic features of aboriginal California were more complex than those of any area of equal size on earth ..." (1984:523). Prior to acculturation, it is estimated that 23 language families and isolate languages, manifested in 90 distinct languages, existed here.

area's prehistory and status of archeological research. Much of what follows has been gleaned from this publication. Moratto suggests that cultural developments are distinct to different geographic subregions:

- Southern Coast
- Central Valley
- San Francisco Bay and Central Coast
- Sierra Nevada
- Northeastern California
- North Coast
- Southeastern Deserts

In his *California Archaeology*, M. J. Moratto (1984) has elegantly summarized what is known about this

Twenty-one National Park units are located in the California geographic province, and fall into six of the seven subregions as defined by Moratto. No park units fall within the Central Valley subregion of California.

SUBREGION	NUMBER	PARK UNIT ACRONYMS
Southern Coast	3	CHIS, SAMO, CABR
San Francisco Bay and Central Coast	8	EUON, FOPO, GOGA, JOMU, MUWO, PINN, PORE, SAFR
Sierra Nevada	3	DEPO, SEKI, YOSE
Northeastern California	3	LABE, LAVO, WHIS
North Coast	1	REDW
Southeastern Deserts	3	DEVA, JOTR, MANZ

## SOUTHERN COAST SUBREGION

The southern California coast extends from Morro Bay on the north to Baja California and the United States/Mexico border on the south. It is characterized by bays, lagoons, long sandy beaches, grasslands and shrubfields, and mountain forests. National Park units in this subregion include Channel Islands, Santa Monica Mountains, and Cabrillo.

California was inhabited by humans by at least 15,000 to 10,000 B.P. Early sites are concentrated in Southern California, although they are present in central and northern parts of the state as well. Santa Rosa and San Miguel islands (CHIS) are the locations of two very early archeological sites: Arlington Canyon and Daisy Cave, both dated to circa 10,000 B.P. California, more specifically the northern Channel Islands, may have been inhabited 30,000 - 15,000 years ago, although evidence is inconclusive (Moratto 1984:71).

Little is known of the lifeways of California's earliest inhabitants. We assume that they were nomadic hunter-gatherers. Resource procurement likely focused on lakes, marshlands, seashores, estuaries, and riparian areas. In addition, potential ancient landforms in areas of typical resource procurement (lakes, marshlands, etc.) have yet to be inventoried.

The more recent prehistory of the Southern Coast encompasses five widespread cultural horizons, each with significant local variation (Warren 1968; see also Moratto 1984:160-162). Approximately 8,000 years of prehistory are summarized as follows:

**San Dieguito Tradition (9,300 - 8,000 B.P.)** - Fishing, intensive shellfish collecting, some hunting; nomadic or possibly semisedentary groups

**Encinitas Tradition (circa 8,500 - 3,000 B.P.)** - Use of milling equipment, hunting, fishing. Rapid spread of milling technology throughout subregion. This tradition persisted in southern part of subregion until approximately 3,000 B.P.

**Campbell Tradition (5,000 B.P. - Protohistoric)** - Diversified subsistence, hunting of land and sea mammals, use of mortar and pestle, trade with the Desert Southwest.

**Chumash Tradition (Protohistoric)** - Incrementally developed from Campbell Tradition into Chumash in Santa Barbara area, with elaborate maritime economy, dense population.

**Shoshonean Tradition (circa 1,500 B.P. to Protohistoric)** - Influx of Shoshonean people from the interior to the coast marked by the introduction of cremation, pottery and small triangular arrow points to this maritime economy. At the same time there was a blending of the Yuman Tradition of the Colorado River area with Encinitas Tradition in southwestern California.

Origins of the milling equipment technology of the Encinitas Tradition, and appearance of the Campbell tradition are not well known. The Shoshonean migration is not well dated.

Historically, the area was settled by Franciscan Missionaries in the late 1760s. Indians were captured and held in missions, resulting in cultural conflict, epidemics, and other forms of cultural devastation. Private land grants occurred under Mexican rule during the early to mid-19th century. The California Gold Rush of 1848 increased exploration and maritime commerce during the 1870s.

## **CABRILLO NATIONAL MONUMENT**

This small park unit has been completely inventoried, and has four small prehistoric archeological sites, which have not been assigned to any particular time period. Some historic resources also are present, related to maritime trade and travel, and World War II military presence in the area.

## **CHANNEL ISLANDS NATIONAL PARK**

The islands incorporate rugged terrain, with steep ridges, low hills, and terraces. As noted above, CHIS has archeological resources spanning the known prehistory of California. Overall, survey of CHIS is far from complete. Santa Rosa Island, holding securely-dated 10,000 year old archeological deposits, is largely unsurveyed but is currently being surveyed with NASI funds. East Santa Cruz Island has had no basic inventory survey but the western end of this island, currently in the possession of the Nature Conservancy, has had a 10 percent to 15 percent sample survey. For the remaining islands, base maps are adequate.

While use of marine resources is fairly well-documented, use of terrestrial resources is relatively unknown. Trade relationships between island and inland communities also remains to be adequately described. Few middle period sites (2,600 - 800 B.P.) have been studied. CHIS also has the largest, most coherent pool of relatively undisturbed Chumash remains in California.

Historic remains on the islands include Chinese abalone camps and World War II military installations. Evidence of oil exploration, ranching structures and fishing camps is present. CHIS also has an abundant and diverse collection of submerged resources. Most of these are shipwrecks, although prehistoric artifacts have been recovered and it is likely that entire prehistoric sites are inundated. Historic documentation is available for roughly 80 shipwrecks in the park. The technology currently is not available to study the wrecks in a cost-effective manner.

## **SANTA MONICA MOUNTAINS NATIONAL RECREATION AREA**

This NPS unit spans the entire length of the Santa Monica Mountains. Only 14 percent of the land within the NRA is owned by NPS. The area is characterized by seacliffs, coastal terraces, foothills, south-flowing drainages and rocky peaks. Ten major vegetative communities have been identified including riparian and coastal zones, oak grasslands, chaparral and scrub. This great variety provided floral and faunal resources as well as stone and minerals for aboriginal inhabitants of the area.

Sixty five archeological sites have been identified on NPS lands within the recreation area. Cultural resources include sites, landscapes and traditional cultural properties. Prehistoric sites span three to four millennia. Only two sites have been tested recently, the Decker Canyon Archeological Site and CA-LAN-453 at Point Dume. The former site was determined eligible for the National Register of Historic Places and dates to the period 8,000 - 1,400 B.C. The Point Dume site was determined ineligible. Sites identified include rock shelters and pictograph sites.

There appear to be links between the late prehistoric period and the historic period occupation of the area by the Chumash and Tongva. A few historic period ranches and other such sites have been surveyed. No maritime history has been documented for the State owned beaches contiguous to the NRA.

There is the need to develop a data base of site information for SAMO. Many site records need updating. The potential impact of the Los Angeles population on the archeological resources of SAMO increases the need for systematic survey on NPS lands. An assessment of existing collections from sites now owned by NPS is needed.

## SAN FRANCISCO BAY AND CENTRAL COAST SUBREGIONS

The San Francisco Bay subregion extends from Point Reyes in the north to Ano Nuevo in the south. The Central Coast subregion extends approximately from Santa Cruz in the north to San Luis Obispo in the south. This subregion includes Point Reyes, Muir Woods, Golden Gate, Fort Point, John Muir, Eugene O'Neill, and Pinnacles NPS units. The San Francisco Bay subregion encompasses rolling hills and valley country surrounding the Bay and its associated tidelands. These natural features sustained a variety of biotic communities, including saltmarsh, grassland, redwood forest, and mixed-evergreen woodland. Elk, deer, waterfowl, shellfish, sea mammals, and fish were abundant. The Central Coast is generally more rugged. North-south trending coastal mountain ranges harbor interior valleys, such as the fertile Salinas Valley. Monterey Bay interrupts the rugged coastline at the northern extreme of this subregion. The rocky shoreline is inhabited by a plethora of sea life, including mussels and abalone, fish, waterfowl, and sea mammals.

The earliest evidence of habitation in this area dates to circa 10,000 B.P., in interior valleys between San Francisco and Santa Cruz. This evidence points to widespread occupation by hunter-gatherers during the late Pleistocene. Late Pleistocene California was subjected to warming temperatures, glacial retreat, rising seas, evaporation of pluvial lakes, major vegetation shifts, and extinction of RanchoLabrean fauna. During this era human population was probably sizable. There may have been some degree of sedentism, although it appears that the population was primarily nomadic.

Sites from this era generally clustered around the pluvial lakes, and along shorelines where rising seas resulted in formation of tidal marshes and estuaries. These cultures are represented by the Western Pluvial Lakes Tradition. In some inland and mountainous areas a continuation of older cultural patterns has been found in this subregion. Little is known about these early holocene peoples.

Evidence of habitation between 7,000 and 4,000 B.P. again points to widespread hunter-gatherer populations. These peoples occupied hill country, bays and ocean shores, exploiting their diverse environment with a general economic strategy of foraging. This has been described as the "Sur Pattern" in the Central Coast Subregion. This pattern extends northward into the San Francisco Bay area.

After 4,500 B.P., archeological research points to population replacement from the east. This new culture, recognized archeologically as the "Berkeley Pattern", is first documented in the eastern San Francisco Bay area. By circa 2,500 B.P. this pattern appears in the Monterey Bay area and along the north shore of the San Francisco Bay. This pattern is characterized by a specialized bayshore/marsh adaptation that may have followed holocene environmental changes. Habitation sites of this period are characterized by shell-mounds with a great volume of remains indicating sedentism or long periods of seasonal occupation. There is some evidence of specialized fishing villages from this time period, as well.

Beginning about 1500 B.P. in the San Francisco Bay subregion archeological sites with cultural traits from the east begin to appear. These include new technologies such as the bow and arrow, and larger population densities, more settlements, status differentiation, a shift in emphasis to vegetal food processing, and elaborate trade and exchange networks. The "Augustine Pattern", as this horizon is known, apparently did not extend into the Central Coast area. Here, the Monterey Pattern continues without interruption or profound influence until missionization.

While the prehistory of the San Francisco and Central Coast subregions has been extensively studied, important questions remain. The Central Coast (and especially its interior valleys and hills) remain poorly known. It is possible that some of these interior areas have more evidence of pre-7,000 B.P. inhabitation of the area, especially in the fertile valleys. King (1971) has proposed a model describing the probable population replacement that occurred after 4,500 B.P. (locally recognized as the Monterey and Berkeley Patterns). Although current data appear to support his model, it has yet to be analytically tested.

#### **EUGENE O'NEILL NATIONAL HISTORIC SITE**

This site consists of 13 heavily-modified acres in the inland eastern portion of the San Francisco Bay area. The site has been completely inventoried, and four historical archeological sites have been identified which relate to early 20th century occupation. Two sites are not adequately documented.

#### **FORT POINT NATIONAL HISTORIC SITE**

Begun in the 1850s, Fort Point is the only remaining complete masonry American Third System fort in the coastal defenses of the West Coast. It was in use between 1861 and the 1920s.

#### **GOLDEN GATE NATIONAL RECREATION AREA AND MUIR WOODS NATIONAL MONUMENT**

These areas encompass over 70,000 acres, with resources dating from the Middle Horizon (likely the Berkeley Pattern), circa 4,200 B.P. Late period sites (probably the Augustine Pattern) are also present. These resources are clustered along estuaries and marshes, as well as riverine environments.

All previous archeological surveys have focussed along the coastline, with little interior survey. This remains a critical gap in inventory data for GOGA.

History of this area spans two centuries, and includes Spanish exploration, mission and military settlements (Presidio); Russian and other European exploration and settlement along the coast and bayshore; early hunting and trading; Mexican rule and private land grants; and Gold Rush exploration and settlement.

Submerged archeological resources include 78 shipwrecks. These shipwrecks are the remains of early exploration, trade and travel, and have not been adequately inventoried or documented.

#### **JOHN MUIR NATIONAL HISTORIC SITE**

This unit encompasses 340 acres of heavily cultivated lands. It has been completely inventoried for archeological resources, the earliest of which relate to a 19th century adobe from the era of Mexican rule (mid 1800s). Although inventory is complete, at least five sites are not adequately documented.

#### **PINNACLES NATIONAL MONUMENT**

This unit is characterized by rugged topography, lowland dry areas, and dense chaparral. Twenty-six archeological sites have been recorded, likely dating to approximately 1500 B.P., although no chronology has been documented. Historic sites include five homesteads relating to 19th century ranching, some World War I copper mining resources, and CCC-era remains. Prehistoric and historic sites tend to cluster in the well-watered areas and in the foothill woodland zone. Approximately six percent of the monument has been adequately inventoried.



### **POINT REYES NATIONAL SEASHORE**

This NPS unit is typical of the San Francisco Bay coastal area in both topography and biological communities. Earliest resources in this area date from 3,000 B.P. Sites here tend to correlate with estuary and beach zones. However, upland areas have not been adequately inventoried. Base maps are inadequate, and most of the existing site records do not meet current professional standards. Previous archeological research has focussed on prehistoric archeology, resulting in poor treatment of the historical archeological record.

Historical resources reflect general trends in California history: early exploration, early trade, fishing and sealing industries, and ranching and dairy production.

The maritime history of PORE has been fairly well documented. The archeological problem with the most public appeal surrounds the "Drake Quest", the search for evidence of Sir Francis Drake's 1579 landfall north of the San Francisco Bay. This quest has been the principal motivation for archeological research in the north Bay area. Tens of sites have been investigated, and exotic 16th century artifacts have been found in several shell middens. Submerged resources include 32 shipwrecks, which have not been adequately inventoried or documented.

### **SAN FRANCISCO MARITIME NATIONAL HISTORICAL PARK**

This park was established to preserve and interpret the history and activities of seafaring Americans, the Nation's maritime heritage, particularly on the Pacific coast. Park properties include the Haslett Warehouse and the Museum known as the Sala Burton Building as well as nine ships listed on the National Register. The Tubbs Cordage Company Office Building and the Aquatic Park Historic Site are also on the Register. Collections include a library, historical documents, and marine artifacts.

The park mission includes preserving the ships and allowing the public access to the ships which are anchored in the bay.

Reconnaissance survey on the park property led to the discovery of remains from the 1906 San Francisco earthquake which had been dumped on park property. The potential for other interesting finds suggests the need for archeological survey.

## **SIERRA NEVADA SUBREGION**

Yosemite, Sequoia, and Kings Canyon National Parks and Devil's Postpile National Monument occur in this subregion. The Sierra Nevada is one of the highest and longest mountain ranges in North America. It is characterized by low, rolling foothills on the west, grading into ridge and canyon systems, with high meadows and rugged peaks at the crest. The eastern slope is steep, dropping straight to Mono Lake and the Owens Valley. The biotic communities vary with elevation, creating a great diversity in this subregion. Few regions in North America are as ecologically diverse as the Sierra Nevada.

Ethnic groups were generally spread across life zones, so that each group had access to a wide variety of resources. This facilitated east/west contact, trade and travel. North/south contacts were fairly restricted. Sierran populations, at contact, included nine language families from three superfamilies, attesting to extensive population movement. Gathering, hunting and trading were accomplished by travelling up and down the elevation bands.

The Sierran Indians were fairly isolated from the California Missions of the late 1700s, although some refugees escaped into this region. Historic explorations started with early trans-continental travels. The European-American migration increased with the California Gold Rush of the mid 1800s. This event devastated Indian populations and lifeways through disease, violence, environmental damage and forced relocation.

Some evidence for early holocene occupation has been found in the northern Sierra, in proximity to Yosemite. These resources reflect hunting activities, and are not well-documented throughout the region.

Archeological research has developed an evolving picture of settlement patterns, social organization, exchange, paleoenvironmental reconstruction, and cultural ecology of the Sierra. However the early periods of prehistory and the archeology of the northern Sierra remain poorly known.

Important questions remain, especially regarding major cultural developments. These include the expansion of trans-Sierran trade, introduction of acorn-processing technology, and an apparent occupational hiatus circa 1500 B.P. Although the Sierra were probably used as early as 10,000 - 11,000 B.P., very little is known about this era.

#### **DEVIL'S POSTPILE NATIONAL MONUMENT**

Located near the crest of the Sierra Nevada along the Middle Fork of the San Joaquin River, DEPO is forested primarily by red fir with stands of lodgepole pine. Meadows occur and the areas along the river are riparian. The main geologic feature that gives the monument its name is a series of hexagonal columns resulting from volcanism in the area.

Nine sites were recently recorded during a post-fire survey of the entire monument (Hull and Hale 1993). Previous work in the park includes a reconnaissance survey and a clearance survey. Two of the sites date to the historic period. The others are chipped stone scatters. The small number of diagnostic artifacts recovered from the surveys that have been conducted at DEPO date from 3,000 B.C. to A.D. 500. A gap in diagnostic artifacts from the period A.D. 500 - A.D. 1500 coincides with a presumed hiatus in occupation due to major volcanic activity in the region.

Historic period occupation of the area includes grazing and trapping. Travel through the area is indicated by blazes on trees, some with dates and some attributed to the U.S. Cavalry.

Research potential of the sites includes topics such as culture chronology, economic patterns, settlement, demography, social organization, paleoenvironment and the effects of volcanism on occupation of the area. Obsidian studies may prove fruitful. The points collected from the sites in DEPO conform to styles identified in the Great Basin. Use of these styles at sites in the Sierras is not securely dated.

#### **SEQUOIA AND KINGS CANYON NATIONAL PARKS**

Sequoia and Kings Canyon encompass a large expanse of the southern Sierra Nevada. Similar to those at Yosemite, life zones vary with elevation changes, creating a diverse environment. Earliest occupation in this region dates to approximately 2,500 B.P., and archeological resources indicate that the area was occupied until historic times. Approximately three percent of park lands have been adequately inventoried, with 50 percent of the existing records meeting current standards. Further inventory is needed, especially in developed areas and heavily-used backcountry areas.

Most of the archeological research to date has focussed on the prehistory of the area, resulting in woefully inadequate documentation of historic resources. These historic resources reflect general California historical trends like Gold Rush exploration and resource exploitation, early conservation efforts, and recreation. Resources typical of the history include remote mining resources, remains of trapping and logging efforts, and early NPS and concessioner facilities.

#### YOSEMITE NATIONAL PARK

This NPS unit is typical of the Sierran region. The park encompasses several different ecological zones, ranging from foothill woodland at 1,900 feet to alpine fell-fields at over 11,000 feet. A three-part cultural sequence (Bennyhoff 1956) has been tested and for the most part, remains useful. Similar cultural sequences throughout the Sierra describe a prehistory spanning 3000 to 4000 years, with early cultures hunting, gathering, and processing small seeds. Introduction of bow and arrow and mortar/pestle technologies may indicate population replacement circa 1500 B.P. This middle cultural complex apparently developed *in situ* into the early historic populations.

Archeological sites here follow a distinct pattern of large, old villages clustered along major river valleys. Resources from this era date to approximately 4,000 B.P. The middle phase of occupation reflects a different land-use strategy and is less well-documented. These resources are located away from the major river valleys, and occur along secondary streams, are less dense, and may reflect population replacement. Late period inhabitants, precursor to ethnographic populations, had a well-developed subsistence based on acorn processing, hunting, extensive gathering and horticulture, and a broad trade network. Resources show distinct similarities to Great Basin cultures, although Central Valley cultures also had some influence.

Although most of the developed areas have been inventoried, less than five percent of the park has been surveyed. Critical inventory gaps are high-elevation seasonal use areas. These are often densely populated with archeological resources, reflecting intensive use and the presence of trade routes. The middle period is especially poorly known, and many of these upland areas likely have single-component sites reflecting middle-period use.

The historical resources of the park are varied, and include early recreational and industrial resources. Sheepherding, logging, mining, and homesteading sites are present, as are early resources reflecting development of tourism, Military administration, and NPS conservation efforts. Much of Yosemite's wilderness has been inventoried for historic resources.

#### NORTHEASTERN CALIFORNIA SUBREGION

The Northeastern California subregion is California's least-known archeological area. It includes the Cascade mountains on the west, the northern terminus of the Sierra Nevada, and the volcanic tableland of the Modoc Plateau. Whiskeytown, Lassen Volcanic, and Lava Beds NPS units are located in this subregion. Portions of the Cascades support lush conifer forests, while the Modoc Plateau is generally dry with less vegetation. The northeastern tableland area holds several large lakes (near LABE) that supported large prehistoric populations. The landscape has changed drastically in the past 150 years from timber harvesting, fire suppression, livestock grazing, draining lakes and the construction of dams.

Linguistically, nine distinct language groups from three major language stocks existed here. This subregion was definitely occupied by at least 10,000 B.P, especially around the rich lacustrine

environment in the Tule Lake Basin (LBE). Subsistence and settlement varied by group and environment, but generally followed a seasonal round of gathering and hunting.

Archeological knowledge in this subregion is relatively sketchy. While a rudimentary chronological sequence has been proposed, a chronology that integrates all locally-recognized sequences has yet to be developed. As well, the structure of settlement/subsistence systems remains undefined. The area is rich in rock art, particularly in LBE. Little but descriptive work has been done with this resource. In particular, the area holds potential to contribute to anthropological and archeological theory. In the southeastern Cascades and central Modoc Plateau, population groups have developed over centuries into distinct ethnographic groups. In these areas, models of ethnicity in the archeological record can be tested (Moratto 1984:468-469).

#### **LAVA BEDS NATIONAL MONUMENT**

This NPS unit is situated at the western edge of the Modoc Plateau, along the southern edge of the Tule Lake Basin and the eastern flank of the Cascades. At least 10,000 years of human history is evident here. Early holocene occupation apparently clustered in the rich lacustrine environment of the lake basin, and represents early hunting and gathering subsistence. Later resources reflect a seasonal subsistence/settlement round, with well developed trade systems and rich ceremonialism. The later period adaptation focussed on the lakeshore/marshlands, as well.

Site frequency varies by ecological life zones. The Tule Lake shoreline is very, very rich in archeological resources. Most are multi-use village areas. The numerous caves, also a water source, have the second highest density of archeological resources. These are also multi-use areas, although not as complex as lakeshore sites. The areas between these two physiographic feature types may be devoid of archeological sites.

History of the monument includes early exploration, trade and settlement, and is dominated by the 1872-73 Modoc War. During this event, a small band of Modoc Indians held off the U.S. Army, which outnumbered the Indians 20 to one, for five months. Later uses included grazing and early tourism.

Although approximately 1,500 acres have been adequately inventoried, this represents only about four percent of the entire monument lands. The nature of the archeological resources cannot be adequately described because of some basic knowledge gaps. These include construction of a chronological sequence, description of settlement and subsistence patterns, paleoenvironmental reconstruction, exchange system, and basic descriptions of architecture and rock art styles.

#### **LASSEN VOLCANIC NATIONAL PARK**

This park unit is typical of the southern Cascades, consisting of isolated volcanic peaks on a great lava plateau. As such, features like volcanos, lava flows, cinder cones and thermal areas are common. Lakes and streams are present, and forests and meadows correlate with changing elevation.

The prehistory of Lassen is quite poorly known. Seasonal use probably occurred as early as 4,000 years ago. The cultural sequence is likely complex, given that three ethnographically known groups lived here in early historic times. Village sites in lower elevation areas tend to cluster in wet meadow areas. Higher elevation sites appear to be specialized hunting or gathering areas near water or in open settings. Historic occurrences include exploration and settlement (especially along the Nobles Emigrant Trail), fire suppression, and early NPS administration.

Less than five percent of the park has been inventoried. The nature of subsurface resources is unknown. Gaps in research knowledge are large and basic. Cultural chronology and occupational sequences are not understood, settlement/subsistence patterns are not documented, and none of the resource knowledge has been placed within the larger regional framework.

#### **WHISKEYTOWN NATIONAL RECREATION AREA**

This NPS unit lies in the southern Klamath Mountains, and consists of a large reservoir in the Clear Creek drainage. Elevation ranges from 1,250 to 6,200 feet. A total of 3,250 acres is submerged beneath the reservoir waters, likely representing the lands with highest archeological site density. A total of 40 archeological sites have been recorded in the park, with the archeological record spanning the past 6,600 years. Early sites are likely seasonal, and reflect a specialized hard seed processing (milling stone) economy. Middle period low-elevation sites, dating from approximately 3,200 to 2,000 B.P., reflect a more diverse economy relying on deer hunting and acorn processing. Higher elevation sites consist of multiple-activity areas, chronologically unknown.

Historic use of the area centered around early mining industries (quartz, copper, placer, granite and talc) and homesteading.

Less than five percent of the area has been inventoried. In particular, the inundated portion was not adequately surveyed. While a sample of unit lands has been subjected to intensive survey, the data generated simply are not adequate to describe the archeology of the unit. Information gaps include the very basic domains, including description of types of resources present and their distribution, and definition of a local chronology that can be incorporated into a broader regional structure.

#### **NORTH COAST SUBREGION**

This area extends along the California coast from the Oregon border nearly to San Francisco, and includes the Smith, Klamath, Redwood, Mad, Van Duzen, Eel, Mattok and Russian river drainages. It encompasses coastal, riverine, and montane valley ecosystems, and is mostly rough and mountainous. Redwood National Park is the only NPS unit in this subregion. Remnants of PaleoIndian occupation have been discovered at Borax Lake, dating to about 12,000 B.P. The area's long prehistory incorporates a succession of population movements, spread of outside influence, and development of a distinctive cultural style similar to that of the Pacific Northwest.

The Archaic Period, spanning the early and mid Holocene, is represented by distinct styles from northern and southern limits of the area. In the southern portion, the Berkeley Pattern from the San Francisco Bay area is evident by approximately 4,500 B.P. In the northern area, patterns similar to the Northwest Coast Gunther pattern appear by approximately 3,000 B.P.

Along the coast, interior sites generally predate shoreline shell-midden villages. Three distinct populations are well-documented. Away from the coast, sites cluster along riverways and ridgetops. Possibly early occupation has yet to be confirmed.

#### **REDWOOD NATIONAL PARK**

Redwood extends along the extreme northern portion of the California coast. It encompasses two distinct environments, the coastline and the coastal mountains. The coast is mostly rugged, except where the Klamath River and Redwood Creek flow into the ocean. Uplands include dense redwood forests, grassland prairies and oak woodlands.



*Archeological surveyors at Redwood National Park.*

Prehistoric occupation of Redwood extends back about 4,500 years, manifested in multi-use sites inland from the coast. These were probably occupied by small hunter-gatherer groups. Population movement, likely from the north, occurred approximately 3,000 B.P. This culture horizon is characterized by a population increase, lower elevation permanent villages with higher elevation special use sites, and a diverse economy focussing on fishing and acorn collection. Archeological sites tend to cluster where freshwater sources enter the ocean, on major ridgelines, and at woodland/prairie ecotones inland.

The historic era encompasses early exploration (early 1800s), Gold Rush period commerce, homesteading, sheep ranching, fishing, and dairy farming. The most pervasive historic industry was logging, which is well-represented on the landscape.

Maritime history in this region encompasses exploration, Spanish landfall in 1775, trapping, and extensive commercial shipping. Approximately ten historic shipwrecks have been noted along the Redwood coastal strip.

Primary gaps in archeological knowledge include settlement/subsistence models, location and investigation of early sites, and European/Indian interactions during the historic period.

## SOUTHEASTERN DESERT SUBREGION

The deserts of southeastern California are bordered by the Sierra Nevada, transverse and peninsula mountain ranges on the west, the Colorado River and Great Basin on the east and by Mexico on the south. The area includes the Mohave Desert, the Colorado Desert (of the Lower Sonoran life zone) and the Owens Valley and is characterized by north-south trending mountain ranges with low enclosed valleys. The main rivers of these deserts tend to sink underground as they approach the valleys and infrequently have surface water.

The array of flora and fauna available in these valleys varies by latitude and elevation. The desert floors have sparse resources with occasional riparian areas. The addition of yucca and agave at slightly higher elevations in the Colorado and Mohave deserts contrasts with the vegetation patterns seen in the Great Basin. Pinyon-juniper communities occur in some desert mountain ranges but are more common in the Great Basin mountains.

The prehistory of the area has been researched since the 1920s beginning with Malcolm Rogers in the Mohave Sink, and the Campbells near Twenty Nine Palms. Later work was conducted by Hunt and Wallace in Death Valley in the 1950s through 1970s. Early work focused on developing basic chronologies for the region. All subsequent chronologies have been built upon these earlier ones. Claude Warren's chronology for this region, which is presented in Moratto's *California Archaeology* (1984), is used herein.

The Pinto Period (5000 B.C.-2000 B.C.) is typified by sites in the Pinto Basin, Salt Springs, and Death Valley as well as at the Stahl Site. Pinto points are the hallmark diagnostic artifact. The dates for these points are based on cross dating with Pinto points in the Great Basin. The assemblage for this period does not include milling stones. A hunter-gatherer subsistence strategy is assumed for this period.

The artifact assemblage of the Gypsum Period (2000 B.C.-A.D. 500) is characterized by Humboldt, Gypsum Cave, Elko Eared and Elko Corner-Notched points with manos, metates, mortars and pestles also present. This was a period of adaptation to the desert environment resulting in a highly successful lifeway. The influence of the western Great Basin was seen during this period as well as influence from the Southwestern United States in the form of split-twig figurines. Shell from the California coast and Coso style petroglyphs indicate influences from the western part of the state. By the end of the Gypsum Period, Anasazi pottery had been introduced on the northeastern edge of the Mohave Desert and the bow and arrow had begun to replace the throwing stick.

The Saratoga Springs Period (A.D. 500-1200) is contemporary with the Basketmaker III through Pueblo periods along the lower Virgin River in Nevada. Rose Spring and Cottonwood Triangular points were used with the bow and arrow. Ground stone was common. Pottery began to be present by A.D. 750 in some areas. Warren identified four distinct regional variants during this period with Hakataya influence along the Colorado River in both the Mohave and Colorado deserts, coastal influence in Antelope Valley in the western deserts and the influence of the Anasazi in the eastern Mohave Desert. The Anasazi appear to have been exploiting turquoise mines in the Mohave Desert during this period. Although there are developments in technology and subsistence strategies there seems to be continuity with the preceding Gypsum Period.

The Protohistoric Period (A.D. 1200-Historic) in the California deserts is indicated by the presence of Desert Side-Notched and Cottonwood Triangular points and dated pottery types. Warren sees

three distinct regional variants. In the eastern Mohave region the Anasazi influence was replaced by that of Numic speaking people. The southern desert had pottery from western Arizona by A.D. 900 and Antelope Valley was still influenced by coastal groups.

Twelve distinct Indian cultural groups were identified in this region in the historic period. They can be divided into two major language groups: the Yuman language groups of Hokan stock who were primarily agriculturalists living along the Colorado River, and the Uto-Aztecan language group, particularly the Numic and Takic subfamilies, living in the northern deserts. The latter group belongs to the same language family as the Great Basin culture groups and seems to have been organized into semi-sedentary bands similar to the pattern identified in the Great Basin.

#### **DEATH VALLEY NATIONAL MONUMENT**

Death Valley is a place of extremes. Elevations range from 282 feet below sea level to more than 11,000 feet above sea level. Salt flats, sand dunes, a volcanic crater, springs and high mountains are all found there. Vegetation communities include the salt flat, sagebrush, pinyon-juniper and bristlecone pine communities.

Located in the eastern Mohave Desert, Death Valley has been archeologically studied since at least the 1920s beginning with Malcolm Rogers' work at Saratoga Springs. The Campbells also did some early work at Saratoga Springs in the 1920s and along the Amargosa River in the 1930s. NPS and CCC workers collected artifacts from sites in the 1930s and 1940. From 1946-1957 a park naturalist recorded over 100 rock art sites. Clement Meighan excavated Coville rockshelter in 1951. William Wallace began 25 years of work at Death Valley in 1952. Wallace, his wife Edith, and Alice Hunt recorded more than a thousand sites over the next 25 years. Wallace proposed a chronology for the area and Hunt's 1960 dissertation summarized their findings.

Since the late 1970s most of the archeological projects in Death Valley have been related to cultural resource management prior to development. Projects include excavation of Harmony Borax Works prior to stabilization and interpretation and data collection in the Bullfrog Mining District. Survey projects have examined 187 mining claims, the Emigrant-Wildrose Highway, boundary fences, the Timbi-Sha Village and Lower Vine Ranch. Three historic resource studies have been completed. A draft CRMP was completed in 1987.

Although survey coverage was extensive there are no records indicating how intensive or systematic any of the pre-1970s surveys were. To date only 2,000 acres have been systematically surveyed but more than 1,600 sites have been recorded. Of these, only about 100 have site records that meet modern standards.

The prehistoric, ethnographic and historic periods are all well represented at the monument. Archeological survey projects planned for Death Valley need to focus on developed areas and on environmental zones within the park with little survey coverage.

#### **JOSHUA TREE NATIONAL MONUMENT**

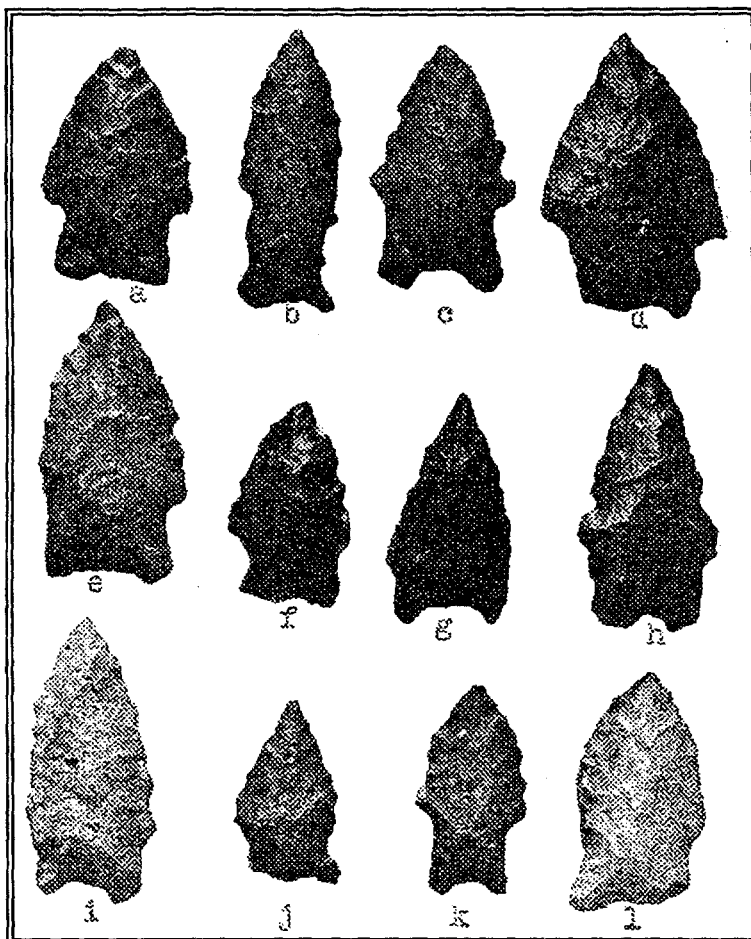
Located in both the Mohave and Colorado deserts, Joshua Tree has a variety of plant communities including Joshua tree, desert wash, pinyon-juniper, chaparral, yucca, desert grassland and cholla cactus. There are several oases and springs as well as sand dunes and rocky canyons.

Elizabeth and William Campbell were among the first archeological researchers to work in the Joshua Tree area beginning in 1929. Their collections from more than 30 archeological districts are



not well plotted on maps but are, nonetheless, very important. Their pursuit of early man led them to the Pinto Basin Site which is within the park and to Lake Mohave located just north of Joshua Tree NM. Other early archeological work was conducted by Harrington, Smith and the Johnsons. The latter looked at the aboriginal trail system and rock art. Excavations and surveys by Wallace in the late 1950s led to the discovery of a number of sites in the Deep Tank-Squaw Tank area, Sheep Pass and Indian Cove. O'Neil recorded 20 sites in the vicinity of Barker Dam in the late 1960s.

The Pinto Basin period was defined using data from the Pinto Basin in Joshua Tree National Monument. Sites dating to the Gypsum period and Saratoga Springs period are also known at Joshua Tree. Three Uto-Aztec groups occupied the monument in the ethnohistoric period: the Serrano, Cahuilla and Chemehuevi. Historic period sites in the monument relate to cattle ranching and mining.



*Pinto type projectile points from the Pinto Basin Site, Joshua Tree National Monument (Campbell and Campbell 1935).*

#### MANZANAR NATIONAL HISTORIC SITE

Although known primarily because of the Manzanar War Relocation Center (1942-1945) for the internment of Japanese-American citizens and Japanese immigrants during World War II, the history of Manzanar also includes a historic period town site (c. 1900-1935) and prehistoric sites. Archeological survey and recording projects completed in 1992 and 1993 have been able to document remains from all these periods of occupation. Limited testing identified the extent of the prehistoric scatters. Features from the town and the internment camp have been mapped, plotted, recorded and photographed. Analysis of the data and the collections are currently underway at WACC.

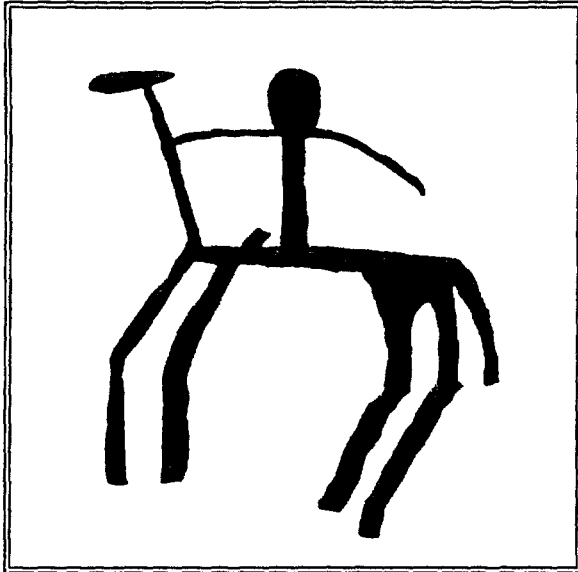
Manzanar is in the Owens Valley on the eastern side of the Sierra Nevada. The area is flat and windy with extreme temperatures in both winter and summer. Water courses adjacent to the camp proper have Native American villages occupied from the prehistoric through historic periods. The only native tree species noted is the willow. An additional 17 species of trees have been introduced to the area by residents of the town and by camp residents.

The NPS is in the process of acquiring 550 acres of the original 6,500 acres impacted by the camp and its facilities from the City of Los Angeles. At the height of its operation the camp housed 10,000 people. The archeological projects just completed negate the need for SAIP funds for this park unit.

# HAWAII AND THE PACIFIC ISLANDS

Robert J. Hommon and Susan J. Wells

## HAWAII



*Petroglyph on stepping stone trail at Hawaii Volcanoes National Park.*

The seven NPS units in Hawaii are on four different islands. The four units on the island of Hawaii are Hawaii Volcanoes National Park (HAVO), Kaloko-Honokōhau National Historical Park (KAHO), Pu`uhonua o Honaunau (PUHO), and Pu`ukohola Heiau (PUHE). Haleakalā National Park (HALE) is on Maui. Kalaupapa National Historical Park (KALA) is on the island of Moloka`i and the U.S.S. Arizona Memorial (USAR) is at Pearl Harbor, O`ahu.

### THE PRE-CONTACT PERIOD IN HAWAII

Black basalt outcrops, craters, cinder cones, steep-sided valleys, and shallow reddish soils testify to the geological youth and volcanic origin of the Hawaiian islands. The two active volcanoes in HAVO (Kilauea and Mauna Loa) are still adding land to the island of Hawaii. HALE includes the summit depression and eastern slope of Mount

Haleakala, eastern Maui's 10,000-foot volcano that last erupted about two hundred years ago.

Polynesians successfully colonized Hawaii by about A.D. 500. Within 500 years, all the main islands were sparsely populated. By the time that Captain Cook established contact in 1778, the Hawaiian population had grown to several hundred thousand. Hawaiian society was divided into two major classes. The commoners (*maka`ainana*) were the farmers, fishermen, collectors and craftsmen. The political, military, and religious leaders were drawn from the varied ranks of the chiefly class (*ali`i*). The economic base supporting the complex pre-contact polities, whose population often exceeded 100,000, included a variety of fishing and other marine resource collecting, farming, and the most highly-developed aquaculture in the Pacific. The Hawaiians' only domestic animals were the dog, pig, and chicken.

The Hawaiian polities were, by any measure, complex societies though they lacked metallurgy, ceramics, a writing system, large nucleated settlements, and a market system, all of which are often associated with complex cultural development in continental contexts. At about the time of Western contact, the islands were divided into two competing kingdoms (*mokupuni*), each ruled by an *ali`i nui* (paramount chief or king). The life of Kamehameha I (c. 1750 - 1819) spanned the end of the pre-contact and the early post-contact periods. Following Cook's visit he rose to power through a combination of warfare and diplomacy. By 1810, Kamehameha had united all the islands into a single kingdom. In doing so, he completed a process of political amalgamation that had begun some two centuries before as the most powerful polities expanded by conquering and annexing the smaller chiefdoms. Accounts of this process and much more are available in the traditional histories that, together with ethnohistorical, ethnographic, and archeological records, constitute our knowledge about ancient Hawaii (the existence of the traditional histories, preserved in written form in the 19th

and early 20th centuries, explains why the phrase "pre-contact history" is considered more accurate than "pre-history").

Each kingdom consisted of several districts (*moku`aina*), evidently the original home territories of the branching chiefdoms that originally settled the islands. Each of the thirty-two districts was divided into territorial units called *ahupua`a*, which totalled about 1,000 on all the islands.

The *ahupua`a*, the home territory of the local community, was typically long and narrow, with its long axis cross-cutting all local ecozones from the inshore marine zone, through the shoreline and cultivable slopes to the forested uplands. The availability of most of the necessities of life (food, potable water, craft materials, etc.) within the boundaries of the *ahupua`a* allowed most communities to be economically self-sufficient to a marked degree.

For example, the *ahupua`a* of Kaloko, the seaward portion of which forms part of KAHO, is 0.7 mile wide and extends from the shore about 7.7 miles inland to an elevation of nearly 6,000 feet. Broadly speaking, Kaloko is fairly typical of leeward Hawaiian *ahupua`a*. Research suggests the following zones in Kaloko. Uncultivated resources such as wood and wild birds were probably collected in the upland forest zone from 6,000 feet down to about 3,500 feet. Agriculture was practiced in scattered plots from 3,500 down to about 2,300 feet and more intensively, in a system of contiguous rectangular agricultural fields, from 2,300 feet to about 900 feet. Average annual rainfall drops from about 70 inches at 3,000 feet to 30 inches at 900 feet and then to about 10 inches at 400 feet. A barren intermediate zone with sparsely scattered archeological sites extends from 900 feet to the edge of the coastal zone, reflecting the fact that the sweet potato, the most drought-tolerant Hawaiian staple, required at least 30 inches of rain to survive. In Kaloko, as in most *ahupua`a*, the high concentration of permanent houses, religious structures and other kinds of sites indicates that most Hawaiians before contact lived in the narrow (1,000 to 1,500-foot-wide) coastal zone. An unusual feature of both Kaloko and Honokōhau is the presence of large stone-walled fishponds at the shore where mullet and other fish were raised for the chiefs.

Archeological evidence testifies to the fact that permanent habitation in most *ahupua`a* was concentrated in a coastal zone no more than about 1,500 feet in width. Nevertheless, it is clear that community life was not limited to the coast but encompassed the entire *ahupua`a*, a fact that is demonstrated by the dispersed archeological pattern seen in most Hawaiian regions. The whole *ahupua`a*, then, is the unit of archeological interest, and is roughly equivalent to a village-site in most areas of the world. For this reason, large-scale archeological survey is essential to the conduct of archeological research and planning in Hawaii.

Some economically important resources that were available only in a few locations, such as fine-grained basalt for the making of adzes, were undoubtedly exchanged throughout districts and islands. The archeological record of the summit basin of Haleakalā (HALE) is of particular interest in this regard. The basin floor, consisting largely of cinder cones and sparsely vegetated lava flows, rises from 6,400 feet to 7,800 feet and is surrounded by steep ridges as high as 10,000 feet. Six miles from the nearest shoreline, this isolated area is far above the upper limit of the inland agricultural zone and there is no evidence that crops were cultivated there. For Hawaiians used to tropical living, the conditions in the Haleakala basin were extreme: temperatures tend to be 20° F. cooler than the coast with strong winds often adding a chill factor. In spite of the inhospitable nature of the basin it is interesting to note that the top of Haleakalā was divided among eight of the 15 districts of Maui, suggesting that valued resources could be found in the summit depression. This observation is strengthened by the fact that surveys of less than five percent of the park have yielded more than

130 archeological sites in and around the basin. Economically valued resources in the area may have included basalt for tool-making and wild birds and their eggs. A *heiau* on an 8,400 foot ridge and the presence of burial platforms in the basin indicate that Haleakala also may have had religious significance. Small temporary shelters (some in clusters of as many as 50 or more) may have been camps used by travelers (possibly including military expeditions) spending a night in the basin while crossing from one side of the island to the other.

The prevailing northeast tradewinds were a major factor in the pattern of indigenous agricultural production in Hawaii. In general, the windward (north and east) sides of the islands receive more rainfall annually than do the leeward (south and west) sides. In all areas, rainfall tends to increase with altitude. Most permanent streams and rivers and mature valleys are on the windward sides of the islands. Windward regions appear to have been settled earlier than leeward. The staple crop in the windward areas with sufficient permanent sources of water was "wet" taro, grown in irrigated pond-fields. The sweet potato and "dry" taro were the main staples in the leeward districts. Other crops included yams, bananas, breadfruit, coconut, kava, and sugar cane.

The artificially-terraced floors of the three valleys in KALA, on the windward side of the island of Moloka`i, testify to the presence of irrigated pond-fields where taro was once cultivated. On the Kalaupapa peninsula at the foot of these valleys, where there were no sources of water for irrigation, the staple was probably the sweet potato.

KAHO, whose environmental conditions were described earlier, is situated in the dry northern part of the Kona District and is not typical of Kona as a whole. To the south of KAHO, 13,000-foot Mauna Loa, the most massive mountain in the world, influences the winds so as to create a climate unlike that of any other leeward region in the Hawaiian Islands. While the young mountain lacked permanent watercourses, the rainfall, which rivaled in abundance that of many windward coasts, made possible the development of a system of intensively cultivated fields encompassing some 30,000 acres. The Kona Field System supported a large, dense population, which was undoubtedly a primary reason for the rise to political prominence of the Kona chiefs in the centuries before Western contact. The support of these chiefs, in turn, was an important factor in the success of not only Kamehameha but also several of his predecessors who hailed from the leeward side of Hawaii Island.

In peace and war the ritual life of the kingdoms was focused on the great *heiau* or temples. The Hale o Keawe Heiau, at PUHO, which is situated at the shore near the center of the Kona Field System, served as a mausoleum for certain of Kamehameha's illustrious ancestors. This *heiau* is adjacent to the large, massive-walled enclosure called a *pu`uhonua* or sacred place of refuge for which the park is named. War refugees and others seeking safety were protected from their pursuers if they could reach this place.

The traditional histories say that some 500 years before Kamehameha, chiefs sailing from Kahiki founded the genealogical lines of all subsequent powerful Hawaiian chiefs and introduced many rituals and other innovations. The word "Kahiki" eventually came to mean a sacred place somewhere beyond the horizon, but it may originally have referred to the island of Tahiti or other Polynesian islands that lie some 3,000 miles to the south. The best known of the voyagers from Kahiki was Pa`ao, the priest who is said to have introduced human sacrifice to Hawaii as well as the *luakini heiau* where such rituals were performed. Waha`ula Heiau, one of the few structures on the coast of HAVO that has, at least for the moment, been spared by lava flows, is reputed to have been the first *heiau* built by Pa`ao after he arrived in Hawaii.

Some research topics that can be addressed in the National Parks in Hawaii are the following:

- The process by which each district and island were first colonized.
- The environmental impact of the settlement of each district. Available evidence indicates that effects of Hawaiian settlement and expansion may have included lowland deforestation and the extinction of many bird species.
- The operation of the economic system in each *ahupua`a*.
- The nature and development of social stratification in each *ahupua`a*.
- Contact between Hawaii and other Polynesian island groups before 1778.
- The demographic history of each *ahupua`a*.
- The effect of vulcanism on behavior and belief.

### THE POST-CONTACT PERIOD IN HAWAII

In early 1779, scarcely a year after the first contact with Hawaiians at Kauai, the Cook expedition sailed into Kealahou Bay (four miles north of PUHO), where Captain Cook and his men met Kamehameha, then a young chief who had not yet begun his rise to power. In 1791, Kamehameha turned the political tide in his favor by sacrificing his last rival for control of the island of Hawaii at Pu`ukohola (PUHE), a *heiau* to the war god Ku-Ka`ilimoku which had been built for this purpose. With Hawaii Island under his control, Kamehameha was able to continue his conquest of the archipelago.

While Kamehameha's career was clearly pursued in the indigenous Polynesian tradition, he also adopted firearms and accepted the military advice of Westerners. Kamehameha's success in uniting all the islands under his rule was in some part attributable to the advice of American Isaac Davis and Englishman John Young, who were recruited by Kamehameha in 1790. John Young moved to Kawaihae in 1793. The John Young Homestead in PUHE, where Young and his family lived from 1798 until 1835, is the only known intact archeological site from the early post-contact era.

The 19th century saw major changes in the Hawaiian Kingdom. The diseases introduced by Westerners led to major depopulation. Christian missionaries and other Westerners who settled in Hawaii introduced many political and economic innovations. In the years following 1848, the practice of private ownership of land was introduced as part of the "Great *Mahele*" (land division). To claim land under the *Mahele*, people were required to give testimony regarding the location and dimensions of the lands they were claiming, when and how they were acquired, and how the lands were used. Analysis of the testimonies and other written *Mahele* records of land parcels at KALA and other Hawaii parks will contribute significantly to our understanding of Hawaii in the mid-19th century.

Two of the ways in which Hawaii entered the economic world system were the growing of sweet potatoes and the harvesting of *pulu*. The Kalaupapa peninsula (KALA) was one of several Hawaiian areas where sweet potatoes were grown on a large scale for export to the burgeoning population of California after the discovery of gold there in 1849. The hundreds of stone walls that can still be seen on the northern part of the Kalaupapa peninsula (KALA) were built as wind breaks for this crop. From 1851 to 1875 *pulu*, a downy material that comes from the head of the fiddlehead fern, was used to stuff pillows, mattresses and upholstery. Archeological sites in HAVO, dating from the 1860s, are evidence of the *pulu* industry in Puna district.

In 1866, Kalawao on the Kalaupapa (KALA) peninsula was designated a settlement for people with Hansen's Disease (leprosy). In the decades that followed what began as a tragic place of exile

became known for the humanity and personal qualities of Belgian priest Father Damien and others who came to care for the people of Kalaupapa.

Indicative of the increasing U.S. interest in the Pacific region, Pearl Harbor, O`ahu had grown into a major U.S. Naval Base in the first four decades of the twentieth century. The Japanese attack on Pearl Harbor on December 7th was a recognition of its importance to the U.S. Evidently the Japanese strategists believed that the attack would eliminate the ability of the U.S. to pursue a protracted war in the Pacific, a war they believed the U.S. might otherwise win because of its larger industrial base. Contrary to the Japanese expectation, Pearl Harbor became first a powerful symbol and then a vital base from which the war in the Pacific was launched. The U.S.S. Arizona Memorial (USAR) remains an important national symbol to the present day.

#### **MARITIME HISTORY OF HAWAII**

Canoe sheds, fishponds and fishtraps are in evidence at KAHO and HAVO. Canoe landings and historic period small craft landings are known at PUHO.

Two important coastal features found at PUHE are the area below Mailekini *Heiau*, which was a beachhead for Kamehameha's fleet, and an offshore temple associated with sharks, Hale o Kapuni.

Sunken ships include the Ka`ala, an inter-island steamer sunk on the reef just north of town off the coast of Kalaupapa in 1932.

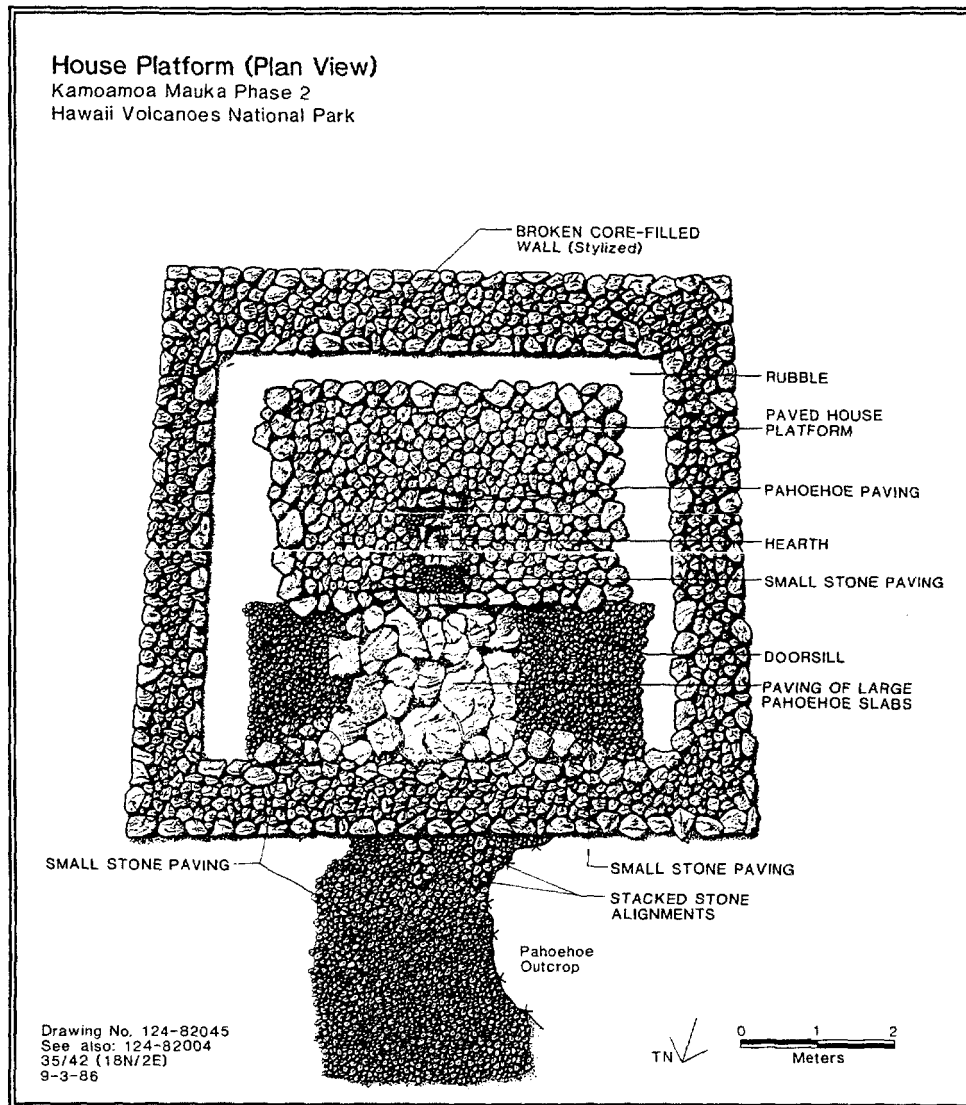
USAR commemorates the sinking of the USS Arizona and USS Utah during World War II.

#### **HALEAKALĀ NATIONAL PARK**

Haleakalā has a wide variety of pre-contact archeological resources including agricultural sites, habitation sites, habitation and burial caves, platforms, trails, *heiau*, walls, fences, paved trails, *ahu* and cairns as well as historic sites and buildings. The large number of both sacred and secular sites within the rugged and barren erosional summit depression are of particular interest but the Kipahulu District also has great potential for research.

Haleakalā was occupied by both Hawaiians and non-Hawaiians well into the 20th century. Historic period artifacts are found in caves and shelters. Cattle and sugar cane were raised. A scientific expedition led by Charles Wilkes in 1841 named the crater and produced a map of it.

Ethnographic research has not been conducted and there is a basic need to address all of the resources management issues in the park, both ethnographic and archeological. Basic archeological questions regarding site function, chronology, number of sites and temporal change remain unanswered and constitute a challenge to the management and protection of these cultural resources. Other unanswered questions such as what role Haleakalā and Kipahulu played in the lives of the Hawaiians and whether or not this role can be explained by what is reflected in the archeological record or discovered by ethnographic means offer unique opportunities for research. What are the relationships of the *heiau* to those in French Polynesia, and what are the archeological signatures of trade?



*Map of a house platform at Hawaii Volcanoes National Park.*

## HAWAII VOLCANOES NATIONAL PARK

Hawaii Volcanoes was occupied as early as A.D.700. Occupation there thrived between the 13th century and 20th century. Habitation sites were located where occupants could take advantage of both coastal and inland resources. The sites include farming, fishing, gathering, quarrying and water collection sites. Religious sites include the Waha`ula Heiau. Caves and craters were used.

In the historic period occupation continued but shifted more toward the coast. Goats, cattle and fiddlehead fern harvesting, introduced in the 1800s along with tourism, changed the nature of the occupation and use of the area dramatically. The study of volcanology began at the park in the early 1900s. The tourism industry was well underway by 1846 when a thatched house was built to accommodate visitors. The 1877 Volcano House, one of a series of hotels with that name, still stands near the park visitor center.

The elevation at the park ranges from sea level to 13,677 feet with coastal, middle and inland zones. Two active volcanoes have shaped both beliefs and settlement patterns over the years.

Only one percent of the park has been intensively surveyed and the inland is poorly known. Many projects have been conducted ahead of active lava flows.

#### **KALAUPAPA NATIONAL HISTORICAL PARK**

Kalaupapa means a flat leaf. The peninsula is, in fact, a comparatively flat "leaf" of lava rock about 2-1/4 miles wide, projecting out from 2,000 foot high cliffs. The peninsula was formed by a small volcano, and represents an excellent example of an Icelandic shield volcano. Some of the more remote areas of the park include rare native habitat for several endangered endemic Hawaiian plants and animals. In addition, stone walls, house sites, religious temple ruins and other archeological remains cover the peninsula like a fish net. The earliest radiocarbon date for KALA is A.D. 1000.

In 1849, Kalaupapa became a primary port of call for ships taking sweet potatoes to California to feed the thousands who came west to look for gold. In 1866 the Kingdom of Hawaii established a quarantine settlement for people with leprosy at Kalaupapa peninsula. Father Damien was the most famous of the many who came to Kalaupapa to care for the sick and improve the lives of the banished patients. Robert Louis Stevenson and Jack London are among the many who have visited Kalaupapa over the years.

The history of leprosy in Hawaii is the story of some 8,000 persons taken from their families and hurried off to what was often referred to as a living tomb. At the time that these persons were sent to the Settlement it is doubtful that any of them thought that future generations would care about what happened on that small piece of land but, increasingly, people are caring and realizing that there is much to be learned from those events and the people whose lives have been shaped by them. The establishment of Kalaupapa National Historical Park is an official recognition of the importance of this history to the nation and to the world.

The sheer number and types of archeological resources that exist today, the possibility that there has been 900 to 1,000 years of occupation and use within the park, and the excellent state of preservation of the resources combine to make Kalaupapa National Historical Park one of the most valuable archeological preserves in Hawaii. Almost ninety percent of the park has not been surveyed for archeological remains. Kalaupapa NHP is on the National Register and is a National Historic Landmark.

#### **KALOKO-HONOKŌHAU NATIONAL HISTORICAL PARK**

Kaloko-Honokōhau has been occupied for 600 to 900 years. Archeological sites include habitation and agricultural sites, as well as canoe sheds, fishponds and burials. This area is associated with Kamehameha I and his family, who unified the Hawaiian Islands in the 1800s. The Honokōhau Church was established in the early 1900s. Ranching activities are evidenced by the Huehue Ranch.

KAHO is primarily a coastal park and most of the archeological work has been conducted near the coast. Ethnographic and oral history data are needed for this park along with additional archeological survey.

#### **PU`UKOHOLA HEIAU NATIONAL HISTORIC SITE**

Pu`ukohola Heiau was built by Kamehameha in 1790-1791 to invoke the blessing of the family war god. With the help of two British advisors, he was able to unite the islands of Hawaii and form the



Kingdom of Hawaii by 1810. Although there are indications of prehistoric use of park lands, the prehistory of the park is not well known before this period. Sites include habitation and agricultural sites.

John Young, a marooned British sailor, was one of Kamehameha's advisors and influenced events in Hawaii from 1790 through 1820. Part of Young's homestead is within the park. In the mid to late 1800s farming and ranching were practiced in the area. There are also a number of World War II features.

The park lies within the coastal zone. Residential features are located on high ground between washes. Agricultural features are located near water sources. Religious structures are in prominent, highly visible locations.

The park needs site forms to accompany the archeological base maps. Recent excavations at John Young's Homestead revealed the presence of early Hawaiian occupation at that site; further excavation is needed.

#### **PU`UHONUA O HONAUNAU NATIONAL HISTORICAL PARK**

Pu`uhonua o Honaunau may have been occupied as early as A.D. 1250. Honaunau was a royal residence and religious, cultural and political center until early in the historic period. It lost political importance in 1779 when the seat of power shifted to Kailua, Kona and lost its religious importance in 1819 when the taboo system was abolished.

There are at least seven heiau in the park, some dating from A.D. 1250, as well as the place of refuge, or Pu`uhonua, which dates from A.D. 1475. Sledding tracks used only by royalty are known in three locations. Other sites include habitation and burial caves.

Activities shifted in the historic period to include goat herding and ranching. Historic trails and Ki`ilae Village date to the early historic period. Ki`ilae Bay provided a small craft landing.

The park is in the coastal zone with a hot, dry, lava-dominated landscape. It was heavily used by Hawaiians for hunting and fishing.

The park has been well studied relative to the other Hawaiian parks. Site forms and documentation are needed to supplement park base maps. Better dates for sites in the park also are needed.

#### **USS ARIZONA MEMORIAL**

The USS Arizona Memorial is located in the waters of Pearl Harbor directly over the shipwreck Arizona. The visitor center is located shore side, primarily on historic landfill. This landfill covered some previous shoreline and extended out into the shallow water. A large, stone-walled fishpond, part of the extensive indigenous Hawaiian aquacultural system in Pearl Harbor, once stood near the present location of the visitor center. As in many areas of urbanized O`ahu, an intact precontact archeological deposit might lie under the fill deposit on which the visitor center was constructed. Such a deposit would be expected to provide valuable information about the Hawaiian population once supported by the rich resources in and around Pearl Harbor.

The park commemorates the Japanese attack on Pearl Harbor on December 7, 1941. The shipwrecks USS Arizona and USS Utah (also located in Pearl Harbor, on the opposite side of Ford Island) have been studied by the NPS Submerged Cultural Resource Unit.

## GUAM

### WAR IN THE PACIFIC NATIONAL HISTORICAL PARK

War in the Pacific National Historical Park is located in the west central part of Guam. It has coastal flats and mountains rising to more than 1,000 feet above sea level. The prehistory of the park is unknown at this time. The historic period dates to Magellan and the Spanish in 1521. Guam was a Spanish colony until 1898 when it became a United States possession after the Spanish-American War. The only period of history recorded archeologically is related to the US invasion of the island to liberate it from the Japanese in World War II. Archeological survey is needed to determine if any prehistoric resources are present and to better define the historic period remains. A German cruiser from World War I, the *Cormoran*, was scuttled in Apra Harbor.

## AMERICAN SAMOA

### NATIONAL PARK OF AMERICAN SAMOA

Samoan prehistory begins with colonization of the Samoan Archipelago by makers of Lapita pottery 3,000 to 3,500 years ago. This period is followed by the development of Ancestral Polynesian society and resulted in the evolution of Samoan culture. This is an example of the development of a Polynesian chiefdom society in relative isolation.

Initial occupation of the coast was followed by a rapid expansion inland. This was followed by construction of elaborate domestic and specialized site complexes. Initial European contact had little effect on Samoa but between 1791 and 1830 there appears to have been population decline and movement from interior to coastal locations. The effect of the missionaries and the U.S. Navy on the life of Samoans is undocumented. Archeological, ethnographic and historic studies should be undertaken to document traditional and historic use of the landscape by the people of American Samoa.

American Samoa has diverse landscapes with coastal terraces, sea cliffs and steep slopes. Dense vegetation and the slopes will make archeological survey difficult. Active tectonic processes causing subsidence may have buried sites under the sea or under sediments. Little archeological survey has been done; creative techniques will be required to locate certain types of sites. The American Samoa Historic Preservation Office has offered to work with NPS to develop strategies for cultural resource surveys.

## COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS

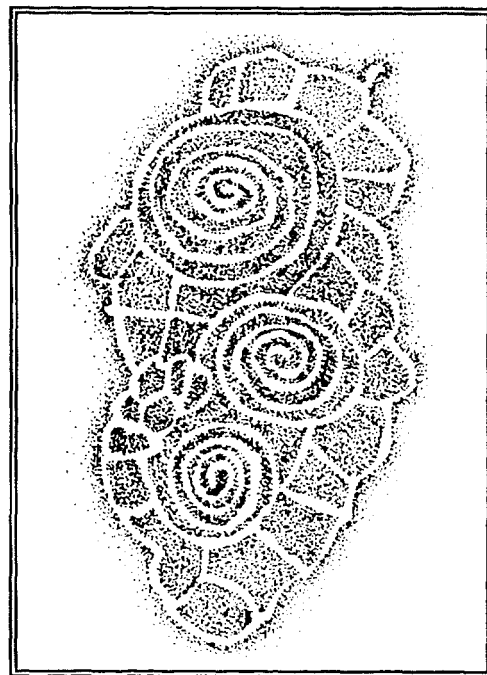
### AMERICAN MEMORIAL PARK

American Memorial Park is located in the coastal lowlands of Saipan. Impact of World War II on the park lands make the likelihood of prehistoric remains slim. There is evidence of Japanese occupation both before and during World War II. Modifications made to Japanese defensive structures by U.S. forces after the invasion in July, 1944 also are evident. The park was completely surveyed in 1979.

## THE SOUTHWEST AND GREAT BASIN

These two geographic units are considered together because the prehistory of the Western Region parks in the Southwest and Great Basin have general similarities in cultural development. That is to say they all have Paleoindian and Desert Culture or Archaic cultural horizons followed by development of a more sedentary way of life known variously as the Hohokam, Anasazi, Mogollon, Sinagua, Salado, Cohonina, Patayan or Fremont. There are also similarities in the ethnographic and historic period trends in these neighboring geographic regions. The prehistory of Arizona and Nevada is well represented in the National Park Service areas of Western Region.

The greater **Southwest** cultural and geographic unit extends beyond the boundaries of the Western Region. Besides Arizona and the southern tip of Nevada which are in the Western Region, the southwestern culture area includes New Mexico, southern Utah, southwestern Colorado, and southern and western Texas as well as parts of northern Mexico. The 14 Western Region parks in the Southwest area are CAGR, CHIR, CORO, FOBO, GRCA, LAME, MOCA, ORPI, PEFO, PIMA, SAGU, TONT, TUMA and TUZI.



*Prehistoric Hohokam petroglyph at Saguaro National Monument.*

The cultural and geographic area known as the **Great Basin** includes all of Nevada and Utah, western Colorado and portions of Oregon, Idaho, Wyoming, California, Arizona and New Mexico. The only park placed in this category, Great Basin National Park, is in the south-central part of the Great Basin proper and is on the westernmost limit of the Fremont culture area.

Archeological research began early in the Southwest. In 1889 Casa Grande became the first federal reservation for a prehistoric site in the United States. The early work focused on highly visible remains of the past such as monumental architecture. A great deal of excavation was undertaken by CCC and WPA projects in the 1930s, including work at Tuzigoot.

### ENVIRONMENT OF THE SOUTHWEST AND GREAT BASIN

Most of the parks in the Southwest and Great Basin lie within the Basin and Range province with the exception of Petrified Forest, Grand Canyon and parts of Lake Mead which are within the Colorado Plateau region.

In Arizona and southern Nevada there are deserts, grasslands, woodlands, forests and even tundra (Lowe 1964). Both biotic communities and rainfall vary by elevation and latitude. In southern and central Arizona the desert basins are separated by mountain ranges. The Sonoran Desert covers most of southern Arizona with small pockets of both Mohave and Chihuahuan deserts. The plateau areas of northern Arizona are covered with grasslands, woodlands and forests.

The low desert of southern Arizona is characterized by giant cactus, mesquite and creosote. Parks in this desert, Casa Grande, Saguaro, Organ Pipe, Tumacacori and Hohokam-Pima, have either

single or multiple plant communities. The Gila River flows by Casa Grande and Hohokam-Pima. The Santa Cruz River probably flowed year round near the missions of Tumacacori. Water sources at Saguaro and Organ Pipe are restricted to springs and seasonal streams. Tonto is in an upland desert environment located a mile or two south of the original course of the Salt River before it was impounded by Roosevelt Dam. The parks in southeastern Arizona, Chiricahua, Coronado and Fort Bowie are found in the foothills and mountains with grasslands and other Upper Sonoran vegetation associations. Springs and intermittent streams are the only water available in these parks.

In the Verde Valley of central Arizona we find Tuzigoot and Montezuma Castle lying in areas of desert scrub and riparian zones with the Verde River and Beaver Creek close by. Grand Canyon and Petrified Forest, which are two of the most dramatic natural parks in the region, are on the Colorado Plateau. At Grand Canyon the wide range of resources available in the inner canyon and on the canyon rim were used extensively by prehistoric people. The Colorado River enhances the resources of the inner canyon. The grasslands and badlands of Petrified Forest have an array of resources to offer the prehistoric inhabitants but permanent water was lacking. Lake Mead has both upland desert zones and areas within the Colorado Plateau. Sites originally located along the Colorado River have been lost to the inundation of lakes Mead and Mohave.

The elevations at Great Basin National Park vary from 6,200 to over 13,000 feet with vegetation zones including sagebrush, pinyon-juniper, mixed conifer forests and stands of bristlecone pine. Permanent streams and lakes as well as a small glacier sharply contrast with the parks in the Southwest.

#### **PREHISTORY OF THE SOUTHWEST AND GREAT BASIN**

The dates given in this general prehistory are approximate to give a sense of relative age of each of the cultural periods. Determining dates is one of the main pursuits of archeology and is often a source of controversy. Also, dates vary for local chronologies.

The earliest occupation of the Southwest and Great Basin dating back almost 12,000 years is classified as the Paleoindian Period. Diagnostic artifacts include Clovis, Folsom and Cody points. These big game hunters of the late Pleistocene hunted now-extinct species of mammoth and bison and date to approximately 10,000-8,000 B.C. Evidence of Paleoindian presence in the form of distinctive projectile points has been found at a few parks including Great Basin, Grand Canyon, Petrified Forest and Saguaro. Also there are reports of points on lands near or adjacent to parks in Arizona and Nevada including Coronado, Grand Canyon, Great Basin, Lake Mead, Montezuma Castle, Saguaro, Tonto and Tuzigoot.

The Archaic (or Desert Culture) period follows the Paleoindian occupation in the post-Pleistocene period and dates to approximately 7,000 B.C.-2,000 B.C. (Irwin-Williams 1979). The Archaic tradition is sometimes referred to as the Cochise in southeastern Arizona, the Oshara in northern Arizona or San Dieguito in southwestern Arizona. This period is contemporary with the Pinto and Gypsum periods defined for the southeastern California deserts. Parks with evidence of Archaic occupation include Coronado, Grand Canyon, Great Basin, Lake Mead, Organ Pipe, Petrified Forest, Saguaro and Tonto.

In the Great Basin, the Desert Culture pattern lasted into historic times allowing archeologists to draw analogies with the prehistoric past. In the eastern part of the Great Basin it is unclear if the Fremont culture replaced or coexisted with the Archaic lifeway being practiced elsewhere in the Great Basin.

The introduction of maize horticulture, the bow and arrow, and ceramics are a few of the changes that seem to have been instrumental in making it possible for hunter-gatherers to become more sedentary. Culture groups from this period were defined in the Southwest in the early part of this century. The definition of these groups seems to have been based on geographic zones and on lists of traits related to material culture, architecture and burial practices. Other traits include the presence of pottery, marine shell ornaments, pipe and cane cigarettes, domesticated animals, and agricultural crops such as corn, beans, squash, cotton, and tobacco. Permanent villages, specialized religious or ritual structures and patterned settlements also are seen. Although this scheme of defining prehistoric groups may be flawed, it does give us the basis for talking about the archeology of our parks using a common set of terms and ideas.

A number of park areas in Arizona were established to preserve and protect the remains of particular prehistoric sedentary horticultural groups. Casa Grande and Hohokam-Pima national monuments were established to preserve important archeological sites left by the Hohokam of the Lower Sonoran desert. Other areas with Hohokam remains include Saguaro National Monument, Organ Pipe Cactus National Monument and possibly Tumacacori as well as Montezuma Castle and Tuzigoot. The last two park areas on this list, Montezuma Castle and Tuzigoot, primarily were established to preserve archeological remains of the Southern Sinagua of central Arizona.

Tonto National Monument was established to preserve the remains of prehistoric cliff dwellings built and occupied by the Salado Indians of east-central Arizona. Salado ceramics have been found as far afield as Casa Grande, Saguaro and Organ Pipe. The San Simon branch of the Mogollon is represented at Chiricahua.

Two natural parks and a national recreation area, Grand Canyon, Petrified Forest and Lake Mead, were once occupied by the Anasazi of northern Arizona. In fact Lake Mead has sites representing the westernmost extent of the Virgin Anasazi. Evidence of Cohonina occupation has been found at Grand Canyon.

Fremont culture is well represented at sites in Great Basin National Park. Fremont culture (A.D. 400-1300) is characterized by sedentary horticulture farmsteads, small villages, pottery, dwellings, storage structures, clay figurines and rock art. It appears that this culture group was influenced by the Southwest and Plains.

#### **CASA GRANDE NATIONAL MONUMENT**

The prehistoric archeological remains at Casa Grande National Monument include at least 60 Hohokam sites with compounds, mounds, depressions, earthen walls and buried pit houses. Most of the sites recorded date to the Classic Period (A.D. 1150-1400). The Casa Grande itself is a large multi-story adobe Hohokam structure dating to the Classic Period. Located one half mile south of the Gila River, some of the sites within the monument are placed along part of the canal system that provided water for irrigation during the Classic Period. The park lies within the creosote vegetation zone.

Casa Grande National Monument was established in 1892 making it the first federal reservation set aside to preserve a prehistoric ruin. The monument was administratively listed on the National Register in 1966. The history of the monument relates to the explorers and archeologists who visited and reported on the site. The site was first reported in history by Father Kino in 1694 and was subsequently visited and reported on by Bernal and Manje in 1697, Nentvig in 1762, Garces in 1775, Bartlett in 1854, Brown in 1864, Grossman in 1871 and Hinton in 1877. In 1881 Bandelier became

the first archeologist to report on the ruin and he was followed by Cushing in 1888, Mindeleff in 1890 and 1891, and by Fewkes in 1906. Pinkley conducted minor testing projects between 1918 and 1928. Cummings mapped nearby canals in 1926. Gladwin did some testing in 1927, followed by Hayden in 1930. Stabilization projects began in the early 1930s and are ongoing today.

An excavation in 1933 by Hastings, a survey by Abel and Hays in 1956-1957 and a map made in 1957 by Wasley, Abel, Hays and Van Valkenburg became the basis of Ambler's 1961 master's thesis which is the baseline data we use for the park today. Although excellent work in its time, there is a serious need for a complete resurvey and recording project at the monument today. In addition, a report needs to be completed on the excavation of Compound F conducted by Van Bergen in 1930.

A 1976-1980 study of the architecture of the Great House by Wilcox is an important contribution to the archeology of the monument. Research topics that can be addressed include archeology of the Gila Basin, canal irrigation, trade and the study of Classic Period great houses. Work can be done with existing collections and the use of subsurface radar may provide useful information.

### **CHIRICAHUA NATIONAL MONUMENT**

The Chiricahua Mountains of southeastern Arizona with their spectacular pinnacle formations are the setting for this national monument in the eastern part of the basin and range province. Elevation in the mountains ranges from 4,000 to 9,795 feet; the highest elevation in the monument is 7,825 feet. The range lies between the San Simon Valley on the east and the Sulphur Spring Valley on the west. There are a number of canyons draining the range in seasonal creeks; there are also springs. Vegetation communities typical of the Upper Sonoran and Chihuahuan high deserts are present with mixed pine-oak forest predominant. Alluvial fans and outwash slopes may have been used for agriculture in the past and a number of dry caves appear to have once been occupied.

Prehistory of the area includes evidence of the Archaic period Cochise Culture and the San Simon Branch of the Mogollon culture. The San Simon Branch was influenced by the Hohokam in the A.D. 300-1200 period and by the Salado in the post A.D. 1200 period. The Chiricahua Apache were present in these mountains in the late 17th century through the 19th century. American military troops came with the establishment of nearby Fort Bowie in 1862 and the 10th Cavalry camp in Bonita Canyon in 1886. The military forces were in conflict with the Chiricahua Apache during this period. Following the surrender of Geronimo, several of the retired military men and their families settled in the area. Neil Erickson established Faraway Ranch in 1888. The ranch was in use until the 1970s when it became a NPS interpretive site. Other figures important in the history of the Chiricahuas include General Howard, Tom Jeffords, the Riggs family, Louis Prue and Colonel Ja Hu Stafford.

With only three percent of the park surveyed an archeological survey of the monument is in order. The survey will be tailored to the landscape with intensive survey of the low areas and ridgelines, and sample survey of steep terrain. Because the archeology of this region is so poorly known there are a large number of basic research questions that can be addressed by survey here.

### **CORONADO NATIONAL MEMORIAL**

Located at the southern end of the Huachuca Mountains this unit has very steep terrain covering almost 50 percent of the park with slopes exceeding 30 percent. The San Pedro Valley lies to the east and the Santa Cruz Valley is to the west. Elevation ranges from 4,875 to 7,676 feet with desert grassland, oak woodland, pinyon-juniper and riparian communities predominant. The memorial was

established "...to set a reflective mood suitable for contemplation of the Coronado Entrada." There is no direct evidence linking the NPS property to Coronado's actual route.

Ten prehistoric sites identified in the park have been assigned to the Cochise Culture hunter-gatherers. Although Paleoindian and Hohokam sites are known in the vicinity no diagnostic artifacts from these periods have been identified in the park. Two historic period sites relating to mining and ranching have been identified. An additional site has both prehistoric and historic period elements.

Almost 70 percent of the park has been surveyed at 100 percent, although there has been little coverage of steep terrain. Survey has been limited to the pediment areas. Reconnaissance of the mountainous terrain is recommended. To complete the picture of archeology in the region, survey of the valley floor on adjacent USFS lands is suggested.

#### **FORT BOWIE NATIONAL HISTORIC SITE**

The fort was established in 1862 in the southeast side of Apache Pass which divides the Dos Cabezas and Chiricahua Mountains. The Fort lies at about 5,000 feet elevation in the foothills of the Chiricahua Mountains. The vegetation is primarily desert grassland with evergreen woodland, riparian and chaparral communities.

The only evidence of prehistoric occupation recorded at the fort is some pottery recovered near Apache Spring. Several surface scatters and bedrock mortars are known but have not been recorded. Presumably the prehistory is similar to that of Chiricahua National Monument with Cochise Culture, San Simon Mogollon and Chiricahua Apache occupations.

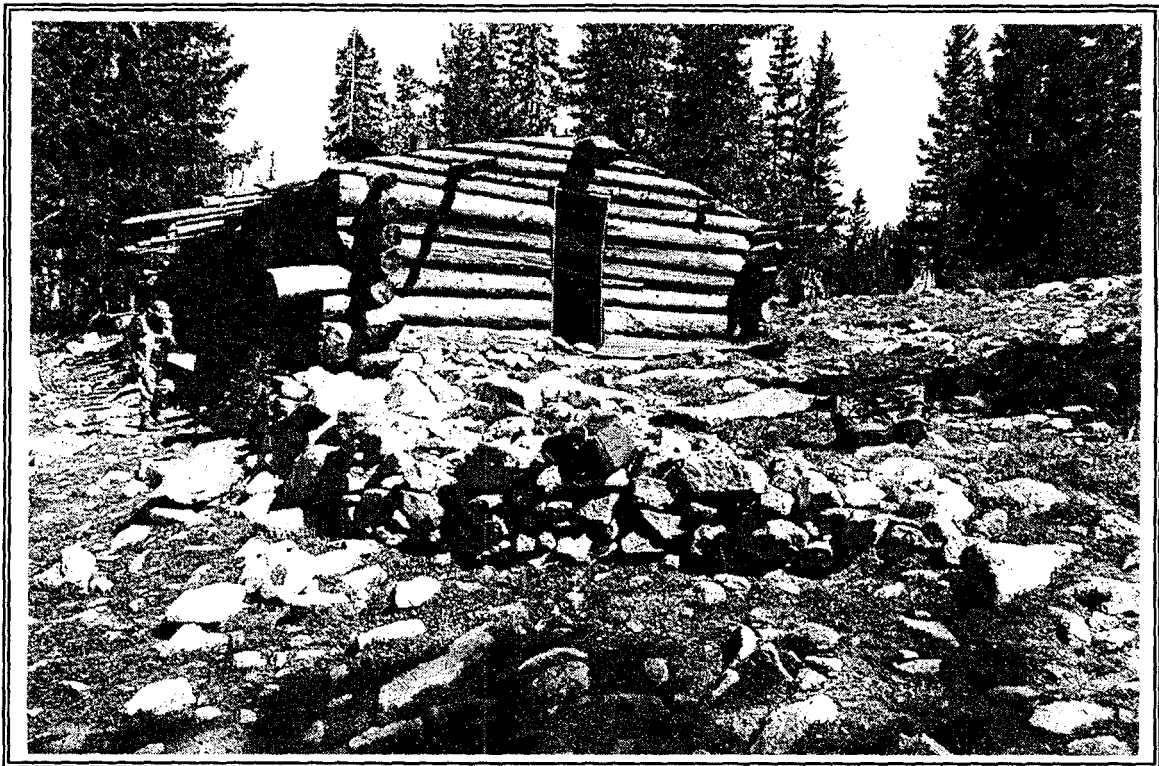
The history of the Fort begins with a way station for the Butterfield Overland Mail Route located at Apache Spring from 1858 through 1861. The Bascom Affair of 1861 caused conflict between the military and the Chiricahua Apache leading to the Battle of Apache Pass in 1862 and the eventual establishment of Fort Bowie in the same year. The second fort, built in 1868 was in use until 1894, eight years after the surrender of Geronimo. The first fort had 16 stone and adobe buildings. The second fort, built to the east of the first, had 43 structures.

Archeological excavation at the Fort has been minor with pre-stabilization testing and excavation of four test trenches in a trash dump. The latter project led to Herskovitz's lengthy report on the material culture of Fort Bowie. Complete survey of the monument is needed to define the location and extent of the historic structures and trash deposits and to identify the prehistoric cultural remains present. The entire monument is on the National Register of Historic Places.

#### **GREAT BASIN NATIONAL PARK**

The park is located in the Southern Snake Range of east-central Nevada. Elevations range from 6,180 to 13,063 feet. Spring Valley on the west and Snake Valley on the east are typical Great Basin valleys with shrub-covered terrain. Moving up in elevation one finds the foothills with a healthy pinyon-juniper community and then encounters aspen groves and conifer forests. Stands of bristlecone pine and a small glacier (or permanent ice field) are found at high elevations. The mountain peaks are above the treeline. Water is available at several lakes and a number of permanent streams make their way to the valley floor. Limestone caves and rockshelters were occupied prehistorically and are attractive to tourists, speleologists and archeologists.

Prehistoric occupation of the park spans the Paleoindian, Archaic, Fremont and Shoshone cultures. Paleoindian evidence is limited to a few isolated points, one found in the park and several found in



*Log cabin at the Johnson Lake Mining Complex, a historic period tungsten mine at Great Basin National Park.*

Snake Valley. The Archaic period, with a broader subsistence base than the Paleoindian period, is well represented as is evidence of the Fremont agriculturalists who seemed to thrive in the Snake Valley. The park is at the westernmost extent of the Fremont culture area. There is limited archeological evidence of early Shoshone presence in the area but diagnostic sherds have been found on sites which also have Fremont components.

The first Euro Americans to pass through the area came in 1827. Mining claims were established in 1859 and by 1869 there were six mining districts in the Snake Range. Ranching and eventually tourism at Lehman Caves were all well established by the end of the nineteenth century.

A number of archeological surveys have been conducted at the park including survey of the developed and proposed development areas in 1989. In addition, most of the previously recorded sites have recently been visited and recorded to modern standards. With less than one percent of the park lands systematically surveyed it seems important to design a sample survey that will cover a variety of environmental zones to help round out the picture of prehistoric and historic uses of the park lands.

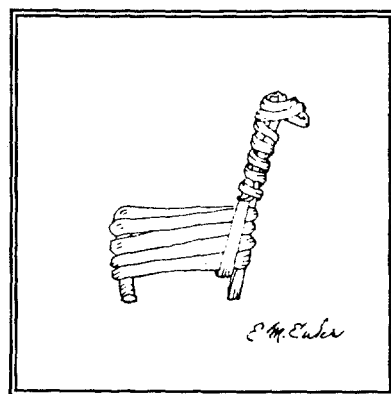
#### **GRAND CANYON NATIONAL PARK**

Physiographic provinces include the rim, inner canyon, Tonto Platform, Esplanade, river corridor and talus-top formations, all of which provide locations known to support human habitation. Life zones range from sub-alpine on the North Rim to Lower Sonoran in the inner canyon.



The discovery of a Folsom point at Grand Canyon suggests Paleoindian occupation. The Archaic period, dating approximately 4000 years ago, is evidenced by split-twig figurines, found in caves in the Redwall limestone. Additional evidence of occupation during the Archaic includes projectile points, Barrier Canyon style rock art and small camp sites scattered along the rim and inner canyon areas.

Throughout the Basketmaker and Pueblo periods population continues to rise culminating at around 1200 A.D. Although most of the structural sites found in the canyon represent utilization by the Kayenta Anasazi, from around A.D. 800 - 1200, evidence also exists for the occupation of portions of the canyon by the Cohonina. After approximately A.D. 1200, most of the population abandoned the canyon. After approximately A.D. 1300, the canyon became home to ancestral groups of Pai (known archaeologically as Cerbat) and Paiute. Hopi, Navajo, Hualapai, Havasupai, Southern Paiute, San Juan Paiute and Zuni continue their use of the canyon today.



*Split twig figurine from Grand Canyon National Park.*

Approximately two percent of the park, or 23,000 acres, has been surveyed. More than 2,700 sites have been recorded but only about half of the site records meet modern standards. Very little survey has been done in the developed areas or along the main hiking trails in the park. Front and backcountry roads and trails, backcountry camping areas and most of the lands added to the park in 1975 have not been systematically inventoried. Developed areas at South Rim Village, Bright Angel Point, Indian Garden and Desert View have been surveyed intensively. Compliance survey of Inner Canyon trails has been restricted narrow corridors along the North and South Kaibab and Bright Angel trails.

The first Europeans to view the canyon were the Spanish in 1540. The next notable event in the canyon's history was the first exploration of the Colorado River by John Wesley Powell in 1869, which began the era of exploration and discovery in the canyon. River exploration and mineral prospecting are the dominant historic themes represented in the park until the arrival of the railroad in 1901. Other historic themes include NPS rustic architecture, tourism and the administrative history of the park. Grand Canyon has over 373 buildings listed on the National Register and 6 National Historic Landmarks.

#### **HOHOKAM-PIMA NATIONAL MONUMENT**

This national monument was established to preserve the prehistoric Hohokam site of Snaketown, a pre-classic Sedentary Period village. Snaketown was first visited by archeologists from the Hemenway Expedition in 1886. Gladwin, the director of Gila Pueblo, conducted extensive excavations in 1934 and 1935. Haury of the University of Arizona conducted further investigations in 1964 and 1965. In the Sedentary Period Snaketown had a large central plaza surrounded by a ring of eight small mounds. In addition to the main site the cultural resources within the monument boundaries include at least four Classic Period Hohokam sites, portions of both prehistoric and historic canal systems, a modern Pima cemetery and a historic Pima village, Ska'kaik, which was occupied between 1877 and 1937.

The sites are situated on terraces of the Gila River in the desert scrub vegetation community. The property is owned by the members of the Gila River Indian Community who have not allowed access

for archeological research on the monument since the community decided to terminate an archeological survey project in 1981.

Snaketown is a National Historic Landmark and is on the National Register of Historic Places. Archeological survey and mapping are not complete for the monument. However, until there is a management plan for the monument and the Gila River Indian Community agrees to allow access to archeological researchers, further work at Snaketown cannot be undertaken.

#### LAKE MEAD NATIONAL RECREATION AREA

Lake Mead and Lake Mohave form the two main recreational opportunities of Lake Mead NRA. Hoover and Davis dams provide flood control, water storage and electricity. The park includes both Colorado Plateau and upland desert environments with a wide variety of plant communities and resources.

There is no direct evidence for Paleoindian occupation of Lake Mead but points have been found on adjacent lands and mammoth bones have been found near Overton Beach. The Archaic period is well represented at Lake Mead. Several important Archaic sites, such as Gypsum Cave, and Tule Springs, have been excavated nearby. Other finds include surface scatters with diagnostic artifacts.

The sedentary agriculturalists of Lake Mead have been classified as either Virgin Anasazi or Lower Colorado. The Virgin Anasazi occupied the area from the Arizona Strip to the confluence of the Virgin and Muddy rivers to Willow Beach. The prehistoric occupation of the Lower Colorado area extended south from the flood basin of Lake Mohave to Yuma and is identified by the presence of Tizon Brown Ware and Lower Colorado Buff Ware. The range of prehistoric sites at Lake Mead includes large villages and pueblos, camps, artifact scatters, rockshelters, rock art and rock circles. Extensive lithic scatters are the most common site type identified at Lake Mead. A salt mine used during both the prehistoric and historic period and investigated by Harrington was inundated by the lake.



*Petroglyphs in Grapevine Canyon, Lake Mead National Recreation Area.*

The Paiute probably were present in the area by A.D. 1200. The Cerbat-Pai and Amacava-Mohave followed. Paiute, Hualapai and Havasupai groups were occupying parts of Lake Mead NRA through the end of the 19th century.

The recorded history of the area begins with an expedition of fur trappers led by Jedediah Smith in 1826. Trapping continued along with exploitation of the salt mines used aboriginally by the Anasazi. As transportation routes were established across the west, several of them passed through the present Lake Mead boundaries. Small Mormon settlements were established along the river. Gold was first discovered in the area in 1855. A number of gold mines were established and facilities were set up to provide supplies for the mines. The first railroad line reached the Moapa Valley in

1873. Copper mines and ranching also were started during the late 1800s. Hoover Dam was built from 1931-1935 and Davis Dam was built in 1953.

Navigation of the Lower Colorado River actually reached as far north as Callville in the 1860s. Powell's exploration of the Upper Colorado in 1869 confirmed the unsuitability of this stretch of river for navigation. River traffic between present-day Bullhead City and Cottonwood Island brought supplies to military posts, miners and early settlers between 1864 and the early 1900s. A number of ferries were set up to transport people and goods across the Colorado River. They included Pearce, Scanlon/Gregg, Bonelli, Eldorado and Cottonwood ferries. Current maritime uses of the lakes include fishing and boating.

The biggest obstacle to understanding the archeology of Lake Mead NRA is the inundation of the lands along the Colorado River which are the areas most likely to have been occupied prehistorically and historically. The NRA is in need of a number of archeological projects. Basic inventory data are needed for backcountry and some developed areas. Submerged resources are virtually unexplored. Only six percent of the known sites are recorded to modern standards. Sites are being threatened by both visitor impacts and park development.

#### **MONTEZUMA CASTLE NATIONAL MONUMENT**

The main points of interest at this monument are Montezuma Castle, a 20-room, 5-story cliff dwelling dating to the Tuzigoot Phase, and Montezuma Well, a natural spring-fed limestone sink surrounded by prehistoric sites of the same period as the Castle. The well has a stream outlet that was diverted through a well-engineered canal system to a number of agricultural fields by the prehistoric inhabitants of the area. The main canal has been traced at least 1.8 km from the well outlet. Several lateral canals also have been recorded. The canal system can be traced because of a heavy caliche (calcium carbonate) deposit that built up over time. The canals were reexcavated and used for irrigation in the early part of the 20th century.

The two discontinuous units of this park lie along segments of Beaver Creek, a tributary of the Verde River. There are broad expanses of arable land along the creek. Moving away from the riparian zone one finds grasslands, chaparral and pinyon-juniper vegetation. Alcoves and shelters within the limestone cliffs are the locations of cliff dwellings of various sizes and configurations. The cliff dwellings are of mud and stone construction. The beams used in the construction of the Castle are cottonwood, which is available along the stream.

A 100 percent survey of monument lands conducted in 1988 recorded 67 sites in the monument and 3 outside monument boundaries. Although there is some indication of early occupation or influence by the Hohokam of southern Arizona, most of the sites are associated with the Southern Sinagua who occupied the Verde Valley from approximately A.D. 600-1450. A pit house site dating to the Squaw Peak (A.D. 1-700) and Camp Verde (A.D. 900-1125) phases was excavated by Breternitz in 1958. One of the pit houses was stabilized for interpretive display. The majority of the sites date to the Honanki-Tuzigoot period (A.D. 1125-1400). By A.D. 1300 it appears that large Tuzigoot Phase sites are spaced at regular intervals along the major drainages in the Verde Valley. The five large sites on Beaver Creek are spaced two miles apart. The 1988 project included an architectural study of the Castle. Ceramics associated with either the protohistoric Apache or Yavapai were collected from five sites in the monument. A historic period dugout occupied in the 1920s was recorded by the 1988 survey.

The 1988 survey and architectural study made an important contribution to our understanding of Montezuma Castle and Well. A 16-acre parcel that is privately owned was not surveyed for cultural remains. Ongoing research needs at the monument include further study of the canal irrigation system at the Well unit and an updated overview of the monument in the context of current research in the Verde Valley.

#### **ORGAN PIPE CACTUS NATIONAL MONUMENT**

Located in the Lower Sonoran desert, Organ Pipe Cactus National Monument has a variety of vegetation associations including creosote flats, palo verde-saguaro association, saltbush, and riparian zones. Oak-juniper woodlands are found near the mountain tops. Water is found at springs and tanks but there are no year-round streams. The pond at Quitobaquito was formed by impounding several springs in 1860.

Paleoindian remains have been found adjacent to but not in the monument. The entire temporal span of the Archaic period is well represented by sites at Organ Pipe with camps, stone tool manufacturing sites and resource procurement and processing sites. There may be Archaic deposits in stratified caves. Artifacts diagnostic of the Hohokam, Patayan and Trincheras culture groups all have been found in the monument. Ceramic period sites include camps, shell processing sites, resource procurement sites, small villages and a large Hohokam community with a reservoir. The majority of the ceramics in the Pioneer, Colonial and Sedentary periods (A.D. 300-1150) are from the Salt-Gila Basin but in the Classic Period (A.D. 1175-1400) the ceramics seem to be coming from the Tucson Basin. Patayan ceramics from the Lower Colorado area and Trincheras ceramics from northern Sonora, Mexico also begin to appear in the later period indicating changes in trade and exchange networks. A few Salado sherds also have been found. Several protohistoric sites have been identified.

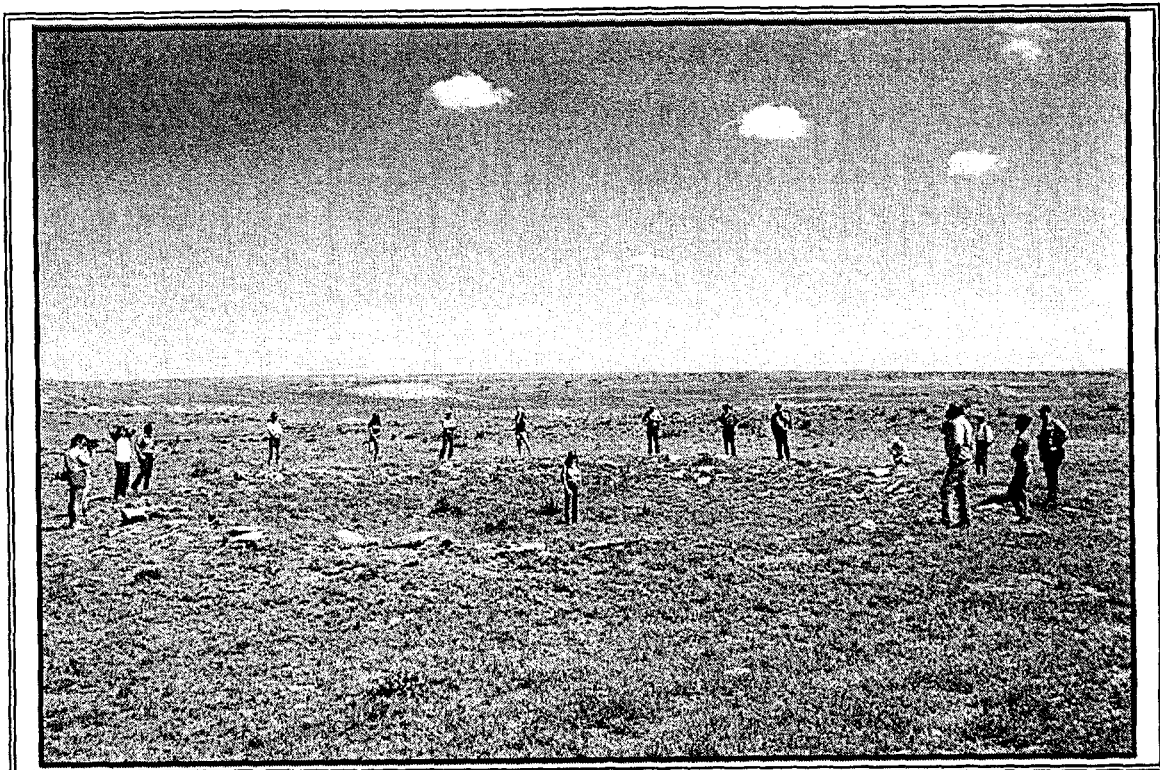
Four cemeteries associated with the Hia C'ed O'Odham (Sand Papago) have been recorded in the monument dating to the post A.D. 1700 period. Nineteenth century ranches and mines also have been identified and recorded.

About 9,000 acres of the monument (2 percent) have been surveyed intensively as part of a stratified sample survey conducted between 1989 and 1991. Two hundred forty six sites were identified although only 181 have been recorded. There are another 200 sites recorded by earlier projects but only 45 of these have been recorded to modern standards.

The park is too large to be considered for 100 percent survey coverage but additional stratified sample surveys are recommended.

#### **PETRIFIED FOREST NATIONAL PARK**

Petrified Forest has the greatest number of acres surveyed at 100 percent intensity of all the parks in Western Region. More than 23,700 acres (25 percent of the park) have been surveyed at 100 percent intensity with 427 sites recorded to modern standards (more acres have been surveyed at Redwood National Park but the intensity of those surveys is not all 100 percent). It is important to note that most of this archeological survey has been funded by the Petrified Forest Museum Association. Professional archeologists from WACC have supervised crews of volunteers for the field work. Professional reports on all of this work have been produced.



*Volunteers standing on the rim of the Great Kiva at Petrified Forest National Park.*

The dramatic landscape of the park has areas of desert shrub association, shortgrass prairie and large areas of sparsely vegetated badlands. A small area of the park has juniper woodland vegetation. The Puerco River, at present an intermittent stream, bisects the park. The petrified wood for which the park is named was an important resource for chipped stone tool manufacture.

Archaic period occupation of the monument has been documented at fewer than ten sites. Excavation of an Archaic site yielded radiocarbon dates from carbonized corn and wood charcoal that range from 1010 B.C. to 150 B.C. This is the earliest site excavated at Petrified Forest.

Prehistoric Western Pueblo agriculturalists occupied the park from Basketmaker through Pueblo times. Sites range from large pueblos, including one with a large ceremonial structure, to farmsteads, rock art sites and chipped stone quarries. As one might expect, sites are more common in the grasslands and along washes than in the barren badlands. Two sites, Agate House and Puerco Ruin, have been excavated and are stabilized for interpretation to the public. Test excavations have been conducted at sites from all time periods. Detailed recording has been conducted at some of the world-class rock art sites. Historic period sites include the Beale Camel Trail, the Painted Desert Inn, Old Route 66 and a large CCC camp.

Nearly 200 sites recorded in the 1940s need to be relocated and recorded to modern standards. There are a number of rock art sites that lack adequate documentation. Two areas are underrepresented in archeological survey: the Dry Wash area near the Flattops and the Painted Desert. An updated overview and a research design for the park are needed to synthesize the large body of data available for this park.

## **SAGUARO NATIONAL MONUMENT**

The park has two discontinuous units located on opposite sides of the city of Tucson. Although set aside to preserve the stands of saguaro cactus there are a variety of vegetation associations present including some at high elevations in the mountains. Water is available in intermittent streams, springs and rock tanks.

More than 80 archeological projects have been conducted at Saguaro National Monument over the past 80 years. The majority are routine clearance surveys covering small areas with few sites recorded in this way. The monument covers 83,574 acres (130 square miles) and has two separate management units, the Rincon Mountain Unit (RMU) and the Tucson Mountain Unit (TMU). Evidence of Paleoindian, Archaic and Hohokam occupation has been recorded. Sites include habitation and camp sites with surface or buried features, rockshelters, quarries, rock art, bedrock milling features and agricultural sites. Historic sites recorded are associated with homesteading, mining, ranching, quicklime production, military history and the CCC.

The archeological overview for Saguaro was one of the first overviews prepared for Western Region parks. It lacks recently collected data on the monument's resources and does not address current Hohokam research issues. NPS and state site forms are on file for 333 archeological sites in Saguaro National Monument. Approximately 30 of these sites, all located at TMU, need to be rerecorded to modern standards. WACC has a complete set of base maps showing the known locations of both projects and sites recorded at Saguaro National Monument. The intensity of all known survey projects on the maps is 100 percent.

There are two National Register properties at Saguaro National Monument. The Rincon Mountain Foothill Archeological District covers 25 square miles in RMU under 4000' in elevation. One hundred seventy two sites are included in this district which was placed on the register in 1979. Manning Cabin on the summit of Mica Mountain in RMU was placed on the National Register in 1975. Built in 1905 as a summer retreat, the cabin today houses seasonal fire crews.

Several sites in TMU are on the Arizona State Register of Historic Places including Camp Pima CCC Camp and the CCC era picnic areas and restrooms still in use. The Freeman Homestead and some lime Kilns at RMU also are on the State Register.

Twenty five percent of the total park has been surveyed and a total of 333 sites recorded. The two biggest survey needs are a survey of the Tucson Mountain Unit and survey of the proposed addition of approximately 3,500 acres to the Rincon Mountain Unit. The majority of the mountainous terrain at RMU does not require intensive survey; areas in the mountains likely to have archeological sites were covered by reconnaissance during the 1984 inventory survey.

## **TONTO NATIONAL MONUMENT**

Tonto National Monument was established in 1907 to protect the cliff dwellings, which are multiple-room pueblos built in rockshelters. Excavation of the Upper Ruin, Lower Ruin and Lower Ruin Annexes has provided a wealth of information about the material culture and subsistence of the prehistoric Salado who occupied these sites between A.D. 1100 and 1450.

A complete survey of the monument in 1985 recorded 64 sites, including rockshelters, 1-room field houses, 2- to 5-room field houses, large pueblos, a protohistoric site and a historic period site. At least 53 of the sites recorded date to the Salado period. Archaic period points were collected at

three sites, Apache-Yavapai (c. A.D. 1700) artifacts or features were found at five sites, and a single site has historic military trash (c. 1915).

The monument is located 3.25 miles southeast of the Roosevelt Dam which has impounded the Salt River and Tonto Creek. The terrain at the monument is rugged with three major canyons and a dissected alluvial bajada. The vegetation is primarily Sonoran desert scrub with chaparral, grassland pinyon-juniper and riparian communities.

The entire monument is on the National Register of Historic places as a district. In preparation for raising the water levels at Lake Roosevelt there has been a great deal of archeological excavation undertaken in the vicinity of the monument in the last five years. An overview integrating recent research with what is known about the sites at Tonto National Monument would be an important addition to the park's information base.

### TUMACACORI NATIONAL HISTORICAL PARK

Three Spanish Missions, Tumacacori, Guevavi and Calabazas, are the focus of this park unit. Archeological survey and recording were conducted at Guevavi and Calabazas in 1992. A survey of lands added to Tumacacori was conducted in 1975 but the main part of the property has not been completely surveyed to modern standards. All three missions are located along the Santa Cruz River within the riparian zone. Tumacacori is one of the original northern Sonoran missions established by Padre Kino in 1691. The Sonoran missions were secularized in 1843.

Mission San Jose de Tumacacori has the remains of both 18th century and 19th century Spanish Mission complexes. Established by Padre Kino in 1691, the mission site was moved from the east bank of the Santa Cruz to its present location on the west bank in 1753. The Jesuit mission was built in 1757 and the Franciscan structures were built between 1797 and 1802. The Franciscan church was first used in 1822. The Indian community abandoned Tumacacori in 1848. Features at the site include the mission church, the *campo santo* (burial ground), *convento* (monastery), lime kiln, the ruins of the Indian village and portions of the orchard, fields and irrigation system. Three archeological excavations at the mission have been productive. A resurvey of this unit of the park is recommended.

San Gabriel de Guevavi was designated a *cabecera* (head mission) in 1701. The first structures built by the Jesuits were a small house, a church and the foundations for a larger church. In 1732 a house and ramada church were built. A new church was under construction in 1751. In 1768 the Franciscans replacing the Jesuits noted a church, convento and plaza. Because of Apache raids, the *cabecera* was moved to Tumacacori in 1771 to be closer to the Tubac *presidio*. Guevavi was abandoned by 1775. Archeological evidence suggests that miners may have occupied some of the mission buildings in 1814, 1848 and 1864. The mission also served as a cemetery for local ranchers in the 1930s.

Features identified by the 1992 survey at Guevavi include the church, *convento*, plaza, several compounds, two large depressions, canals, bedrock mortars, rock alignments and possible corrals. There are no visible remains of a corral with 4-foot-high adobe walls that was noted in 1889. Few historic period artifacts were noted at Guevavi. An archeological site at Guevavi located east of the property may be the protohistoric village that first attracted the missionaries. Archeological testing in the church in 1991 was conducted prior to major stabilization efforts.

San Cayetano de Calabazas was founded as a *visita* (routinely visited place) in the 1750s. The first house and church were not built until 1760. In 1768 the church was still without a roof. The church was completed and a cemetery was established by the Franciscans in 1773. Four years later the church and other structures were burned by Apache raiders. The Pima abandoned the village in 1786. The church was repaired in 1807 and served as a cattle ranch for Tumacacori until 1830 when it was again burned by the Apache. A plan to make the site a ranch house in the 1850s never materialized. The site then served as military headquarters for Camp Moore in 1856 and later as a U.S. Customs house until the Civil War. Fort Mason, established in 1864, was headquartered at Calabazas until 1866. American squatters occupied the area until 1917.

Features at Calabazas are a church, compound, row house, rock alignments, a large depression, a ditch, bedrock mortars and other possible structural remains. Historic period artifacts were abundant at Calabazas but most appear to post date the Spanish occupation of the site.

#### **TUZIGOOT NATIONAL MONUMENT**

Tuzigoot is a 110-room pueblo dating to the Honanki/Tuzigoot Phase (A.D. 1100-1450) of the Southern Sinagua culture. This pueblo is located on a ridge overlooking the floodplain of the Verde River. Six other pueblos are within sight of Tuzigoot, indicating a concentration of population during this period. This is another example of the regular spacing of large pueblos along the major drainages in the Verde Valley that occurs after A.D. 1300 (see Montezuma Castle).

A complete survey of the monument and surrounding lands was completed in 1986. Two sites were recorded in the monument and six sites were found and recorded in the adjacent lands. The second site recorded within the monument boundaries is a 2- to 5-room pueblo. One of the sites recorded outside the monument dates to the Camp Verde Phase (A.D. 900-1100). The rest of the sites recorded date to the Honanki/Tuzigoot Phase (A.D. 1100-1450).

Tuzigoot pueblo was completely excavated by Caywood and Spicer in 1933-1934 with labor provided by the U.S. Civil Works Administrative Program. The museum that houses the artifacts from the excavation was built in 1936. An archeological overview of Tuzigoot was prepared in 1976. No additional survey is required on NPS lands at this time.



## ■ PART III: STATUS OF ARCHEOLOGICAL INVENTORY

The data for this chapter are compiled in Table III.1. The table lists the status of archeological overviews and RMPs as well as summary of the types of major archeological projects conducted at each park unit. The number of acres and the percent of park lands surveyed for cultural resources are listed. Information about the number of sites recorded and whether or not the site records meet modern standards are presented along with information about base maps, and computerized site data bases. The location and status of collections are summarized. National Register properties are listed along with the titles of the proposed survey projects.

**OVERVIEWS:** Archeological overviews have been written for only 16 of the 46 parks in Western Region: CABR, CHIS, GRBA, GRCA, HALE, JOTR, KALA, LAME, MOCA, PEFO, PINN, REDW, SAGU, SEKI, TUZI, and YOSE. Of these, only three overviews were completed after 1980. Overviews are currently in preparation for HAVO and NASA. Although overviews are essential for understanding the archeology of a park area, there often are other documents or reports available that can substitute for the overview. An example would be a report summarizing a complete survey of a small park unit such as those available for Tonto, Tuzigoot or Montezuma Castle. Regional overviews prepared for other agencies also can serve this function for the parks if no formal NPS overview exists. A few project statements in the Western Region Plan call for overviews but with limited baseline data available for most parks the priority in this region seems to be archeological surveys rather than overviews.

**RESOURCE MANAGEMENT PLANS:** The current emphasis on updating Resource Management Plans (RMPs) has been a real bonus for the Western Region Survey Plan. Eight RMPs have been approved and 29 are in some phase of review by Western Region. At least two additional RMPs are in preparation at this time. The availability of cultural project statements from the RMPs has been of great assistance in preparing this survey plan.

**PREVIOUS ARCHEOLOGICAL PROJECTS:** Archeological projects have been conducted at all Western Region park areas. Projects range from clearance surveys and inventory surveys to excavation and testing projects, submerged surveys and rock art recording. Many of the early projects were reconnaissance surveys with no systematic survey coverage. The numbers and types of projects listed in Table III.1 are approximate but give a general idea of the level of archeological activity each park unit has seen. Most of the data were collected from the WACC Project Data Base with additional information from archeologists and cultural resource specialists in the parks.

Even though the numbers in Table III.1 are estimates the projected totals are impressive. More than 2,100 archeological projects have been conducted in the Western Region park units over the past 100 years. There have been more than 250 archeological inventory surveys and 150 reconnaissance surveys. Small clearance surveys, conducted for compliance under NHPA, account for more than 1,100 projects. There have been in excess of 300 testing or excavation projects. Other types of archeological projects listed include site recording, site monitoring, stabilization, surface collection and survey of submerged cultural resources.

TABLE III.1: STATUS OF ARCHEOLOGICAL INVENTORY IN WESTERN REGION PARK UNITS

PARK	OVERVIEW DATE/RMP DATE	PREVIOUS ARCHEOLOGICAL PROJECTS	ACRES SURVEYED/ % PARK SURVEYED	TOTAL SITES RECORDED/ # RECORDED TO MODERN STANDARDS	NPS FORMS/ STATE FORMS	BASE MAPS	SITE DATA BASES: ASMS/ WACC	WHERE ARE ARTIFACTS/ CATALOGUED IN ANCS?	NATIONAL REGISTER	SAIP PROJECT STATEMENTS
AMME	none/none	-1. 100% inventory -2. Clearance project	16 acres @ 100% 100% of park	16 sites/none to modern standards	none/none	WACC base maps show clearances; CAD map shows site locations	no/no	unknown/no	none	none
CABR	1977/RMP under review 1994	-2. Inventory project -4. Clearance survey -2. Small survey -1. Testing project	145 acres @ 100% 100% of park	3 prehistoric sites; 13 military features; Point Loma Lighthouse/ ? to modern standards	none/yes	WACC base maps show clearances and historic features.	no/no	none/no	On Register: 1. Cabrillo NM (10/15/66) 2. Old Point Loma Lighthouse (6/27/74)	none
CAGR	none/RMP under review 1994	-2. Inventory project -23. Research/reconnaissance -20. Excavation/testing -14. Mapping -34. Stabilization -6. Clearance survey	472 acres 100% but not to modern standards; resurvey of monument needed	59 sites/ 1 to modern standards	none/yes	WACC base map shows location of sites from 1956 survey and clearances	no/no	CAGR and WACC/Artifacts at WACC catalogued in ANCS	On Register: 1. Casa Grande National Monument (10/15/66) Form needed	1. Resurvey entire monument 2. Excavation report Compound F
CHIR	none/RMP 1992	-1. Inventory survey -8. Reconnaissance -1. Excavation -19. Clearance survey -1. Surface collection	300 acres @ 100% 2.7 % of park	20 sites/ 16 to modern standards	16/20	WACC base maps have sites and project areas plotted	no/no	WACC/Artifacts at WACC catalogued in ANCS	On Register: 1. Stafford Cabin (3/31/75) 2. Faraway Ranch (8/27/86)	1. Inventory historic resources 2. Inventory archeological resources
CHIS	1977/RMP under review 1994	-9. Inventory project -15. Excavation/testing -2. Reconnaissance -5. Submerged survey -1. Rock art project -11. Clearance survey -2. Monitoring project	14,400 acres @ 100% 80 acres submerged @ 90% 11% of land base (6% if include submerged acreage)	1,222 sites/ 1081 to modern standards 10 submerged sites	no/yes	WACC base maps have most sites and project areas plotted	no/no	CHIS, WACC, Santa Barbara Museum, LA County Museum/ Artifacts at WACC and CHIS catalogued in ANCS	On Register: 1-3. Anacapa, Santa Barbara and San Miguel islands archeological districts (9/12/79) 4. Santa Cruz Island Archeological District (1/30/80) 5. SS WINFIELD SCOTT (9/12/88) 6. Anacapa Island Light Station (9/3/91)	1. Inventory Santa Rosa 2. Inventory East Santa Cruz 3. Inventory offshore waters 4. Search for San Miguel wrecks
CORO	none/RMP under review 1994	-4. Inventory -6. Reconnaissance -6. Clearance survey -3. Other	3,240 acres @ 100% 68% of park	18 sites/ 14 to modern standards	14/14	WACC base maps have sites and project areas plotted	no/no	CORO and WACC/Artifacts at WACC catalogued in ANCS	On Register: 1. Coronado National Memorial (10/15/66)	1. Inventory 1978 acquisition 2. Inventory Mexican border corridor
DEPO	none/see SEKI	-2. Inventory survey -1. Clearance survey	800 acres systematically surveyed 100% of park	9 sites/ 9 to modern standards	9/9	WACC base maps have sites plotted	no/no ASMS forms completed	DEPO and SEKI/Artifacts at SEKI catalogued in ANCS	none	none

Table III.1 Status of Archeological Inventory in Western Region Park Units (Continued)

PARK	OVERVIEW DATE/RMP DATE	PREVIOUS ARCHEOLOGICAL PROJECTS	ACRES SURVEYED/ % PARK SURVEYED	TOTAL SITES RECORDED/ # RECORDED TO MODERN STANDARDS	NPS FORMS/ STATE FORMS	BASE MAPS	SITE DATA BASES: ASMI/ WACC	WHERE ARE ARTIFACTS/ CATALOGUED IN ANCS?	NATIONAL REGISTER	SAIP PROJECT STATEMENTS
DEVA	none/RMP under review 1994	-1 Inventory survey -25 Clearance survey -18 Excavation/testing -9 Reconnaissance survey -10 Site recording	2000 acres systematically surveyed 0.1 % of park	1639 sites/ 100 to modern standards	100/1639	WACC base maps have good plots of sites and projects conducted post 1983. WACC maps have same plots as official clearinghouse maps in Riverside, CA	no/yes	Artifacts at DEVA and WACC/Artifacts at WACC catalogued in ANCS	On Register: 1. Skidoo (4/16/74) 2. Eagle Borax Works (12/31/74) 3. Harmony Borax Works (12/31/74) 4. Leadfield (6/10/75) 5. Death Valley Scooty Historic District (7/20/78)	1. Survey at risk resources 2. Document rock art in Marble Canyon
EUON	none/none CRMP 1986	-1 Inventory survey -4 Clearance surveys	13 acres @ 100% 100% of park	4 sites/ 2 to modern standards	none/ none	No WACC base maps	no/no	EUON/ Unknown	On Register: 1. Eugene O'Neill NHS (5/6/71)	none
FOBO	none/RMP under review 1994	-15 Clearance survey -6 Stabilization/excavation -2 Excavation -4 Inspection/reconnaissance -1 Mapping	25 acres 2.5% of park	The Fort is the only site recorded		WACC base maps have projects plotted	no/no	WACC/Artifacts at WACC catalogued in ANCS	On Register: 1. Fort Bowie National Historic Site (7/29/72)	1. Inventory entire monument
FOFO	see GOGA	-1 Clearance survey	none	Fort/not recorded	0/0	see GOGA	no/no	GOGA/ Unknown	On Register: 1. Fort Point NHS (10/16/70) 2. The Presidio (10/15/66)	none
GOGA	none/RMP under review 1994	-145 Clearance survey -1 Excavation	1540 acres 2% of park	19 sites/ 7 to modern standards	0/7	WACC base maps have projects plotted	no/no	GOGA/ Unknown	On Register: 1. San Francisco Bay Discovery Site (5/23/68) 2. Angel Island (10/14/71) 3. Fort Mason Historic District (4/25/72) 4. Haslett Warehouse (3/28/75) 5. Pumping Station No. 2 S.F. Fire Dept Aux Water Supply System (5/3/76) 6. Alcatraz (6/23/76) 7. Point Lobos Archeological Site (11/7/76) 8. Six Inch Disappearing Rifle (2/7/79) 9. Fort Miley Military Reservation (5/23/80) 10. S.F. Port of Embarkation U.S. Army (2/4/85) 11. KING PHILLIP and REPORTER Shipwreck Site (5/8/86) 12. SS RIO DE JANEIRO (11/3/88) 13. Point Bonita Lighthouse (9/3/91) 14. Forts Baker, Barry and Cronkhite ((12/12/73) 15. Muir Beach Archeological Site (1/26/81) 16. Steamship TENNESSEE Remains (4/15/81)	1. Survey Marin Peninsula 2. Survey east side, Olema Valley 3. Survey selected coastal areas 4. Survey Tamalpais Southern drainage 5. Survey Eastern Bolinas Lagoon drainage 6. Survey Fort Baker and Kirby Cove 7. Survey Fort Barry and Rodeo Lagoon 8. Survey submerged tide lands and beach 9. Assess and evaluate SS TENNESSEE archeological site 10. Study archeological resources Suro District 11. Investigate Alcatraz gun batteries *no project statements for FOFO, MUWO or the Presidio

Table III.1 Status of Archeological Inventory in Western Region Park Units (Continued)

PARK	OVERVIEW DATE/RMP DATE	PREVIOUS ARCHEOLOGICAL PROJECTS	ACRES SURVEYED/ % PARK SURVEYED	TOTAL SITES RECORDED/ # RECORDED TO MODERN STANDARDS	NPS FORMS/ STATE FORMS	BASE MAPS	SITE DATA BASES: ASMS/ WACC	WHERE ARE ARTIFACTS/ CATALOGUED IN ANCS?	NATIONAL REGISTER	SAP PROJECT STATEMENTS
GRBA	1988/RMP under review 1994	-2 Inventory survey -3 Reconnaissance survey -9 Excavation/testing -10 Site recording -15 Other	880 acres 1% of park	57 sites/ 57 to modern standards	53/57	WACC base maps have accurate plots of projects and sites	yes/yes	WACC and GRBA/Artifacts at WACC catalogued in ANCS	On Register: 1. Lehman Orchard and Aqueduct (2/25/75) 2. Rhodes Cabin (2/25/75)	1. Sample survey 2. Survey high use trails and backcountry areas 3. Survey historic ranching and sheep herding sites 4. Assess caves and rockshelters for significance 5. Complete the assessment and recording at known sites
GRCA	1993/RMP under review 1994	-27 Inventory survey -158 Clearance survey -6 Excavation/testing	21,330 acres 2% of park	2,700 sites/ 1,350 to modern standards	2700/?	WACC base maps have clearances and some sites plotted. GRCA has all site records and plots.	no/no Other data bases: 1,000 SARG; 475 GCES	GRCA, WACC, MNA, SAR/ Artifacts at WACC and GRCA catalogued in ANCS	On Register: 1. Grandview Mine (7/9/74) 2. Tusayan Ruins (7/10/74) 3. Hermits Rest Concession Building (8/7/74) 4. Water Reclamation Plant (9/6/74) 5. Grand Canyon Village Historic District (11/20/75) 6. Ranger's Dormitory (9/5/75) 7. Superintendent's Residence (9/6/74) 8. El Tovar Hotel (9/6/74) 9. El Tovar Stables (9/6/74) 10. Grand Canyon Railroad Station (9/6/74) 11. Bucky O'Neill Cabin (10/29/75) 12. Grand Canyon Inn and Campground (9/2/82) 13. Grand Canyon Lodge (9/2/82) 14. Grand Canyon North Rim HQ (9/2/82) 15. Trans-Canyon Telephone Line (5/13/86) 16. Grand Canyon Park Operations Building (5/28/87) 17. Grand Canyon Power House (5/28/87) 18. Mary Jane Colter Buildings (5/28/87) 19. Desert View Watchtower (6/6/87)	1. Stratified sample survey of the park
HAJE	Preliminary overview 1978/RMP under review 1994	-3 Inventory -62 Clearance survey -1 Inventory/excavation -3 Reconnaissance	492 acres 2% of park	361 sites/ 6 to modern standards	6/none	WACC base maps have accurate plots of projects and sites	no/yes	HAJE, Bishop Museum/ Unknown	On Register: 1. Crater Historic District (11/1/74)	1. Inventory Crater District 2. Kipabulu inventory
HAVO	Overview in prep/RMP under review 1994	-9 Inventory survey -6 Reconnaissance -11 Clearance survey -13 Excavation/testing -10 Mapping	2,391 acres @ 100% 60 acres @ 90% 1% of park	734 sites/ 0 to modern standards	none/none	WACC base maps have clearance projects plotted.	no/no	HAVO, Bishop Museum/ Artifacts at HAVO catalogued in ANCS	On Register: 1. Puna-ka'u Historic Dist. (7/11/74) 2. Wilkes Campsite (7/24/74) 3. Old Volcano House (7/24/74) 4. Whitney Seismograph Vault No. 29 (7/24/74) 5. Kilauea Crater (7/24/74) 6. Seventeen-Ninety Footprints (8/7/74) 7. Ahapeo Trail (8/30/74)	1. Map footprints 2. Puna-ka'u survey 3. HAVO caves 4. Pua Loa Petroglyphs 5. Publish overview and assessment

Table III.1 Status of Archeological Inventory in Western Region Park Units (Continued)

PARK	OVERVIEW DATE/RMP DATE	PREVIOUS ARCHEOLOGICAL PROJECTS	ACRES SURVEYED/ % PARK SURVEYED	TOTAL SITES RECORDED/ # TO MODERN STANDARDS	NPS FORMS/ STATE FORMS	BASE MAPS	SITE DATA BASES: ASMS/ WACC	WHERE ARE ARTIFACTS? CATALOGUED IN ANCS?	NATIONAL REGISTER	SAIP PROJECT STATEMENTS
JOMU	none/RMP 1993	-3 Inventory survey -3 Clearance survey -3 Excavation/Testing	15 acres @ 100% 325 acres @ 60% 100% of park surveyed	5 sites/ 0 to modern standards	none/none	WACC base maps have no plots.	no/no	JOMU/ Unknown	On Register: 1. John Muir NHS (10/15/66)	1. Archeological/Ethnographic overview
JOTR	1975/RMP 1994	-6 Inventory survey -18 Clearance survey -10 Excavation/testing -19 Reconnaissance -5 Site recording -3 Stabilization -3 Other	8075 acres 1% of park	263 sites/ ? to modern standards	234/263	WACC base maps have plots for projects and most sites. WACC maps have same plots as official clearinghouse maps in Riverside, CA	no/yes	JOTR, WACC/ Artifacts at WACC catalogued in ANCS	On Register: 1. Ryan House and Lost Horse Well (6/5/75) 2. Barker Dam (10/29/75) 3. Desert Queen Mine (1/17/76) 4. Cow Camp (10/29/75) 5. Keys Desert Queen Ranch (10/30/75) 6. Wall Street Mill (11/12/75)	1. Survey developed areas 2. Sample survey 3. Locate and record Campbell sites 4. Evaluate previously recorded sites 5. Continue research on Pinto Basin sites 6. Evaluate archeological components of historic sites 7. Evaluate historical archeology of National Register properties 8. Revise National Register nomination for Keys Ranch 9. Assess and register new archeological site information records 10. Update archeological site records
KAHO	none/RMP 1991	-8 Inventory survey -1 Excavation -8 Clearance survey	300 acres @ 100% 216 acres @ 50% 50% of park	312 sites/ ? to modern standards	312/none	WACC base maps have clearances plotted. Plots for most sites recorded before 1991 are approximate.	yes/yes	KAHO, Bishop Museum/Some of the artifacts at KAHO are catalogued in ANCS	On Register: 1. Kaloko-Honokohau NHP 11/10/78 2. Honokohau Settlement NHL (12/29/62)	1. Survey Honokohau, resurvey portions of Kaloko and underwater survey of Honokohau Bay
KALA	1985/RMP under review 1994	-29 Inventory survey -13 Clearance survey -6 Excavation/testing -6 Historic resource study -1 Reconnaissance/mapping -9 Mapping	500 @ 100% 5% of park	2130 sites/ 475 to modern standards	0/5	WACC base maps have clearances plotted.	no/no	KALA, Bishop Museum, International Archeological Research Institute	On Register: 1. Kalaupapa NHL 1/7/76 2. USCG Moloka'i Light 3/25/82	1. Eight survey areas in Manakaula 2. Five survey areas in Kalaupapa 3. Four survey areas in Waitolu 4. Four survey areas in Kalaupapa 5. Survey submerged lands 6. Survey Nihoa area 7. Survey Kukuiobapuu 8. Subsurface testing of selected sites 9. Survey caves at Kalaupapa

Table III.1 Status of Archeological Inventory in Western Region Park Units (Continued)

PARK	OVERVIEW DATE/RMP DATE	PREVIOUS ARCHEOLOGICAL PROJECTS	ACRES SURVEYED/ % PARK SURVEYED	TOTAL SITES RECORDED/ # RECORDED TO MODERN STANDARDS	NPS FORMS/ STATE FORMS	BASE MAPS	SITE DATA BASES: ASMS/ WACC	WHERE ARE ARTIFACTS/ CATALOGUED IN ANCS?	NATIONAL REGISTER	SAIP PROJECT STATEMENTS
LAME	1978/RMP under review 1994	-29 Inventory survey -69 Clearance survey -16 Excavation/testing -11 Reconnaissance -8 Site recording -21 Other	13,000 @ 100% < 1% of park	1470 sites/ 106 to modern standards	??	WACC base maps have plots for clearances and some sites.	no/no	WACC and LAME/Artifacts at WACC catalogued in ANCS	On Register: 1. Pueblo Grande de Nevada (10/8/82) 2. Grapevine Canyon Petroglyphs (12/15/84) 3. Homestake Mine (7/17/85) 4. Willow Beach Gauging Station (3/21/86) 5. Grand Wash Archeological District (2/8/80) 6. Horse Valley Ranch (4/12/84) 7. Hoover Dam (4/8/81)	1. Survey backcountry areas 2. Archeological survey and recording of known sites 3. Archeological survey of approved roads 4. Assess significance of known sites in developed areas 5. Survey and assess known historic period archeological sites 6. Survey and assess abandoned mining properties 7. Record rock art sites 8. Survey and assess underwater resources
LABE	none/none	-2 Inventory survey -35 Clearance survey -2 Excavation/testing -1 Reconnaissance -2 Site recording	1,500 acres @ 100% 4% of park	220 sites/ 140 to modern standards	0/220	WACC base maps have project and site plots.	no/no	LABE and UC Berkeley/Artifacts at LABE catalogued in ANCS	On Register: 1. Captain Jack's Stronghold (9/20/73) 2. Hospital Rock Army Camp Site 10/2/73 3. Thomas-Wright Battle Site (1/15/78) 4. Fern Cave Archeological Site (5/29/75) 5. Petroglyph Point Archeological Site (5/29/75) 6. Lava Beds National Monument Archeological District (3/21/91)	1. Survey of entire park (LABE) and some adjacent USFWS lands 2. Rock art recording
LAVO	none/RMP under review 1994	-5 Inventory -45 Clearance survey -1 Excavation/testing -1 Site recording	est. 5% of park	50 sites/ 28 to modern standards	0/50	WACC base maps have plots for projects and some sites.	no/no	LAVO and Cal State Sacramento/unknown	On Register: 1. Loomis Visitor Center (2/25/75) 2. Nobles Emigrant Trail (10/3/75) 3. Prospect Peak Fire Lookout (3/30/78) 4. Summit Lake Ranger Station (4/3/78) 5. Horseshoe Lake Ranger Station (5/5/78) 6. Warner Valley Ranger Station (4/3/78) 7. Park Headquarters (10/3/78) 8. Sulphur Creek Arch Dist (4/14/80)	1. 10% survey of LAVO
MANZ	none/none	-2 Inventory survey	670 acres 100% of park	7 sites/ 7 to modern standards	7/7	WACC base maps have good plots of survey boundaries and site locations.	no/no	WACC/Artifacts at WACC catalogued in ANCS	On Register: 1. Manzanar War Relocation Center (7/30/76)	none
MCCA	1977/RMP under review 1994	-2 Inventory -7 Clearance survey -19 Reconnaissance/description -14 Stabilization -11 Excavation/testing -3 Mapping -29 Other	840 acres 98% of park (inholding not surveyed)	67 sites/ 67 to modern standards	yes/yes	WACC base maps have good plots of projects and sites	yes/yes	WACC and MCCA/Artifacts at WACC catalogued in ANCS	On Register: 1. Montezuma Castle National Monument (10/15/66)	1. Study Montezuma Well irrigation system 2. Archeological overview and assessment

Table III.1 Status of Archeological Inventory in Western Region Park Units (Continued)

PARK	OVERVIEW DATE/RMP DATE	PREVIOUS ARCHEOLOGICAL PROJECTS	ACRES SURVEYED/ % PARK SURVEYED	TOTAL SITES RECORDED/ # RECORDED TO MODERN STANDARDS	NPS FORMS/ STATE FORMS	BASE MAPS	SITE DATA BASES: ASMIS/ WACC	WHERE ARE ARTIFACTS/ CATALOGUED IN ANCS?	NATIONAL REGISTER	SAIP PROJECT STATEMENTS
MUWO	see GOGA	-6 Clearance survey -1 Monitoring	32 acres 6% of park	6 sites/ ? to modern standards	unknown	WACC base maps have plots of clearances.	no/no	Unknown	none	none
NASA	Overview in prep/RMP under review 1994	-1 Inventory survey -1 Excavation	No systematic survey	82 sites/ ? to modern standards	none/none	No WACC base maps.	no/no	Unknown	none	1. Publish archeological overview and assessment 2. Conduct archeological survey
ORPI	none/RMP under review 1994	-3 Inventory -2 Clearance survey -7 Reconnaissance -2 Site recording -5 Site monitoring -5 Stabilization	7,815 acres 2% of park	300+ sites/ 234 to modern standards	178/300+	WACC base maps have good plots of many projects and sites	yes/yes	WACC and ORPI/Artifacts at WACC catalogued in ANCS	On Register: 1. Milton Mine (9/1/78) 2. Victoria Mine (9/1/78) 3. Bull Pasture (9/1/78) 4. Gachado Well and Line Camp (11/2/78) 5. Growler Mine Area (11/1/78)	1. Archeological survey of use zones 2. Overview/synthesis 3. Complete the sample survey and assessment 4. Record rock art sites 5. Prepare National Register nominations
PEFO	1980/RMP under review 1994	-6 Inventory survey -18 Clearance survey -12 Excavation/testing -4 Reconnaissance -4 Surface collection -3 Monitor -19 Other	23,750 acres 25% of park	608 sites/ 427 to modern standards	yes/yes	WACC base maps have good plots of projects and sites	yes/yes	PEFO, ASM, MNA, WACC/ Artifacts at WACC catalogued in ANCS	On Register: 1. Agate House Pueblo (10/6/75) 2. Painted Desert Petroglyphs and Ruins Arch Dist (6/24/76) 3. Painted Desert Inn (10/10/75) 4. Flattop Site (7/12/76) 5. Newspaper Rock Petroglyphs Arch Dist (7/12/76) 6. Puerco Ruin and Petroglyphs (7/12/76) 7. Twin Buttes Arch Dist (7/12/76) 8. 35th Parallel Route (12/6/77) 9. Petrified Forest Bridge (9/30/88)	1. Complete archeological inventory for sensitive areas 2. Complete comprehensive archeological inventory 3. Document National Register petroglyphs 4. Document and evaluate petroglyph sites 5. Preserve data from eroding cultural sites
PIMA	none/none	-1 Inventory survey -2 Excavation	700 acres 30% of park	1 site/ recording incomplete	no/yes	No WACC base maps	no/no	Arizona State Museum/No	On Register: 1. Hohokam-Pima National Monument (7/19/74)	none
PINN	1978/RMP in prep 1993	-1 Inventory survey -10 Clearance survey -1 Auger testing	2817 acres 6% of park	27 sites/ ? recorded to modern standards	none/yes	WACC base maps have plots of projects and sites.	no/no	PINN/Unknown	On Register: 1. Chalone Creek Archeological Site (8/31/78)	1. Complete archeological survey of park 2. Update archeological overview 3. Determine eligibility of archeological and historic resources

Table III.1 Status of Archeological Inventory in Western Region Park Units (Continued)

PARK	OVERVIEW DATE/RMP DATE	PREVIOUS ARCHEOLOGICAL PROJECTS	ACRES SURVEYED/ % PARK SURVEYED	TOTAL SITES RECORDED/ # TO MODERN STANDARDS	NPS FORMS/ STATE FORMS	BASE MAPS	SITE DATA BASES: ASMIS/ WACC	WHERE ARE ARTIFACTS// CATALOGUED IN ANCS?	NATIONAL REGISTER	SAIP PROJECT STATEMENTS
PORE	none/RMP under review 1994	-12 Inventory survey -20 Clearance survey -1 Site recording -8 Excavation/testing	Survey coverage unknown	113 sites/ ? to modern standards	-1/13	WACC base maps have plots of projects and sites.	no/no	PORE/Unknown	On Register: 1. Olema Line Kilns (10/8/76) 2. Point Reyes Lifeboat Rescue Station, 1927 (11/7/85) 3. Pierce Ranch (12/6/85)	1. Survey submerged resources 2. Survey unsurveyed lands; update site records
PUHE	none/RMP under review 1994	-4 Inventory -10 Clearance survey -3 Excavation/testing -4 Mapping	84.5 acres 100% of park	34 sites/ none to modern standards	none/none	WACC base maps have plots of clearances. Good site plots at PAAR.	no/no	PUHE, Bishop Museum/ Artifacts at PUHE catalogued in ANCS	On Register: 1. Pu'ukobola Heiau National Historic Site (10/15/66)	none
PUHO	none/RMP under review 1994	-2 Survey and mapping -8 Clearance survey -12 Excavation -2 Excavation and mapping -2 Excavation and stabilization -3 Stabilization	182 acres @ 100% 100% of park	51 sites/ ? to modern standards	none/none	WACC base maps have plots for clearances. Good plots for sites recorded after 1963 at PAAR.	no/no	PUHO and Bishop Museum/ Artifacts at PUHE catalogued in ANCS	On Register: 1. Pu'uhonua o Honaunau (10/15/66)	1. Survey caves
REDW	1973/RMP under review 1994	-6 Inventory survey -70 Clearance survey -8 Reconnaissance -6 Excavation/testing -4 Other	29,582 acres surveyed by mixed survey strategy 28% of park	68 sites/ 50 to modern standards	0/68	WACC base maps have good plots for projects and some site plots.	no/no	REDW/ Artifacts at REDW catalogued in ANCS	On Register: 1. O'Men Village Site (6/30/77) 2. Ender's Beach Arch Sites (6/30/77) 3. Radar Station B-71 (4/19/78) 4. Redwood Highway (12/17/79) 5. Bald Hills Arch District (7/9/82) and District Extension (11/4/85)	1. Reconnaissance of 3,000 acres
SAFR	none	-1 Reconnaissance survey	Unknown	none	none	none	no/no	SAFR/Unknown	On Register: 1. CATHAYER (11/13/66) 2. EUREKA (4/24/73) 3. WAFAMA (4/24/73) 4. HERCULES (1/17/75) 5. ALMA (10/30/75) 6. BALCLUTHA (11/7/76) 7. Tubbs Cordage Company Office Building (11/6/79) 8. LEWIS ARK (11/8/79) 9. Aquatic Park Historic Site (1/26/84) 10. JEREMIAH O'BRIAN (6/7/78) 11. PAMPANITO (1/14/86)	1. Records check and surface inspection
SAGU	1975/RMP 1990	-5 Inventory survey -48 Clearance survey -2 Excavation/testing -6 Reconnaissance survey -5 Mapping/surface collection -5 Other	16,384 acres 25% of park	333 sites/ 333 to modern standards	333/333	WACC base maps have good plots of projects and sites.	no/yes	WACC and SAGU Artifacts at WACC catalogued in ANCS	On Register: 1. Rincon Mountains Foothills Archeological District (10/16/79) 2. Manning Cabin (3/31/75)	1. Survey RMU addition 2. Survey TMU



Table III.1 Status of Archeological Inventory in Western Region Park Units (Continued)

PARK	OVERVIEW DATE/RMP DATE	PREVIOUS ARCHEOLOGICAL PROJECTS	ACRES SURVEYED/ % PARK SURVEYED	TOTAL SITES RECORDED/ # RECORDED TO MODERN STANDARDS	NPS FORMS/ STATE FORMS	BASE MAPS	SITE DATA BASES: ASMIS/ WACC	WHERE ARE ARTIFACTS/ CATALOGUED IN ANCS?	NATIONAL REGISTER	SAIP PROJECT STATEMENTS
SAMO	none/RMP under review 1994	-18 Clearance survey -7 Inventory survey -3 Excavation/testing	1,300 acres 1% of park	65 sites on NPS land/ ? recorded to modern standards	none/8	WACC base maps have plots for projects and sites.	no/no	Collections are in private institutions	none	1. Survey of NPS owned lands 2. Survey proposed fee acquisition lands 3. Survey and document pictograph sites
SEKI	1980/RMP under review 1994	-5 Inventory survey -45 Clearance survey -4 Excavation/testing -2 Site recording -2 Other	est 8,000 acres 1% of park	183 sites/ 91 to modern standards	91/183	WACC base maps are being brought up to date.	no/no	SEKI, WACC, Hearst Museum, UC Berkeley/Artifacts at SEKI and WACC catalogued in ANCS	On Register: 1. Gamlin Cabin (3/8/77) 2. Shorty Lovelace Hist Dist (1/31/78) 3. Knapp Cabin (12/20/78) 4. Barton-Lackey Cabin (3/30/78) 5. Tarp's Log (3/8/77) 6. Squatter's Cabin (3/8/77) 7. Smithsonian Institution Shelter (3/8/77) 8. Quinn Ranger Station (4/13/77) 9. Hospital Rock (8/29/77) 10. Cattle Cabin (9/15/77) 11. Groentleit Site (3/30/78) 12. Cabin Creek Ranger Residence and Dormitory (4/27/78) 13. Ash Mountain Entrance Sign (4/27/78) 14. Redwood Meadow Ranger Station (4/27/78) 15. Hockett Meadow Ranger Station (4/27/78) 16. Giant Forest Lodge Historic District (5/5/78) 17. Pear Lake Ski Hut (5/5/78) 18. Giant Forest Village/Camp Kaweah Historic District (5/22/78) 19. General's Highway Stone Bridges (9/13/78) 20. Moro Rock Slatway (12/29/78)	1. Overview and assessment 2. Survey developed areas 3. Survey backcountry campsites and trails in areas of high site potential 4. Survey Cedar Grove 5. Archeological research design 6. Archeological survey of Kern Ranger Station area 7. Survey Crystal Cave
TONTO	none/RMP under review 1994	-4 Inventory -7 Clearance survey -3 Excavation/testing -14 Stabilization -3 Mapping -4 Reconnaissance -3 Collection -7 Other	1120 acres 100% of park	64 sites/ 64 to modern standards	64/64	WACC base maps have good plots for projects and sites	yes/yes	WACC and TONTO/Artifacts at WACC catalogued in ANCS	On Register: 1. Tonto National Monument Archeological District (10/15/66) 2. Tonto NM Lower Ruin (4/21/89) 3. Tonto NM Upper Ruin (4/21/89)	1. Synthesis, research design and mapping of Upper Ruin 2. Assess status of deposits in Upper Ruin 3. Conduct archeological and chronological research in Upper and Lower ruins and several smaller sites

Table III.1 Status of Archeological Inventory in Western Region Park Units (Continued)

PARK	OVERVIEW DATE/RMP DATE	PREVIOUS ARCHEOLOGICAL PROJECTS	ACRES SURVEYED/ % PARK SURVEYED	TOTAL SITES RECORDED/ # RECORDED TO MODERN STANDARDS	NPS FORMS/ STATE FORMS	BASE MAPS	SITE DATA BASES: ASMIS/ WACC	WHERE ARE ARTIFACTS? CATALOGUED IN ANCS?	NATIONAL REGISTER	SAIP PROJECT STATEMENTS
TUMA	none/RMP under review 1994	-6 Inventory survey -3 Clearance survey -21 Excavation/testing -12 Excavation/stabilization -3 Mapping -4 Monitoring -4 Reconnaissance	36 acres 80% of park	3 sites/ 3 to modern standards	3/?	WACC base maps have good plots for projects and sites.	no/no	WACC and TUMA/Artifacts at WACC catalogued in ANCS	On Register: 1. Tumacacori National Monument (10/15/66) 2. Tumacacori Museum (5/28/87) 3. Mission Los Santos Angeles de Guevavi (6/21/90) 4. San Cayetano de Calabazas (12/14/90)	1. Survey Tumacacori Unit
TUZI	1976/RMP 1994	-1 Inventory survey -1 Excavation -5 Other	59 acres 100% of park	2 sites/ 2 to modern standards	2/2	WACC base maps have good plots for projects and sites.	no/yes	WACC and TUZI/Artifacts at WACC catalogued in ANCS	On Register: 1. Tuzigoot National Monument 10/15/66	none
USAR	none/RMP under review 1994	-1 Underwater mapping project	2.5 acres underwater	2 ships: USS Arizona and USS Utah	no/no	No WACC base maps.	no/no	USAR/Artifacts at USAR catalogued in ANCS	On Register: 1. USS ARIZONA Memorial (10/15/66) 2. USS UTAH (5/5/89)	1. Underwater survey and monitoring
WAPA	none/RMP 1984	-1 Inventory survey -3 Clearance survey/testing -1 Reconnaissance	13 acres surveyed systematically 1% of park	106 sites/ ? to modern standards	no/no	WACC base maps have plots for clearances.	no/no	WAPA/ Unknown	On Register: 1. War in the Pacific NHP (8/18/78) 2. Memorial Beach Park (8/7/74) 3. Agat Invasion Beach (3/4/75) 4. Matque River Valley Battle Area (4/3/75) 5. Pitii Coastal Defense Guns (6/18/75) 6. Asan Ridge Battle Area (7/18/75) 7. Asan Invasion Beach (2/14/79)	1. Locate, evaluate and preserve Underwater Cultural Resources 2. Complete Archeological Surface Survey 3. Locate Sealed Japanese Earthen Tunnels 4. Multi-spectral/Aerial Photography Survey
WHIS	none	-4 Inventory -68 Clearance survey -7 Excavation/testing -1 Reconnaissance -6 Other	est 2,000 acres 5% of park	75 sites/ 35 to modern standards	0/75	WACC base maps have good plots for projects and sites.	no/no	WHIS/Artifacts at WHIS catalogued in ANCS	On Register: 1. Tower House District (7/2/93) 2. Soo-Yeh-Choo-Pus (Tower House Arch Dist; 11/4/85)	1. 20% survey of Whiskeytown Unit

Table III.1 Status of Archeological Inventory in Western Region Park Units (Continued)

PARK	OVERVIEW DATE/RMP DATE	PREVIOUS ARCHEOLOGICAL PROJECTS	ACRES SURVEYED/ % PARK SURVEYED	TOTAL SITES RECORDED/ # RECORDED TO MODERN STANDARDS	NPS FORMS/ STATE FORMS	BASE MAPS	SITE DATA BASES: ASMIS/ WACC	WHERE ARE ARTIFACTS/ CATALOGUED IN ANCS?	NATIONAL REGISTER	SAIP PROJECT STATEMENTS
YOSE	1978/RMP 1994	-38 Inventory survey -35 Clearance survey -45 Excavation/testing -5 Monitoring -6 Other	26,540 acres @ 100% 800 acres @ 80% 8,289 acres @ 80-100% 5% of park	877 sites/ 877 to modern standards	none/yes	WACC base maps have good plots for projects and most sites. YOSE has accurate plots of sites and project areas.	no/no Sites are in YOSE data base	YOSE/Artifacts at YOSE catalogued in ANCS	On Register: 1. Yosemite Valley Chapel (12/12/73) 2. Wawona Hotel and Pavilion (10/1/75) 3. Ahwahnee Hotel (2/15/77) 4. Le Conte Memorial Lodge (3/8/77) 5. Yosemite Valley Bridges (11/25/77) 6. Yosemite Valley Archeological District (1/20/78) 7. Hetch Hetchy Railroad Engine No. 6 (1/30/78) 8. Yosemite Valley Historic District (3/30/78) 9. Glacier Point Trailside Museum (4/4/78) 10. Track Bus No. 19 (5/22/78) 11. Yosemite Valley Railroad Caboose No. 15 (5/22/78) 12. Acting Superintendent HO (6/9/78) 13. Yosemite Transportation Company Office (6/9/78) 14. Hodgdon Homestead Cabin (6/9/78) 15. McCauley and Meyer Barns (6/15/78) 16. Merced Grove Ranger Station (6/15/78) 17. El Portal Archeological District (8/18/78) 18. Mariposa Grove Museum (12/1/78) 19. Bagby Stationhouse, Water Tanks and Turntable (4/13/79) 20. Chris Jorgenson Studio (4/13/79) 21. McGurk Cabin (6/4/79) 22. Camp Curry Historic District (11/1/79) 23. Rangers' Club (5/28/87) 24. McCauley Cabin (3/8/77) 25. Great Sierra Mine Historic Site (5/24/78) 26. Great Sierra Wagon Road (8/25/78) 27. Tuolumne Meadows (11/30/78) 28. Tioga Pass Entrance Station (12/14/78) 29. Tuolumne Meadows Ranger Stations and Comfort Stations (12/18/78) 30. Soda Springs Cabin (4/19/79) 31. Parsons Memorial Lodge (4/30/79)	1. Survey backcountry impact corridor 2. Survey and protect reservoir basins 3. Resurvey developed areas 4. Survey areas slated for Wilderness Impact Mitigation
46 NPS UNITS	16 overviews, 2 in prep/ 8 RMPs, 29 under review, 2 in prep	More than 2,100 archeological projects conducted. Projects conducted at all units.	More than 150,000 acres surveyed at 100%. This is less than 2% of NPS park land in Western Region.	Approximately 12,000 sites; only 45% recorded to modern standards.		WACC Base Maps for 39 park units are in good condition.	6/10	All artifacts at WACC and the artifacts at some park units are catalogued in ANCS.	209 National Register properties in Western Region	117 project statements

**ACRES AND PERCENT OF PARK SURVEYED:** Archeological survey has been conducted at every park unit in Western Region. Surveys conducted vary from intensive, systematic surveys to small clearance surveys, to reconnaissance projects with unknown survey coverage.

Eleven of the 46 park units in Western Region have been completely surveyed although the site records for six of these parks do not meet modern standards. Of the park units surveyed at one hundred percent coverage, only one, DEPO, is a natural rather than a cultural park. Three parks have survey coverage of between 50 and 90 percent, four park units have coverage of between 25 and 49 percent, and 21 have survey coverage of 11 percent or less. The percentage of systematic survey coverage at seven park units is unknown.

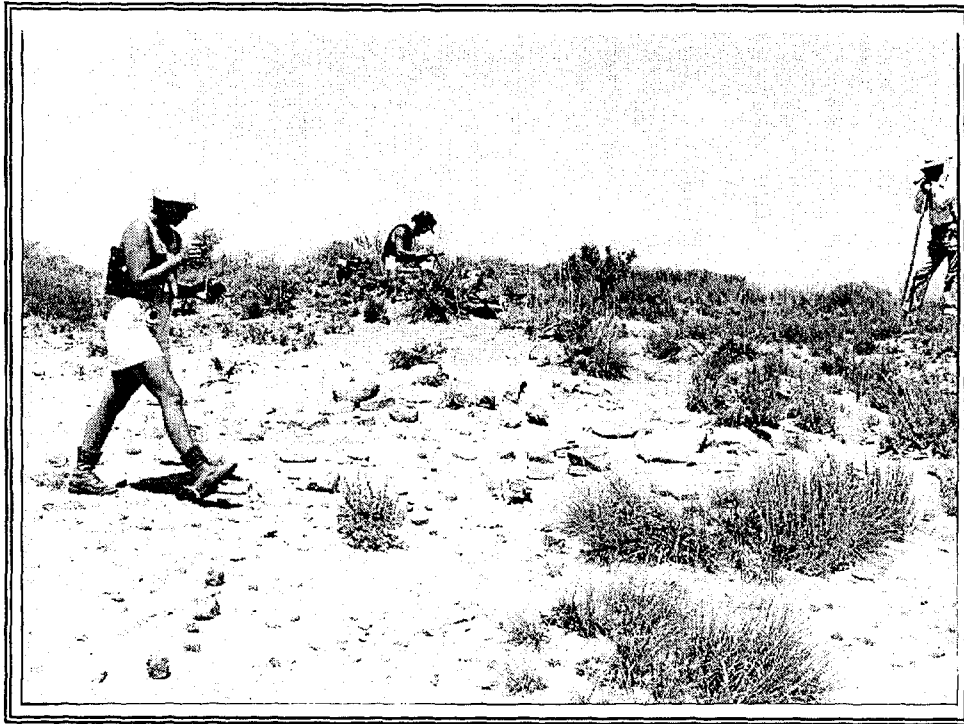
Survey coverage becomes a crucial issue when establishing regionwide survey strategies and priorities. More will be discussed on this subject in Parts IV and V of the survey plan.

PERCENT SURVEYED	NUMBER	PARK UNITS
100% of Park	11	AMME, CABR, DEPO, EUON, JOMU, MANZ, MOCA, PUHE, PUHO, TONT, TUZI
50% to 90%	3	CORO, KAHO, TUMA
25% to 49%	4	PEFO, PIMA, REDW, SAGU
11%	1	CHIS
5% to 10%	5	KALA, LAVO, PINN, WHIS, YOSE
3% to 4%	2	LABE, SEKI
2%	5	CHIR, FOBO, GRCA, HALE, ORPI
1%	5	GRBA, HAVO, JOTR, SAMO, WAPA
Less than 1%	3	DEVA, FOPO, LAME
Unknown survey coverage	7	CAGR, GOGA, MUWO, NASA, PORE, SAFR, USAR

**ARCHEOLOGICAL SITES RECORDED AND CONDITION OF SITE RECORDS:** Archeological sites are reported for every park unit in Western Region (with the exception of SAFR). There are more than 12,000 known sites which make up 22 percent of the total 53,000 known for the entire National Park Service. The state of the site records is quite variable; our best guess is that only 45 percent of the sites have site forms that meet modern standards of recording.

Because many of the sites were recorded during the early reconnaissance surveys, often there are only a few lines of description and no topographic map plots of site locations. Nonetheless the number of sites known is quite impressive. Relocating and rerecording sites with poor records often can be incorporated into systematic surveys undertaken under SAIP. It has been shown that systematic surveys of areas previously covered by reconnaissance lead to the discovery of new sites which may have been overlooked by reconnaissance surveys which were geared towards locating large and obtrusive sites.

Table III.1 lists the number of sites recorded in each park unit and the condition of the site records. If known, it is noted whether in-house NPS forms or official state forms are known to exist. In states such as Arizona, California and Nevada the SHPO has requirements for standard state site forms



*Archeologists recording a site at Petrified Forest National Park.*

which must accompany any compliance-related correspondence so it is important to know what site forms are available.

**BASE MAPS:** The status of site plots on topographic base maps is given for each park unit. Overall the base maps at the Western Archeological and Conservation Center with project and site locations are in good order but there are, of course, exceptions.

**SITE DATA BASES:** WACC and several of the parks have their own site data bases and the status of each unit in these data bases is shown. Few parks are officially entered in the ASMIS data base but, because WACC is the main test site for the program, the possibility exists that Western Region park units will be among the first entered into the system.

**ARTIFACT LOCATION AND STORAGE CONDITIONS:** The storage location of artifacts collected by archeological projects is listed for each park unit. The majority of the park units in Western Region have their collections at the Museum Collections Repository at WACC. Artifacts stored at WACC are catalogued using the ANCS system and are being curated under recommended storage conditions. Several of the parks retain their own collections and these may or may not be catalogued in ANCS at the present time. Some collections are curated at non-NPS facilities and their conditions relative to ANCS are unknown.

**NATIONAL REGISTER:** National Register properties are listed for each of the park units in Western Region. Of the 46 park units, 19 are listed on the National Register in their entirety: CABR, CAGR, CORO, EUON, FOBO, FOPO, KAHO, KALA, LABE, MANZ, MOCA, PIMA, PUHE, PUHO, TONT, TUMA, TUZI, USAR, and WAPA. Eight of the park units on the Register have been surveyed at 100 percent intensity. Nine of the park units on the Register have project statements in this document that will result in 100 percent survey coverage. Two National Register

units, FOPO and PIMA, require further survey work not documented in project statements at this time.

There are more than 200 National Register properties in Western Region. (This total does not include properties determined eligible but not yet listed.) The region has approximately 22 archeological sites and 20 archeological districts on the Register. The rest of the National Register properties are historic districts or properties which may or may not have archeological components.

**PROPOSED PROJECT STATEMENTS:** The proposed SAIP project statements are in the last column of Table III.1 so that a comparison can be made between the status of archeological inventory and the proposed projects. Of the 46 park units, 36 park units have survey needs; there are 10 units at which no survey or other SAIP-related projects are requested at this time.

## ■ PART IV: REGIONWIDE STRATEGIES FOR ARCHEOLOGICAL SURVEY

The park units in the Western Region are remarkably diverse in size, environment and cultural remains. It would not make sense to determine that all parks should be surveyed at the same level of coverage or intensity. The overall goals of the Western Region survey program are:

- 1) Survey small park units at 100%
- 2) Survey development areas at 100%
- 3) Survey a sufficient sample at medium- to large-sized parks to be able to describe the time period and culture group relative to the different environmental zones in each park

### SURVEY COVERAGE

Reconnaissance surveys were conducted from the 1930s through 1960s. Archeological inventory survey in the modern sense became the norm after the environmental legislation and historic preservation legislation of the 1960s and 1970s. For the most part surveys undertaken after 1975 in National Park Service areas meet our current management needs.

The percentage of survey coverage recommended for each park unit is guided by a number of factors and is expected to change over the life of the SAIP funding initiative. Two of the most important factors are the significance of the archeological resources in the park unit and management considerations such as visitor use or natural threats to sites. Lack of good baseline data for a park might be solved by a sample survey of the park with recommendations on the desired percentage of coverage resulting from the sample survey.

One hundred percent survey is not the best alternative for all parks. Some have land holdings so enormous as to make this task impractical. Others have areas with little potential for discovery of archeological remains because of rugged terrain or heavy ground cover. In assembling this document we have attempted to determine where the survey needs are most pressing and where survey will be most productive either in the number of sites or the quality of the site records.

Table IV.1 is a summary of the present survey coverage and the proposed survey coverage for each park. The table is organized by park size. An asterisk after a park's name indicates that the entire park area is on the National Register of Historic Places. There are a number of ways to look at the data in this table. We will look at the percentage of survey completed and at the percent of survey recommended for each size class.

Shaded rows in Table IV.1 indicate parks that have been completely surveyed. All of the parks in this category, with the exception of TONT, are less than 1,000 acres in size. The 11 park units completely surveyed are AMME, CABR, DEPO, EUON, JOMU, MANZ, MOCA, PUHE, PUHO, TONT and TUZI. However, site forms completed to modern standards are still needed for the sites at AMME, CABR, EUON, JOMU, PUHE and PUHO. Eight of the 11 park units with total survey coverage are listed on the National Register of Historic Places.

USAR has no surveyable lands; the visitor center is built on fill. However, underwater survey and monitoring are recommended.

**Table IV.1  
ACTUAL AND PROPOSED SURVEY COVERAGE FOR WESTERN REGION PARKS**

PARK ACREAGE	NUMBER	PARK UNITS * = whole park on National Register	ACTUAL SURVEY COVERAGE	PROPOSED SURVEY COVERAGE/STRATEGY
0 acres	1	USAR*	Unknown	Underwater survey
Less than 100 acres	6	EUON*	100%	Survey complete but sites need recording
		FOPO*	Unknown	No project statements
		PUHE*	100%	Survey complete but sites need recording
		SAFR	Unknown	Records check, inspection
		TUMA*	80%	100% proposed
		TUZI*	100%	Survey complete
Between 100 and 1,000 acres	10	AMME	100%	Survey complete but sites need recording
		CABR*	100%	Survey complete but sites need recording
		CAGR*	Unknown	100% proposed
		DEPO	100%	Survey complete
		FOBO*	2.5%	100% proposed
		JOMU	100%	Survey complete but sites need recording
		MANZ*	100%	Survey complete
		MOCA*	100%	Survey complete
		MUWO	6%	No project statements
		PUHO*	100%	Survey complete but sites need recording
Between 1,000 and 10,000 acres	6	CORO*	68%	100% proposed
		KAHO*	50%	100% proposed
		NASA	0	Survey sample unspecified
		PIMA*	30%	Not NPS lands; no project statements
		TONT*	100%	Survey complete
		WAPA*	1%	100% proposed
Between 10,000 and 100,000 acres	11	CHIR	2.7%	100% proposed
		GOGA	2%	15% proposed
		GRBA	1%	10-15% proposed
		HALE	2%	20% proposed
		KALA*	5%	88% proposed
		LABE*	4%	100% proposed
		PEFO	25%	52% proposed
		PINN	6%	100% proposed
		PORE	Unknown	100% proposed
		SAGU	25%	75% proposed
		WHIS	5%	20% proposed
Between 100,000 and 1,000,000 acres	9	CHIS	11%	100% of NPS land proposed
		HAVO	1%	3% proposed
		JOTR	1%	5-10% proposed
		LAVO	5%	15% proposed
		ORPI	2%	8% proposed
		REDW	28%	30% proposed
		SAMO	1%	100% NPS land proposed
		SEKI	1%	Survey sample unspecified
		YOSE	5%	Survey sample unspecified
In excess of 1,000,000 acres	3	DEVA	0.1%	Survey sample unspecified
		GRCA	2%	5% proposed
		LAME	<1%	Survey sample unspecified



Of the six parks with fewer than 100 acres, three have been completely surveyed (EUON, PUHE and TUZI). At least 80 percent of TUMA has been surveyed; completing the survey of this unit is recommended. The actual survey coverage of two parks in this category is not known; there are no project statements for FOPO and a reconnaissance and records check are recommended for SAFR.

Seven of the ten park units with between 100 and 1,000 acres have been surveyed completely (AMME, CABR, DEPO, JOMU, MANZ, MOCA and PUHO). The actual survey coverage at CAGR is unknown but the park is recommended for 100 percent coverage. The survey coverage at FOBO is 2.5 percent and at MUWO is a mere 6 percent. One hundred percent coverage is recommended for FOBO. There are no project statements for survey at MUWO at this time.

Tonto is the only park unit in the category 1,000 to 10,000 acres that has been surveyed at 100 percent. Survey coverage at CORO, KAHO, NASA, PIMA and WAPA ranges from 0 to 68 percent coverage. One hundred percent coverage is recommended for CORO, KAHO and WAPA. Survey is proposed for NASA and the property at PIMA is not accessible to NPS archeologists at the present time.

The percentage of park areas surveyed in the category 10,000 to 100,000 acres drops dramatically from the previous categories. The exceptions are PEFO and SAGU which both have 25 percent survey coverage. The percent of systematic survey coverage ranges from 1 percent to 6 percent at CHIR, GOGA, GRBA, HALE, KALA, LABE, PINN, and WHIS. The survey coverage at PORE is not known but sites have been recorded throughout the park. One hundred percent survey coverage is recommended for CHIR, LABE, PINN and PORE. Given that 12 percent of the park is unlikely to have sites, 88 percent survey coverage is recommended for KALA. KALA and LABE are listed on the National Register in their entirety. The percentages recommended for the remainder of the parks in this category range from 10 to 75 percent.

Parks that are between 100,000 acres and 1,000,000 acres in size have survey coverage that ranges from 1 to 28 percent. HAVO, JOTR, SAMO and SEKI have 1 percent coverage. The coverage at ORPI is 2 percent. LAVO and YOSE have 5 percent survey coverage, 11 percent of CHIS has been surveyed and 28 percent of REDW has been surveyed. One hundred percent survey of the NPS-owned lands within CHIS and SAMO has been proposed. The recommended survey coverage for REDW is 30 percent. The recommended survey coverage for HAVO, JOTR, LAVO and ORPI ranges from 3 to 15 percent. There are no proposed percentage figures for SEKI or YOSE at this time.

There are only three parks in the Western Region with over 1,000,000 acres. The present survey coverage at DEVA is 0.1 percent, at GRCA is 2 percent and at LAME is less than 1 percent. Proposed survey coverage for GRCA is 5 percent. There are no proposed survey percentages for DEVA or LAME at this time.

In summary the recommendations for survey coverage of Western Region park units vary widely. One hundred percent survey is recommended for 12 parks, 8 of which are listed on the National Register in their entirety. Survey coverage at another 13 parks is recommended at levels that range from 3 to 88 percent. Actual percentage figures for proposed survey coverage are not available at this time for seven parks. Eleven parks have been completely surveyed although six require site forms. Underwater survey is recommended for USAR, records check and reconnaissance are recommended for SAFR and the lands of PIMA are currently not open for investigation. These recommendations for survey coverage probably will be revised as projects are accomplished and we

improve our knowledge of what is needed to protect and preserve cultural resources in the Western Region.

### PROJECT STANDARDS

Projects funded by SAIP monies may be carried out by archeologists from the Western Archeological and Conservation Center in Tucson, by archeologists employed by the parks and by private archeological contractors. The SAIP document recommends ten standards for all archeological projects conducted in the Western Region.

1. Archeological inventory projects meet the requirements of the NPS's policies, guidelines and standards. These include *NPS Management Policies* (1988), *NPS Cultural Resources Management Guideline* (NPS-28 1985), *NPS Conservation of Archeological Resources* (Special Directive 1987), the *Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation* (1983) and *NPS Guidelines for Federal Agency Responsibilities, Under Section 110 of the National Historic Preservation Act* (1988). Projects also should adhere to professional standards.
2. Archeological inventory projects are conducted in accordance with a written, fully professional research design, approved by the regional office.
3. Archeological inventory projects are conducted using effective and advanced technologies.
4. Archeological inventory projects are developed and implemented in cooperation with the appropriate State Historic Preservation Officers.
5. Archeological inventory projects are developed and implemented in consultation with appropriate Indian tribes and other contemporary native groups and ethnic populations.
6. Since evidence of past cultural systems extends beyond the boundaries of federally-owned or controlled lands and waters in National Park System areas, whenever possible, archeological inventory projects collect and consider data from non-Federal lands and waters within park areas as well as from adjoining lands and waters.
7. Development and implementation of archeological inventory projects involve non-NPS archeologists and other specialists who have demonstrated competence in a particular culture, geographic region, park area, or advanced technology.
8. Data collected during archeological inventory projects are provided to park planners for incorporation, as appropriate into park planning documents and to park managers for resource management, law enforcement, interpretation, maintenance, and other park operational purposes.
9. Archeological data collected during inventory projects are incorporated into Servicewide inventories, lists, catalogs, and databases.
10. The results of archeological inventory projects are made available, as appropriate, to the professional community and to the public.

## **RESEARCH DESIGNS**

Research designs or scopes of work should follow professional standards that will meet with the approval of the State Historic Preservation Offices and the Advisory Council on Historic Preservation. The required review process for these documents should assure that standards are met.

## **FUNDING LEVELS**

Requested funding levels vary considerably. This is due to a number of factors including the proposed level of survey, terrain, access and projected site density.

## **STATE STANDARDS**

Many states have written standards for archeological survey. It is the responsibility of archeologists working in national park units to familiarize themselves with these standards and to follow them.

## **STATE SITE FORMS**

When appropriate, state site forms should be completed and submitted to the proper state agencies so that state site numbers can be issued. In most states, the SHPO will not process compliance documentation unless a site has an official state number.

## **THEMATIC FRAMEWORK**

The state preservation plan for Nevada and the thematic context guidelines prepared for Arizona are important tools in the development of research designs and project reports. In the absence of state guidelines, the thematic outline prepared by the National Park Service's History Division (NPS 1987) should be used to identify themes in history and prehistory that will need to be addressed by research designs and project reports. A wide variety of prehistoric and historic period themes can be addressed by survey projects in the Western Region.

## **ASMIS**

As the ASMIS data collection progresses, forms with the required data fields should be completed in the course of each archeological project. The ASMIS forms should be forwarded to the appropriate office for data entry.

## **ARCHIVES AND COLLECTIONS**

Data collected from archeological projects should be archived appropriately and artifacts stored according to NPS museum standards. Project and site information should, in most cases, reside at WACC. If materials are to be kept in parks there is still a minimum level of information to be transferred to WACC including basic project data, lists of site numbers and copies of the final report. Arrangements must be made to provide WACC with topographic plots of areas surveyed and sites recorded so that the base maps used for compliance documentation can be kept up to date.

## **SCOPE OF PROJECTS**

Generally speaking projects proposed in this plan deal with single park units and do not involve lands owned privately or by other government agencies. The 46 park units are spread across four states and several U.S. territories. Furthermore the parks occur in a wide variety of environmental and cultural areas making coordination of projects between parks inappropriate in most instances.

## **INTERACTION WITH NON-NPS PARTIES**

The most important relationships requiring interaction with non-NPS parties involve coordination and communication with SHPO, Native American groups, and owners of lands or waters within NPS

boundaries who may be private citizens or public agencies. A list of government neighbors can be found in Table I.1. Few opportunities for collaboration are presented in the project statements prepared to date.

The opportunities for those conducting archeological projects in national parks and monuments to interact with the professional archeological community are not presented outright in the project statements but, given the caliber of archeological research carried out by the various center and park-based programs, it is evident that both technical and scholarly relationships exist. One would expect such details to be addressed in a scope of work or research design.

#### **WILDERNESS DESIGNATION**

Designated wilderness areas may create logistical problems that increase costs and limit access. Planning and coordination with park staff are required to deal with wilderness areas.

#### **SUBMERGED CULTURAL RESOURCES**

The Chief of the Submerged Cultural Resource Unit (SCRU) of the National Park Service located in Santa Fe reviewed and commented on the submerged project statements developed for the Western Region Archeological Survey Plan. SCRU is using SAIP funds to develop instrument packages for different diving conditions present in NPS units. They are willing to offer advice, expertise or actual assistance on submerged projects in our region.

#### **ARCHEOLOGICAL RESOURCES PROTECTION ACT**

Archeological inventory and the protection of cultural resources are required by law. Violations of the Archeological Resources Protection Act (ARPA) are difficult if not impossible to prosecute successfully without the baseline site data that can be provided by archeological inventory.

## ■ PART V: PROPOSED PROJECTS AND REGIONAL PRIORITIES

The two large tables in this chapter summarize the survey needs of the Western Region at this time. Table V.1 is a complete listing of project statements for each park. Table V.2 contains much of the same data but is organized by project categories. These tables are placed at the end of the text section to give the reader an uninterrupted discussion of priority factors, project statements and project classification.

As mentioned in Part IV, the overall survey goals in the Western Region are to: 1) survey small parks at 100%; 2) survey development areas at 100%; and 3) survey a sufficient sample at large parks to be able to describe the time period and culture groups relative to the different environmental zones in each park. These goals also influence priority setting.

### SAIP PRIORITY FACTORS

Priority factors from the SAIP document are not weighted and are not listed in a particular priority order. These are the seven priority factors referred to in Table V.1

1. Schedules for inventory are coordinated with schedules for development or revision of park planning documents (GMP, RMP, DCP, Interpretive Prospectus).
2. Park areas that have suffered from or are likely to be threatened by the destructive effects of natural processes or human activities are assigned a high priority for archeological inventory.
3. Development zones and special use zones within a park should be assigned a high priority for archeological inventory.
4. Historic zones within parks and entire park units that, by statute, are automatically listed in the National Register of Historic Places because of their archeological or historical importance should be assigned a high priority for archeological inventory.
5. Archeological inventory projects that address research questions, problems, topics or priorities of State, regional or national importance should be assigned a high priority.
6. Park areas lacking virtually any information about presence or absence of archeological resources should be assigned a high priority for preparation of an Archeological Overview and Assessment.
7. The priority of an archeological inventory project should consider the potential for archeological resources being present and the likelihood of being able to locate (or discover) archeological resources.

In addition to these priority factors, we must consider the importance of funding ongoing NASI projects and projects that are politically or strategically sensitive.

## THE PROJECT STATEMENTS

At the present time there are 117 project statements that appear to be eligible for SAIP funding. It is, of course, important that all projects meet the criteria of this funding source as outlined in this document and in the SAIP document (Aubry and others 1992).

The project statements are presented in Table V.1, listed alphabetically by park name. The RMP or 10-238 number is shown when applicable. Five of the proposed projects lack formal project statements at this time but are included in the tables and discussion. The scope of the project is outlined briefly. The cost per year and total project cost in 1994 dollars both are listed. A checklist of the priority factors taken from the 1992 SAIP document indicates which of the factors apply to each project. The comments column is used when necessary. The final column in the table indicates the regional category assigned to each project. More will be said about these numbered categories below.

These project statements represent the needs of 36 of the 46 park units in the Western Region. The projected costs for these projects exceed 11.6 million dollars. This figure is bound to grow as survey costs increase and the number of proposed archeological inventory projects continues to grow.

It is interesting to look at which SAIP Priority Factors apply to the region's project statements. The numbers of projects applicable to each priority factor are summarized below. Because most of the parks in Western Region are currently working on their Resource Management Plans, SAIP Priority Factor 1 applies to 107 of the total 117 the project statements. Ninety-seven project statements concern threatened resources (SAIP Priority Factor 2). Thirty-six projects are proposed for developed or special-use areas (SAIP Priority Factor 3). Parks or districts on the National Register that have not been inventoried are the focus of 26 project statements (SAIP Priority Factor 4). Forty-two project statements propose to address research questions of state, regional or national importance (SAIP Priority Factor 5). Only four parks have proposed doing overviews under SAIP (SAIP Priority Factor 6). The potential for archeological resources being present is cited in at least 89 of the project statements (SAIP Priority Factor 7).

SAIP Priority Factors	Number of Project Statements that Apply to Priority Factors
1. Schedules for inventory are coordinated with schedules for development or revision of park planning documents.	107
2. Park areas that have suffered or are likely to be threatened by natural or human impacts	97
3. Development zones and special use zones	36
4. Historic zones listed on National Register that have yet to be inventoried.	26
5. Arch inventory projects that address research questions, problems, topics or priorities of State, regional or national importance. (versus locally important questions).	42
6. Parks lacking virtually any information about presence or absence of resources should be given high priority for overview and assessment.	4
7. Consider the potential for archeological resources being present and likelihood of being able to locate or discover arch resources.	89

## CLASSIFYING WESTERN REGION PROJECTS

Priority setting for cultural resource project funding in the Western Region is based on a number of factors related to both archeological and management issues. Priorities within each park are set by the parks themselves when project statements are sent to the regional office for consideration. Projects may rise to the top of the regional priority list because of threats to cultural resources, because of new park or land acquisitions, or because of other strategic or management concerns.

Prioritization is going to be a dynamic process over the life of SAIP funding cycles. The priority factors listed above can indicate the importance of specific projects. On the other hand these factors cannot tell us which projects are the most important for Western Region. Rather than try to prioritize the entire 117 project statements according to the circumstances and politics of today, our plan will categorize projects into a number of descriptive categories. Projects may fit into more than one category or may change category as time passes. Project statements themselves may be rewritten and take on a new focus. New project statements will be added to the list. The 13 descriptive categories are listed below. The summary table also shows which SAIP priority factors apply to the descriptive categories. The projects in each category are listed in Table V.2 which is placed at the end of this chapter.

DESCRIPTIVE PROJECT CATEGORIES FOR WESTERN REGION

Western Region Project Categories	Description of project category	SAIP Priority Factors
I	Continue to fund ongoing projects (at least until an acceptable level of data is collected)	
II	Survey politically or strategically important areas (e.g. areas with no good data, threatened lands, new land acquisitions)	1, 2
III	Survey historic or archeological zones listed on National Register	4
IV	Survey developed and high visitor use areas or areas threatened by natural or cultural forces	2,3,7
V	Sample surveys	2,7
VI	100% survey of park unit including park units with partial survey coverage at present	2,7
VII	Surveys that deal with specific localities or specific research parameters within a park	2,7
VIII	Submerged resources. These projects will be coordinated with the SCRUI team in Santa Fe.	2,5,7
IX	Overviews and assessments	6
X	Rock art projects	2,7
XI	Projects that deal with recording and assessing previously reported sites	2,7
XII	National Register nominations	4
XIII	Other projects	

Priority often is given to survey in park areas with little or no archeological data that meet current standards. Parks that lack good baseline data are being given survey money to collect basic data that may help identify the unique value of previously unknown resources or may identify threats to entire classes of sites within a park area.

The first four categories include some of the top priority projects at this time. They include projects at CHIS and HALE that are ongoing (Category I) and a project at SAGU, a new lands acquisition, that is politically or strategically important (Category II).

The 15 projects that will result in complete survey of entire park units that are listed on the National Register (Category III) are quite variable in size and scope ranging from the survey of Casa Grande National Monument to the surveys of Lava Beds and Kalaupapa. These projects fit SAIP Priority Factor 4.

Archeological resources in developed areas and areas that receive high visitor impacts are among the most threatened resources in the park system (Category IV; SAIP Priority Factors 2, 3 and 7). There are 18 projects proposed for developed and high-use areas. Unless these projects are in areas slated for new construction or development they will have to be inventoried with SAIP or CRPP funds.

Categories V to XIII are categories designed to convey the archeological or management concerns that may be driving the projects. Many of the projects in these categories are likely to move into the top four priority categories as time passes.

The nine Category V projects are sample surveys for some of the larger park areas in the region. Sample surveys perform an important function and may, in some cases, provide the data necessary to design future archeological projects. SAIP Priority Factors 2 and 7 may apply to sample surveys.

The eight Category VI projects are 100 percent park surveys and include parks with partial survey coverage at present. SAIP Priority Factors 2 and 7 apply to the projects in this category.

Category VII survey projects deal with specific localities or research parameters. There are 16 projects in this category; more than half of the project statements are for areas at GOGA. SAIP Priority Factors 2 and 7 apply.

Category VIII projects involve submerged cultural resources. The Chief of the Submerged Cultural Resource Unit (SCRU) has reviewed and commented on nine project statements involving submerged resources. See the last column in tables V.1 and V.2 for his comments. SCRU can provide direct support or serve in an advisory capacity for these projects. SAIP Priority Factors 2, 5 and 7 apply to these project statements.

Most of the eight Category IX projects are directed at updating old overviews or writing new overviews with emphasis on incorporating recently collected data. There are two project statements that ask for funds to publish overviews currently in preparation. The project statement for TONT includes detailed mapping. Overviews are covered by SAIP Priority Factor 6.

The seven Category X project statements propose rock art recording. Rock art sites are particularly sensitive to threats from natural and human impacts making it important to give rock art recording a high priority at most parks. SAIP Priority Factors 2 and 7 apply.



Category XI project statements involve recording and assessing sites previously recorded that lack good site records. Since only 45 percent of the sites recorded in Western Region have records that meet current standards these projects could be very important for proper resource management. SAIP Priority Factors 2 and 7 apply.

The three project statements in Category XII would fund the completion of National Register forms and determinations of eligibility (SAIP Priority Factor 4).

The seven Category XIII project statements include a variety of project types including the completion of unfinished analyses and reports. Research designs and records checks are included in this catchall category. There are project statements involving survey at lands proposed for acquisition and for assessment and research. The SAIP Priority Factors will vary for each project.

#### **SUMMARY OF WESTERN REGION PRIORITIES**

The process for establishing priorities for cultural resource projects in the Western Region is reasonably complex and subject to change from year to year. The traditional sources of funding for cultural resources projects have been the Cultural Resources Preservation Program (CRPP) supplemented by funds donated by cooperating associations or private foundations. The influx of money from the Systemwide Archeological Inventory Program should provide regions with the opportunity to fund more cultural resource survey projects which, in turn, will help correct the material weakness identified during the 1991 Management Control Review of the NPS archeology program.

The 117 project statements presented in the Western Region Survey Plan are a good indication of our present survey needs but are by no means the only survey projects needed to meet our legal requirements under NHPA, EO 11593 and ARPA.

The purpose of this document has not been to set out a strict schedule that must be followed for the next 20 to 30 years, but has been, rather, to outline the status of archeological inventory in the Western Region and to assess our survey needs. In addition, we have tried to provide a framework for summarizing the data that can be updated as surveys are completed and new project statements are developed. The identification and protection of archeological resources can proceed from here.

TABLE V.I: PROPOSED SAIP PROJECT STATEMENTS FOR WESTERN REGION, NPS

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	Costs in 1994 dollars		Priority Factors (see list, page 75)							Comments	Regional Category	
				\$/Year	Total \$	1	2	3	4	5	6	7			
AMME	none														
CABR	none														
CAGR	1. Resurvey entire monument	CAGR-C-4 Pkg 116	Survey and map 472 acres. 1956 survey out of date. \$88/ac includes detailed mapping.	1. 26,000 2. 40,200	66,200	X	X		X	X				1 year funded	III
	2. Excavation report Compound F	CAGR-C-18	Report of 1930 excavation never completed. Information important to park prehistory.	1. 7,500 2. 2,500	10,000	X									XIII
CHIR	1. Inventory historic resources	CHIR-C-14	Inventory and record historic resources. 11,700 acres	1. 20,900 2. 20,900 3. 21,300	63,000		X	X						Combine with CHIR-C-15 for total cost of \$126,100 which is \$10.78/ac	VI
	2. Inventory archeological resources	CHIR-C-15	Inventory and record archeological resources. 11,700 acres.	1. 20,900 2. 20,900 3. 21,300	63,100		X	X						see comment CHIR-C-14	VI
CHIS	1. Inventory Santa Rosa	CHIS-C-4	58,000 acres @ \$6.57/ac	1. 69,700 2. 69,700 3. 69,700 4. 69,700 5. 70,700 6. 32,000	381,500	X	X		X					First 2 years funded.	I
	2. Inventory East Santa Cruz	CHIS-C-5	6,000 acres @ \$16.95/ac	1. 69,700 2. 32,000	101,700	X	X							Awaiting acquisition of property	VI
	3. Inventory offshore waters	CHIS-C-12	Remote sensing of specific locations identified by archival research. Investigate magnetometer anomalies with divers or submerged video.	1. 18,000 2. 18,000 3. 18,000 4. 18,000 5. 18,000 6. 18,000 7. 18,000	126,000	X	X	X						Contact California State Lands Commission, Recommended by Submerged Cultural Resource Assessment. Project may take 3-7 years. SCRU Comment: projected costs may be too low.	VIII
	4. Search for San Miguel wrecks	CHIS-C-16	Remote sensing of Cayler Harbor and Castle Rock. Investigate magnetometer anomalies with divers or submerged video.	1. 26,000	26,000	X	X	X						Contact California State Lands Commission, Recommended by Submerged Cultural Resource Assessment. SCRU Comment: adjust cost to \$36,000	VIII
CORO	1. Inventory 1978 acquisition	CORO-C-4	Inventory approx. 1,000 acres. \$23/acre.	1. 23,600	23,600	X	X								III
	2. Inventory Mexican border corridor	CORO-C-2	Survey corridor 3.5 miles X 60 feet along Mexican Border.	1. 3,000	3,000	X	X								IV

Table V.1 Proposed SAIP Project Statements for Western Region (Continued)

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	Costs in 1994 dollars		Priority Factors (see list, page 75)							Comments	Regional Category			
				\$/Year	Total \$	1	2	3	4	5	6	7					
DEFO	none																
DEVA	1. Survey at risk resources	DEVA-C-21, 22, 23, 45, 49, 50	Survey in developed areas and areas threatened by natural processes.	1. 45,000 2. 91,700 3. 91,700 4. 59,400	287,810	X	X	X	X						Combines several earlier project statements.	IV	
	2. Document rock art in Marble Canyon	DEVA-C-55/ Pkg 026	Inventory rock art and record vandalism. Make recommendations for site protection.	1. 21,000	21,000	X	X									X	
EUON	none																
FOBO	1. Inventory entire monument	FOBO-C-3	Survey and map 1,000 acres. \$89/ac includes detailed mapping.	1. 32,700 2. 32,500 3. 23,900	89,100	X	X	X									III
FOPO	none																
GOGA	1. Survey Marin Peninsula	GOGA-C-1.1	50% sample survey of 4,000 acres. \$20/ac. Previously unsurveyed environmental zone.	1. 20,000 2. 20,000 3. 20,000 4. 20,000	80,000	X	X										VII
	2. Survey east side, Olema Valley	GOGA-C-1.2	Sample survey of 8,500 acres. 30% of valley floor and uplands and 70% of floodplain. \$20/ac.	1. 42,500 2. 42,500 3. 42,500 4. 42,500	170,000	X	X										VII
	3. Survey selected coastal areas	GOGA-C-1.3	70% sample of 5 small parcels (216 acres). \$23/ac.	1. 5,000	5,000	X	X										VII
	4. Survey Tamalpais Southern drainage	GOGA-C-1.4	50% sample of 1,793 acres. \$20/ac.	1. 36,000	36,000	X	X										VII
	5. Survey Eastern Bolinas Lagoon drainage	GOGA-C-1.5	20%-30% sample of 3,211 acres. \$20/ac.	1. 32,000 2. 32,000	64,000	X	X										VII
	6. Survey Fort Baker and Kirby Cove	GOGA-C-1.6	50% sample of 160 acres. \$31/ac. includes recording numerous historic period features.	1. 5,000	5,000	X	X										VII
	7. Survey Fort Barry and Rodeo Lagoon	GOGA-C-1.7	70% sample of 240 acres. \$20/ac.	1. 5,000	5,000	X	X										VII
	8. Survey submerged tidelands and beach	GOGA-C-1.8	Remote sensing survey of 1170 acres of submerged tidelands and beaches. \$100/ac.	1. 44,500 2. 44,500 3. 28,000	117,000	X									SCRU Comment: three year project \$117,000 1. 15,000 2. 80,000 3. 22,000	VIII	
	9. Assess and evaluate SS TENNESSEE archeological site	GOGA-C-16	Inventory 20 acres in vicinity of the SS TENNESSEE. \$25/ac. includes magnetometer, side-scan sonar and metal detection devices as well as limited excavation.	1. 5,000	5,000	X	X								SCRU Comment: scope and budget are adequate.		VIII

Table V.1 Proposed SAIP Project Statements for Western Region (Continued)

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg.#	Scope of project	Costs in 1994 dollars		Priority Factors (see list, page 75)							Comments	Regional Category			
				\$/Year	Total \$	1	2	3	4	5	6	7					
GOGA (Cont'd)	10. Study archeological resources Suro District	GOGA-C-17	Archeological mapping, testing and assessment of resources in 55 acres of Suro District.	1. 30,000	30,000	X	X									VII	
	11. Investigate Alcatraz gun batteries	GOGA-C-19	Archeological testing, architectural recording to determine extent of remains, evaluate condition, and develop excavation/restoration plan.	1. 50,000 2. 60,000 3. 25,000	135,000	X											VII
GRBA	1. Sample survey	GRBA-C-12	5-10% sample survey.	1. 60,000 2. 60,000 3. 60,000 4. 30,000	210,000	X	X		X								V
	2. Survey high use trails and backcountry areas	GRBA-C-15	56 miles of trails.	1. 60,000	60,000	X	X	X									IV
	3. Survey historic ranching and sheep herding sites	GRBA-C-16	Look at specific environmental zones and consult historic records.	1. 60,000	60,000	X	X			X							VII
	4. Assess caves and rockshelters for significance	GRBA-C-17	Survey and limited testing. Caves are threatened.	1. 60,000	60,000	X	X	X		X							IV
	5. Complete the assessment and recording of known sites	GRBA-C-18	A few sites remain to be relocated.	1. 10,000	10,000	X	X										XI
GRCA	1. Implement systemwide archeological inventory program	GRCA-C-400.2	Survey developed areas and 5% sample survey.	1. 95,000 2. 95,000 3. 95,000 4. 95,000	380,000	X	X	X			X						V
HALE	1. Inventory Crater District	HALE-C-3 Pkg 134	30% survey of Crater Historic District. Survey coverage determined from aerial survey.	1. 14,000 2. 18,600 3. 49,000	81,600	X			X	X					Three years funded	I	
HAVO	2. Kipahulu inventory	HALE-C-6	100% survey of 350 acres. \$714/ac.	3 years	250,000	X			X	X							VI
	1. Map footprints	HAVO-C-4	Survey 4,200 acres. \$12/ac.	2 years	50,000	X	X		X	X							XI
	2. Puna-Ka'u survey	HAVO-C-2	Survey of 2,000+ acres of Puna-Ka'u Historic District.	5 years	250,000	X	X		X	X							V
	3. HAVO caves	HAVO-C-12	Survey caves susceptible to human or natural impact.	2 years	47,000	X	X	X		X	X						X
	4. Pu'u Loa Petroglyphs	HAVO-C-18	Mapping large petroglyph site.	1. 20,000	20,000	X	X		X	X							VII
JOMU	5. Publish overview and assessment	HAVO-C-14	Publish and distribute report on Ka'u District currently being prepared.	1. 5,000	5,000	X						X			Report being prepared by Dr. Michael Graves, U of Hawaii	IX	
	1. Archeological/Ethnographic overview	JOMU-C-11	Summarize archeological and ethnographic data and record three previously located sites.	1. 3,000	3,000	X		X							Estimated cost seems too low.	IX	

Table V.1 Proposed SAIP Project Statements for Western Region (Continued)

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	Costs in 1994 dollars		Priority Factors (see list, page 75)							Comments	Regional Category	
				\$/Year	Total \$	1	2	3	4	5	6	7			
JOTR	1. Survey developed areas	JOTR-C-21 Pkg 621	Survey areas currently developed or proposed for development.	1. 24,000	24,000	X	X	X							IV
	2. Sample survey	JOTR-C-02 Pkg 613	Phase 1-records search and sample transects. Phase 2-Survey high priority areas. Phase 3-Survey areas with high research potential.	1. 50,000 2. 50,000 3. 50,000 4. 50,000 5. 50,000 6. 50,000	300,000	X	X								V
	3. Locate and record Campbell sites	JOTR-C-32	Study field notes, relocate and rerecord sites to modern standards. National Register nomination.	1. 10,000 2. 10,000	20,000	X	X		X						XI
	4. Evaluate previously recorded sites	JOTR-C-29	Conduct further study at sites subject to impact including survey, mapping, testing, stabilization and rerouting of trails or development projects.	1. 10,000 2. 10,000 3. 10,000 4. 10,000	40,000	X	X								XI
	5. Continue research on Pinto Basin sites	JOTR-C-11	Compile all documentation on the Pinto Basin sites and prepare National Register nomination.	1. 20,000	20,000	X	X		X						XI
	6. Evaluate archeological components of historic sites	JOTR-C-37	Have historical archeologists and landscape architects evaluate historic sites. Establish cultural landscapes if appropriate. There are more than 70 LCS structures and numerous historic period mining sites.	1. 20,000 2. 20,000 3. 20,000 4. 20,000	80,000	X	X		X						XI
	7. Evaluate historical archeology of National Register properties	JOTR-C-31	Evaluate historical archeology of National Register properties and incorporate information into nomination.	1. 10,000 2. 10,000 3. 10,000 4. 10,000	40,000	X	X			X					XI
	8. Revise National Register nomination for Keys Ranch	JOTR-C-36	Incorporate information about prehistoric resources in the ranch vicinity into a district nomination.	1. 10,000	10,000	X	X		X						XII
	9. Assess and register new archeological site information	JOTR-C-34	An archeologist needs to assess and record sites recently discovered by ARPA ranger on patrol.	1. 8,000	8,000	X	X								XI
	10. Update archeological site records	JOTR-C-33	Update all site information to current standards.	1. 8,000	8,000	X	X								XI
KAHO	1. Survey Honokohau, resurvey portions of Kaloko and underwater survey of Honokohau Bay	KAHO-C-10 Pkg 810	Two year project.	1. 52,240 2. 59,800	112,040	X	X		X						III/ VIII
	1. Eight survey areas in Mankanaia		Survey areas: lava channel at Kaubako Crater, the crater, Kapakakane, Kikolu, Pu'u Uao, Lahupuu to Kahaloko, Waibanau Valley and Ho'olehua.	8 years @ 72,200 per year	577,600	X	X		X						III
KALA	2. Five survey areas in Kalawao		Survey areas: Kaupikiawa to Pu'u o Kalawao, Kamaoioe to Keanaialuawahine, Kiinui to Kuololimu, Kawaha'alibi and Wai'ale'ia Valley	5 years at 72,200 per year	361,000	X	X		X						III

Table V.1 Proposed SAIP Project Statements for Western Region (Continued)

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	Costs in 1994 dollars		Priority Factors (see list, page 75)							Comments	Regional Category
				\$/Year	Total \$	1	2	3	4	5	6	7		
KALA (Cont'd)	3. Four survey areas in Waikolu		Survey areas: Makalahau, Luupihī, inland area and Kukaiwaa Point	4 years at 72,200 per year	288,800	X	X	X	X	X	X	X		III
	4. Four survey areas in Kalaupapa		Survey areas: Kalaemilo to Papaloa, Kalaupapa Trail, Kaliahuhu to Kiokio, Waihanau Stream	4 years at 72,200 per year	288,800	X	X	X	X	X	X	X		III
	5. Survey submerged lands		Survey submerged lands around Kalaupapa peninsula. Requires scuba equipment and boat.	1. 117,200	117,200	X	X	X	X	X	X	X	SCRU Comment: make this a 2 year project to write report the second year	VIII
	6. Survey Nihoa area		Survey Nihoa area	1. 72,200	72,200	X	X	X	X	X	X	X		III
	7. Survey Kukuiohupuu		Survey Kukuiohupuu area above Kalaupapa Trail	1. 72,200	72,200	X	X	X	X	X	X	X		III
	8. Subsurface testing of selected sites		Subsurface testing to get data on stratigraphy, chronology and site function.	1. 72,200	72,200	X	X	X	X	X	X	X		XI
	9. Survey caves at Kalaupapa		Survey caves	1. 72,200	72,200	X	X	X	X	X	X	X		III
	1. Survey backcountry areas	LAME-C-2		Survey 40,000 acres of high use backcountry. \$5 per acre.	1. 69,000 2. 49,500 3. 46,000 4. 50,000	214,500	X	X	X	X	X	X		IV
	2. Archeological survey and recording of known sites	LAME-C-3		Relocate and record more than 100 previously recorded sites to modern standards.	1. 50,000	50,000	X	X	X	X	X	X		XI
3. Archeological survey of approved roads	LAME-C-4		Survey 10,000 acres along approved roads, \$7 per acre.	1. 40,000 2. 30,000	70,000	X	X	X	X	X	X		IV	
4. Assess significance of known sites in developed areas	LAME-C-5		Evaluate significance of sites in developed areas using site records and making field assessments when necessary.	1. 10,000	10,000	X	X	X	X	X	X		XI	
5. Survey and assess known historic period archeological sites	LAME-C-6		Survey and assessment of archeological significance of 25 known historic period sites.	1. 30,000	30,000	X	X	X	X	X	X		XI	
6. Survey and assess abandoned mining properties	LAME-C-7		Survey and assessment of archeological significance of 25+ historic period mining properties.	1. 30,000	30,000	X	X	X	X	X	X		XI	
7. Record rock art sites	LAME-C-8		Record 100+ rock art sites to modern standards.	1. 50,000	50,000	X	X	X	X	X	X		X	
8. Survey and assess underwater resources	LAME-C-11		Record basic data on underwater sites including those that appear above water when lake is low, sites in sport diving range, and those in deeper water. Sites may include prehistoric sites, mining equipment, structures related to Hoover Dam and pre-dam townsites as well as submerged boats and airplanes.	1. 5,000	5,000	X	X	X	X	X	X	SCRU Comment: five year project, \$120,000 1. 5,000 2. 25,000 3. 35,000 4. 35,000 5. 20,000	VIII	

Table V.1 Proposed SAIP Project Statements for Western Region (Continued)

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	Costs in 1994 dollars		Priority Factors (see list, page 75)							Comments	Regional Category			
				\$/Year	Total \$	1	2	3	4	5	6	7					
LAVE	1. Survey of entire park (LAVE) and some adjacent USFWS lands	LAVE-C-9 Pkg 233	Survey entire LAVE and some adjacent lands on Tule Lake National Wildlife Refuge. \$9 per acre.	1. 88,465	430,325	X	X		X							III	
				2. 84,465		X											
				3. 84,465													
				4. 84,465													
				5. 88,465													
LAVO	2. Rock art recording	LAVE-C-10	Record and map 8 rock art sites.	1. 30,000	30,000	X	X									X	
				1. 45,000		X											
				2. 75,000													
				3. 75,000													
MANZ	1. 10% survey of LAVO	LAVO-C-20	Survey 10% of LAVO bringing total surveyed to 15 % of park. \$22 per acre.	1. 45,000	240,000	X	X									V	
				2. 75,000													
				3. 75,000													
				4. 45,000													
MOCA	1. Study Montezuma Well irrigation system	MOCA-C-8	Study irrigation system to determine age, extent, flow capacity and results of mineral deposits in the canal.	1. 14,400	14,400	X	X		X							VII	
				1. 6,000		X											
MUWO	2. Archeological overview and assessment	MOCA-C-13	Update 1977 overview to address settlement and prehistoric landscape issues.	1. 6,000	6,000	X										IX	
NASA	1. Publish archeological overview and assessment		Publish and distribute overview and assessment of NASA currently being prepared by Dr. Terry Hunt, University of Hawaii.	1. 1,500	1,500	X						X				IX	
ORPI	2. Conduct archeological survey		Conduct systematic survey and assess selected sites for significance.	10 years at 75,000 per year	750,000	X	X									IV, XI	
ORPI	1. Archeological survey of use zones	ORPI-C-18	Survey developed areas, roads and trails.	1. 60,000	300,000	X	X									IV	
				2. 60,000													
				3. 60,000													
				4. 60,000													
ORPI	2. Overview/synthesis	ORPI-C-20	Prepare overview incorporating recently collected data.	1. 38,500	48,500	X										IX	
				2. 10,000													
ORPI	3. Complete the sample survey and assessment	ORPI-C-23	Stratified ample survey of 12,000-20,000 acres. \$12-\$20 per acre.	1. 65,000	250,000	X	X									V	
				2. 65,000													
				3. 60,000													
				4. 60,000													
ORPI	4. Record rock art sites	ORPI-C-22	Record known and newly discovered rock art sites with ARARA volunteers.	1. 12,500	62,500	X	X									X	
				2. 12,500													
				3. 12,500													
				4. 12,500													

Table V.1 Proposed SAIP Project Statements for Western Region (Continued)

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	Costs in 1994 dollars		Priority Factors (see list, page 75)							Comments	Regional Category		
				\$/Year	Total \$	1	2	3	4	5	6	7				
ORPI (Cont'd)	5. Prepare National Register Nominations	ORPI-C-29	Prepare National Register Nominations for archeological sites and districts.	1. 19,000 2. 9,000 3. 9,000 4. 9,000 5. 9,000	55,000	X									XII	
PEFO	1. Complete archeological inventory for sensitive areas	PEFO-C-501.1	Inventory backcountry roads, sample Cystal Forest area, Flattops area and Painted Desert.	1. 62,800 2. 20,000 3. 25,000 4. 10,000	117,800	X	X								X	IV,V
	2. Complete comprehensive archeological inventory	PEFO-C-501.2	Survey 16,000 acres of grasslands.	1. 60,000 2. 50,000 3. 50,000 4. 80,000	240,000	X	X								X	V
PIMA	3. Document National Register petroglyphs	PEFO-C-502	Document Painted Desert Petroglyphs and Ruins Archeological District.	1. 12,000 2. 19,000	31,000	X	X		X						X	III
	4. Document and evaluate petroglyph sites	PEFO-C-504	Document known rock art sites.	1. 11,300 2. 10,000 3. 10,100 4. 16,800	48,200	X	X								X	X
	5. Preserve data from eroding cultural sites	PEFO-C-507	Data recovery and salvage at eight sites as pilot project.	1. 125,600 2. 97,800 3. 41,400	264,800	X	X			X					X	XIII
PINN	1. Complete the archeological survey of the park															VI
PORE	2. Update archeological overview															IX
	3. Determine eligibility of archeological and historic resources															XII
PUHE	1. Survey submerged resources	PORE-C-2	Using data from 1982 electronic survey, conduct submerged site excavation to examine shipwrecks and other anomalies that showed up in 1982.	1. 32,000	32,000	X	X		X					X		VIII
	2. Survey unsurveyed lands; update site records	PORE-C-19	Survey 30% sample of 24,200 acres, survey 30% sample of northern GOGA district (? acres), record 100+ known sites, update National Register nomination and prepare recommendations for future management actions.	1. 12,000	12,000	X	X			X				X		VI
	none															



Table V.1 Proposed SAIP Project Statements for Western Region (Continued)

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	Costs in 1994 dollars		Priority Factors (see list, page 75)							Comments	Regional Category	
				\$/Year	Total \$	1	2	3	4	5	6	7			
PUHO	1. Survey caves		Combination of caving, archeological survey and mapping of lava tube caves.	1. 24,500 2. 10,000	34,500	X	X		X						VII
	1. Reconnaissance of 3,000 acres	REDW-C-10	Reconnaissance of 3,000 acres using mixed survey strategy in lands outside the Redwood Creek Basin. \$13 per acre.	1. 40,000	40,000	X	X								V
SAFR	1. Records check and surface inspection										X				XIII
SAGU	1. Survey RMU addition	Pkg 357	Survey 2,500 acres and assess sites previously recorded in 1,600 acres in new land acquisition.	1. 21,000 2. 28,000	49,000	X	X	X							II
	2. Survey TMU	SAGU-C-9	Complete survey of Tucson Mountain Unit of SAGU. So far only 10% surveyed. Also, record previously reported sites to modern standards.	1. 59,000 2. 22,500	81,500	X	X								VI
SAMO	1. Survey of NPS owned lands	SAMO-C-200.030	Survey 24,000 acres owned by NPS. \$18 per acre.	1. 111,000 2. 111,000 3. 111,000 4. 111,000	444,000	X	X								VI
	2. Survey proposed fee acquisition lands	SAMO-C-200.060	Survey proposed fee acquisition lands to direct land acquisition to critical priorities.	1. 200,000 2. 100,000	300,000	X	X	X							XIII
	3. Survey and document pictograph sites					X									X
SEKI	1. Overview and assessment	SEKI-C-11	Updated archeological overview and assessment with recommendations for future research.	1. 30,000	30,000	X									IX
	2. Survey developed areas	SEKI-C-15 Pkg 341	Survey developed areas throughout park.	1. 50,000	50,000	X	X	X							IV
	3. Survey backcountry campsites and trails in areas of high potential	SEKI-C-21 Pkg 216	Survey backcountry campsites and trails in areas of high potential.	1. 10,000 2. 10,000 3. 10,000 4. 10,000	40,000	X	X	X							IV
	4. Survey Cedar Grove	SEKI-C-24 Pkg 217	Complete archeological survey of Cedar Grove.	1. 55,000	55,000	X	X	X							IV
	5. Archeological research design	SEKI-C-25 Pkg 351	Develop archeological research design. This is necessary to complete PMOA with California SHPO and Advisory Council for Federal Highway project funding.	1. 25,000	25,000	X									XIII

Table V.1 Proposed SAIP Project Statements for Western Region (Continued)

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	Costs in 1994 dollars		Priority Factors (see list, page 75)							Comments	Regional Category	
				\$/Year	Total \$	1	2	3	4	5	6	7			
SEKI (Cont'd)	6. Archeological survey of Kern Ranger Station area	SEKI-C- Pkg 352	Survey 300 acres in vicinity of Kern Ranger Station. Large number of cultural resources known. Complete National Register nomination. \$20/acre.	1. 15,000	15,000	X	X	X	X						IV
	7. Survey Crystal Cave	SEKI-C-15 Pkg 344	Native Americans have requested archeological survey. Cave is currently open for guided tours. Complexity and extent of past human occupation unknown.	1. 10,000	10,000	X	X	X							IV
TONT	1. Synthesis, research design, and mapping of Upper Ruin	TONT-C-9	Update knowledge about Salado archeology and generate interpretive and public education materials.	1. 26,000 2. 53,000	79,000	X	X	X	X				1 year funded	IX	
	2. Assess status of deposits in Upper Ruin		Coordinate with IPM to investigate nature of deposits and determine research and interpretive potential.	1. 53,000	53,000	X	X		X					XIII	
	3. Conduct archeological and chronological research in Upper and Lower ruins and several small sites	TONT-C-10	Conduct architectural study, lab analysis and archeological testing at small sites.	1. 33,000 2. 5,000	38,000	X	X	X	X	X					XIII
TUMA	1. Survey Tumacacori Unit		Archeological survey at TUMA has never covered original 10 acres of TUMA Unit.	1. 10,000	10,000	X	X						No project statement	III	
TUZI	none														
USAR	1. Underwater survey and monitoring		Underwater survey and monitoring.	7 years at 30,000 per year	350,000	X	X		X				SCRU Comment: costs and scope result of consultation between USAR and SCRU	VIII	
WAPA	1. Locate, evaluate and preserve underwater cultural resources	WAPA-C-1	Conduct physical and magnetometer survey of offshore waters, primarily for WW II remains.	1. 60,000	60,000	X	X		X				SCRU Comment: additional \$30,000 needed for instruments	VIII	
	2. Complete the archeological surface survey	WAPA-C-5	Although 90% of park previously surveyed, sites need to be relocated and 10% needs to be surveyed.	1. 15,500	15,500				X					III	
	3. Locate sealed Japanese earthen tunnels	WAPA-C-7	Survey 100 acres by inspection and by use of magnetometer and/or resistivity survey. Test excavation at selected, suspected tunnel locations.	1. 30,000	30,000		X		X					VII	
WHIS	4. Multi-spectral aerial photography survey	WAPA-C-8	Have low level multi-spectral aerial photos produced. Analysis of photos and field check selected areas.	1. 33,500	33,500				X					VII	
	1. 20% survey of Whiskeytown Unit		Survey 6,000 acres using mixed strategy. \$20 per acre.	1. 120,000	120,000	X	X		X					V	

Table V.1 Proposed SAIP Project Statements for Western Region (Continued)

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	Costs in 1994 dollars		Priority Factors (see list, page 75)							Comments	Regional Category		
				\$/Year	Total \$	1	2	3	4	5	6	7				
YOSE	1. Survey backcountry impact corridor	YOSE-C-101.004	Survey three trans-Sierran passes and associated drainages. Analysis of data compared to data from previous work at Virginia Canyon and four other passes. Limited testing.	1. 50,000 2. 50,000 3. 50,000 4. 50,000	200,000	X	X	X		X						IV
	2. Survey and protect reservoir basins	YOSE-C-108.001	Complete survey of eastern portion of Hetch-Hetchy Reservoir Basin.	1. 25,000	25,000	X	X							X		IV
	3. Resurvey developed areas	YOSE-C-103.001	Conduct intensive surveys of several developed areas.	1. 45,000	45,000	X	X							X		IV
	4. Survey areas slated for Wilderness Impact Mitigation	YOSE-C-105.002	Conduct archeological survey prior to ground disturbing activities associated with mitigation of impact to heavily used wilderness areas.	1. 25,500	25,500	X	X							X		IV
46 Units	117 Project statements for 36 NPS units in Western Region			Projected cost for projects in excess of \$11,600,000		107	97	36	26	42	4	89			XXXXXXXXXX	

**TABLE V.2: CLASSIFICATION OF SAIP PROJECT STATEMENTS  
FOR WESTERN REGION, NPS**

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	# of Years	Total \$	Comments
<b>CATEGORY I: CONTINUE TO FUND ONGOING PROJECTS</b>						
CHIS	1. Inventory Santa Rosa	CHIS-C-4	58,000 acres @ \$6.57/ac	6	381,500	
HALE	1. Inventory Crater District	HALE-C-3 Pkg 134	30% survey of Crater Historic District. Survey coverage determined from aerial survey.	3	81,600	
<b>CATEGORY II: SURVEY POLITICALLY OR STRATEGICALLY IMPORTANT AREAS</b>						
SAGU	1. Survey RMU addition	Pkg 357	Survey 2,500 acres and assess sites previously recorded in 1,600 acres.	2	49,000	1 year funded. Land acquisition needs to be completed before survey can proceed.
<b>CATEGORY III: SURVEY HISTORIC OR ARCHEOLOGICAL ZONES LISTED ON NATIONAL REGISTER</b>						
CAGR	1. Resurvey entire monument	CAGR-C-4 Pkg 116	Survey and map 472 acres. 1956 survey out of date. \$88/ac includes detailed mapping.	2	66,200	On Register
CORO	1. Inventory 1978 acquisition	CORO-C-4	Inventory approximately 1,000 acres	1	23,600	On Register
FOBO	1. Inventory entire monument	FOBO-C-3	Survey and map 1,000 acres. \$89/ac includes detailed mapping.	3	89,100	On Register
KAHO	1. Survey Honokohau, resurvey portions of Kaloko and underwater survey of Honokohau Bay	KAHO-C-10 Pkg 810	Two year project.	2	112,040	On Register Also qualifies as submerged cultural resource project (Priority VIII).
KALA	1. Eight survey areas in Mankanalua		Survey areas: lava channel at Kaubako Crater, the crater, Kapapakikane, Kikolu, Pu'u Uao, Lahupuu to Kahaloko, Waihanau Valley and Ho'olehua.	8	577,600	On Register
	2. Five survey areas in Kalawao		Survey areas: Kaupikiawa to Pu'u o Kalawao, Kamaumoe to Keananaluawabine, Kiinui to Kuololimu, Kawaba'alibi and Wai'ale'ia Valley.	5	361,000	On Register
	3. Four survey areas in Waikolu		Survey areas: Makaluahau, Luupibi, inland area and Kukaiwaas Point.	4	288,000	On Register
	4. Four survey areas in Kalaupapa		Survey areas: Kalaemilo to Papaloo, Kalaupapa Trail, Kalahuhu to Kiokio, Waihanau Stream.	4	288,000	On Register
	6. Survey Nihoa area		Survey Nihoa area.	1	72,200	On Register
	7. Survey Kukuiohapuu		Survey Kukuiohapuu area above Kalaupapa Trail.	1	72,200	On Register
	9. Survey caves at Kalaupapa		Survey caves.	1	72,200	On Register
LABE	1. Survey of entire park (LABE) and some adjacent USFWS lands	LABE-C-9 Pkg 233	Survey entire LABE and some adjacent lands on Tule Lake National Wildlife Refuge. \$9 per acre.	5	430,325	On Register
PEFO	3. Document National Register petroglyphs	PEFO-C-502	Document Painted Desert Petroglyphs and Ruins Archeological District.	2	31,000	On Register
TUMA	1. Survey Tumacacori Unit		Archeological survey at TUMA has never covered original 10 acres of TUMA Unit.	1	10,000	On Register
WAPA	2. Complete the archeological surface survey	WAPA-C-5	Although 90% of park previously surveyed, sites need to be relocated and 10% needs to be surveyed.	1	15,500	On Register
<b>CATEGORY IV: SURVEY DEVELOPED AND HIGH VISITOR USE AREAS</b>						
CORO	2. Inventory Mexican border corridor.	CORO-C-2	Survey corridor 3.5 miles X 60 feet along Mexican Border	1	3,000	
DEVA	1. Survey at risk resources.	DEVA-C-21, 22, 23, 45, 49, 50	Survey in developed areas and areas threatened by natural processes.	4	287,810	Combines several earlier project statements.

**Table V.2 Classification of SAIP Project Statements for Western Region (Continued)**

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	# of Years	Total \$	Comments
<b>CATEGORY IV (Continued)</b>						
GRBA	2. Survey high use trails and backcountry areas	GRBA-C-15	56 miles of trails	1	60,000	
JOTR	1. Survey developed areas	JOTR-C-21 Pkg 621	Survey areas currently developed or proposed for development.	1	24,000	
LAME	1. Survey backcountry areas	LAME-C-2	Survey 40,000 acres of high use backcountry. \$5 per acre.	4	214,500	
	3. Archeological survey of approved roads	LAME-C-4	Survey 10,000 acres along approved roads. \$7 per acre.	2	70,000	
NASA	2. Conduct archeological survey		Conduct systematic survey and assess selected sites for significance.	10	750,000	Project proposed by Samoa Historic Preservation Office and reviewed by PAAR archeologist. Also project category XI.
ORPI	1. Archeological survey of use zones	ORPI-C-18	Survey developed areas, roads and trails.	5	300,000	
PEFO	1. Complete archeological inventory for sensitive areas	PEFO-C-501.001	Inventory backcountry roads, sample Crystal Forest area, Flattops area and Painted Desert.	4	117,800	Also can be categorized in Priority V.
SEKI	2. Survey developed areas	SEKI-C-15 Pkg 341	Survey developed areas throughout park.	1	50,000	
	3. Survey backcountry campsites and trails in areas of high site potential	SEKI-C-21 Pkg 216	Survey backcountry campsites and trails in areas of high potential.	4	40,000	
	4. Survey Cedar Grove	SEKI-C-24 Pkg 217	Complete archeological survey of Cedar Grove.	1	55,000	
	6. Archeological survey of Kern Ranger Station area	SEKI-C- Pkg 352	Survey in vicinity of Kern Ranger Station. Large number of cultural resources known. Complete National Register nomination. 320 acres. \$20/acre.	1	15,000	
	7. Survey Crystal Cave	SEKI-C-15 Pkg 344	Native Americans have requested archeological survey. Cave is currently open for guided tours. Complexity and extent of past human occupation unknown.	1	10,000	
YOSE	1. Survey backcountry impact corridor	YOSE-C-101.004	Survey three trans-Sierran passes and associated drainages. Analysis of data compared to data from previous work at Virginia Canyon and four other passes. Limited testing.	4	200,000	
	2. Survey and protect reservoir basins	YOSE-C-108.001	Complete survey of eastern portion of Hetch-Hetchy Reservoir Basin.	1	25,000	
	3. Resurvey developed areas	YOSE-C-103.001	Conduct intensive surveys of several developed areas.	1	45,000	
	4. Survey areas slated for Wilderness Impact Mitigation	YOSE-C-105.002	Conduct archeological survey prior to ground disturbing activities associated with mitigation of impact to heavily used wilderness areas.	1	25,500	
<b>CATEGORY V: SAMPLE SURVEYS</b>						
GRBA	1. Sample survey	GRBA-C-12	5-10% sample survey.	4	210,000	
GRCA	1. Implement systemwide archeological inventory	GRCA-C-400.2	Survey developed areas and 5% sample survey	4	380,000	
HAVO	2. Puna-Ka`u survey	HAVO-C-2	Survey 2000+ acres of Puna-Ka`u Historic District.	5	250,000	
JOTR	2. Sample survey	JOTR-C-02 Pkg 613	Phase 1-records search and sample transects. Phase 2-Survey high priority areas. Phase 3- Survey areas with high research potential.	6	300,000	

Table V.2 Classification of SAIP Project Statements for Western Region (Continued)

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	# of Years	Total \$	Comments
CATEGORY V (Continued)						
LAVO	1. 10% survey of LAVO	LAVO-C-20	Survey 10% of LAVO bringing total surveyed to 15 % of park. \$22 per acre.	4	240,000	
ORPI	3. Complete the sample survey and assessment	ORPI-C-23	Stratified ample survey of 12,000-20,000 acres. \$12-\$20 per acre.	4	250,000	
PEFO	2. Complete comprehensive archeological inventory	PEFO-C-501.002	Survey 16,000 acres of grasslands. \$16 per acre.	4	240,000	
REDW	1. Reconnaissance of 3,000 acres	REDW-C-10	Reconnaissance of 3,000 acres using mixed survey strategy in lands outside the Redwood Creek basin. \$13 per acre.	1	40,000	
WHIS	1. 20% survey of Whiskeytown Unit		Survey 6,000 acres using mixed strategy. \$20 per acre.	1	120,000	
CATEGORY VI: 100% SURVEY OF PARK UNIT INCLUDING PARK UNITS WITH PARTIAL SURVEY COVERAGE AT PRESENT						
CHIR	1. Inventory historic resources	CHIR-C-14	Inventory and record historic resources. 11,700 acres.	3	63,000	Combine with CHIR-C-15 for total cost of \$126,100. \$11/acre.
	2. Inventory archeological resources	CHIR-C-15	Inventory and record archeological resources. 11,700 acres.	3	63,100	see comment CHIR-C-14
CHIS	2. Inventory East Santa Cruz	CHIS-C-5	6,000 acres @ \$16.95/ac.	2	101,700	Awaiting acquisition of property
HALE	2. Kipahulu inventory	HALE-C-6	100% survey of 350 acres. \$714/ac.	3	250,000	
PINN	1. Complete the archeological survey of the park			1		
PORE	2. Survey unsurveyed lands; update site records	PORE-C-19	Survey 30% sample of 24,200 acres, survey 30% sample of northern GOGA district (? acres), record 100+ known sites, update National Register nomination and prepare recommendations for future management actions.	1	12,000	Cost estimate is much too low
SAGU	2. Survey TMU	SAGU-C-9	Complete survey of Tucson Mountain Unit of SAGU. So far only 10% surveyed. Also, record previously reported sites to modern standards.	2	81,500	
SAMO	1. Survey of NPS owned lands	SAMO-C-200.050	Survey 24,000 acres owned by NPS. \$18 per acre.	4	444,000	
CATEGORY VII: SURVEYS THAT DEAL WITH SPECIFIC LOCALITIES OR SPECIFIC RESEARCH PARAMETERS						
GOGA	1. Survey Marin Peninsula	GOGA-C-1.1	50% sample survey of 4,000 acres. \$20/ac. Previously unsurveyed environmental zone.	4	80,000	
	2. Survey east side, Olema Valley	GOGA-C-1.2	Sample survey of 8,500 acres. 30% of valley floor and uplands and 70% of floodplain. \$20/ac.	4	170,000	
	3. Survey selected coastal areas	GOGA-C-1.3	70% sample of 5 small parcels (216 acres). \$23/ac.	1	5,000	
	4. Survey Tamalpais Southern drainage	GOGA-C-1.4	50% sample of 1,793 acres. \$20/ac.	1	36,000	
	5. Survey Eastern Bolinas Lagoon drainage	GOGA-C-1.5	20%-30% sample of 3,211 acres. \$20/ac.	2	64,000	
	6. Survey Fort Baker and Kirby Cove	GOGA-C-1.6	50% sample of 160 acres. \$31/ac. includes recording numerous historic period features.	1	5,000	
	7. Survey Fort Barry and Rodeo Lagoon	GOGA-C-1.7	70% sample of 240 acres. \$20/ac.	1	5,000	
	10. Study archeological resources Sutro District	GOGA-C-17	Archeological mapping, testing and assessment of resources in 55 acres of Sutro District.	1	30,000	

**Table V.2 Classification of SAIP Project Statements for Western Region (Continued)**

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	# of Years	Total \$	Comments
<b>CATEGORY VII (Continued)</b>						
GOGA (Cont'd)	11. Investigate Alcatraz gun batteries	GOGA-C-19	Archeological testing, architectural recording to determine extent of remains, evaluate condition, and develop excavation/restoration plan.	3	135,000	
GRBA	3. Survey historic ranching and sheep herding sites	GRBA-C-16	Survey areas likely to have ranching and sheepherding camps.	1	60,000	
	4. Assess caves and rockshelters for significance	GRBA-C-17	Survey and limited testing of caves and rockshelters.	1	60,000	
HAVO	3. HAVO caves	HAVO-C-12	Survey caves susceptible to human or natural impacts.	2	47,000	
MOCA	1. Study Montezuma Well irrigation system	MOCA-C-8	Study irrigation system to determine age, extent, flow capacity and results of mineral deposits in the canal.	1	14,400	Irrigation system extends to private land slated for development.
PUHO	1. Survey caves		Combination of caving, archeological survey and mapping of lava tube caves.	2	34,500	
WAPA	3. Locate sealed Japanese earthen tunnels	WAPA-C-7	Survey 100 acres by inspection and by use of magnetometer and/or resistivity survey. Test excavation at selected, suspected tunnel locations.	1	30,000	
	4. Multi-spectral aerial photography survey	WAPA-C-8	Have low level multi-spectral aerial photos produced. Analysis of photos and field check selected areas.	1	33,500	
<b>CATEGORY VIII: SUBMERGED RESOURCES</b>						
CHIS	3. Inventory offshore waters	CHIS-C-12	Remote sensing of specific locations identified by archival research. Investigate magnetometer anomalies with divers or submerged video.	7	126,000	Contact California State Lands Commission. Recommended by Submerged Cultural Resource Assessment. Project may take 3-7 years. SCRUC Comment: projected costs may be too low.
	4. Search for San Miguel wrecks	CHIS-C-16	Remote sensing of Cuyler Harbor and Castle Rock. Investigate magnetometer anomalies with divers or submerged video.	1	26,000	Contact California State Lands Commission. Recommended by Submerged Cultural Resource Assessment. SCRUC Comment: adjust cost to \$36,000
GOGA	8. Survey submerged tidelands and beach	GOGA-C-1.8	100% remote sensing survey of 1170 acres of submerged tidelands and beaches. \$100/ac.	3	117,000	SCRUC Comment: three year project \$117,000 1. 15,000 2. 80,000 3. 22,000
	9. Assess and evaluate SS TENNESSEE archeological site	GOGA-C-16	Inventory 20 acres in vicinity of the SS TENNESSEE. \$25/ac. includes magnetometer, side-scan sonar and metal detection devices as well as limited excavation.	1	5,000	SCRUC Comment: scope and budget are adequate
*KAHO	*See KAHO-C-10 in Category III					SCRUC Comment: estimate \$35,000 for underwater part of project
KALA	5. Survey submerged lands		Survey submerged lands around Kalaupapa peninsula. Requires scuba equipment and boat.	1	117,200	SCRUC Comment: make this a 2 year project to write report the second year
LAME	8. Survey and assess underwater resources	LAME-C-11	Record basic data on underwater sites including those that appear above water when lake is low, sites in sport diving range, and those in deeper water. Sites may include prehistoric sites, mining equipment, structures related to Hoover Dam and pre-dam townsites as well as submerged boats and airplanes.	1	5,000	SCRUC Comment: five year project, \$120,000 1. 5,000 2. 25,000 3. 35,000 4. 35,000 5. 20,000

Table V.2 Classification of SAIP Project Statements for Western Region (Continued)

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	# of Years	Total \$	Comments
CATEGORY VIII (Continued)						
PORE	1. Survey submerged resources	PORE-C-2	Using data from 1982 electronic survey, conduct submerged site excavation to examine shipwrecks and other anomalies that showed up in 1982.	1	32,000	SCRU Comment: three year project, \$75,000 1. 10,000 2. 50,000 3. 15,000
USAR	1. Underwater survey and monitoring		Underwater survey and monitoring	7	350,000	SCRU Comment: costs and scope result of consultation between USAR and SCRU
WAPA	1. Locate, evaluate and preserve Underwater Cultural Resources	WAPA-C-1	Conduct physical and magnetometer survey of offshore waters, primarily for WW II remains.	1	60,000	SCRU Comment: additional \$30,000 needed for instruments
CATEGORY IX: OVERVIEWS AND ASSESSMENTS						
HAVO	5. Publish overview and assessment	HAVO-C-14	Publish and distribute report on Ka`u District currently being prepared.	1	5,000	Report being prepared by Dr. Michael Graves, U of Hawaii
JOMU	1. Archeological/Ethnographic overview	JOMU-C-11	Summarize archeological and ethnographic data and record three previously located sites.	1	3,000	Estimated cost seems too low.
MOCA	2. Archeological overview and assessment	MOCA-C-13	Update 1977 overview to address settlement and prehistoric landscape issues.	1	6,000	
NASA	1. Publish archeological overview and assessment		Publish and distribute overview and assessment of NASA currently being prepared by Dr. Terry Hunt, University of Hawaii.	1	1,500	
ORPI	2. Overview/synthesis	ORPI-C-20	Prepare overview incorporating recently collected data.	2	48,500	
PINN	2. Update archeological overview			1		No project statement
SEKI	1. Overview and assessment	SEKI-C-11	Updated archeological overview and assessment with recommendations for future research.	1	30,000	
TONT	1. 1. Synthesis, research design, and mapping of Upper Ruin	TONT-C-9	Update knowledge about Salado archeology and generate interpretive and public education materials.	2	79,000	1 year funded
CATEGORY X: ROCK ART PROJECTS						
DEVA	2. Document rock art in Marble Canyon	DEVA-C-55 Pkg 026	Inventory rock art and record vandalism. Make recommendations for site protection.	1	21,000	
HAVO	4. Pu`u Loa Petroglyphs	HAVO-C-18	Mapping large petroglyph site.	1	20,000	
LAME	7. Record rock art sites	LAME-C-8	Record 100+ rock art sites to modern standards.	1	50,000	
LABE	2. Rock art recording	LABE-C-10	Record and map 8 rock art sites.	1	30,000	
ORPI	4. Record rock art sites	ORPI-C-22	Record known and newly discovered rock art sites with ARARA volunteers.	5	62,500	
PEFO	4. Document and evaluate petroglyph sites	PEFO-C-504	Document known rock art sites.	4	48,200	
SAMO	3. Survey and document pictograph sites					No project statement
CATEGORY XI: PROJECTS THAT DEAL WITH RECORDING AND ASSESSING PREVIOUSLY REPORTED SITES						
GRBA	5. Complete the assessment and recording of known sites	GRBA-C-18	A few sites need to be relocated and assessed.	1	10,000	
HAVO	1. Map footprints	HAVO-C-4	Survey 4,200 acres. \$12/ac.	3	45,000	
JOTR	3. Locate and record Campbell sites	JOTR-C-32	Study field notes, relocate and rerecord sites to modern standards. National Register nomination.	2	20,000	How many sites? Is funding adequate?



**Table V.2 Classification of SAIP Project Statements for Western Region (Continued)**

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	# of Years	Total \$	Comments
<b>CATEGORY XI (Continued)</b>						
JOTR (Cont'd)	4. Evaluate previously recorded sites	JOTR-C-29	Conduct further study at sites subject to impact including survey, mapping, testing, stabilization and rerouting of trails or development projects.	4	40,000	
	5. Continue research on Pinto Basin sites	JOTR-C-11	Compile all documentation on the Pinto Basin sites and prepare National Register nomination.	1	20,000	
	6. Evaluate archeological components of historic sites	JOTR-C-37	Have historical archeologists and landscape architects evaluate historic sites. Establish cultural landscapes if appropriate. There are more than 70 LCS structures and numerous historic period mining sites.	4	80,000	Project based on success of similar project at the Lost Horse Mill-American Engineering Record (HAER) Project
	7. Evaluate historical archeology of National Register properties	JOTR-C-31	Evaluate historical archeology of National Register properties and incorporate information into nomination.	4	40,000	
	9. Assess and register new archeological site information	JOTR-C-34	An archeologist needs to assess and record sites recently discovered by ARPA ranger on patrol.	1	8,000	How many sites has ranger discovered?
	10. Update archeological site records	JOTR-C-33	Update all site information to current standards.	1	8,000	Can this project be done without fieldwork? Costs seem too low.
KALA	8. Subsurface testing of selected sites.		Subsurface testing to get data on stratigraphy, chronology and site function.	1	72,200	
LAME	2. Archeological survey and recording of known sites	LAME-C-3	Relocate and record more than 100 previously recorded sites to modern standards.	1	50,000	
	4. Assess significance of known sites in developed areas	LAME-C-5	Evaluate significance of sites in developed areas using site records and making field assessments when necessary.	1	10,000	
	5. Survey and assess known historic period archeological sites	LAME-C-6	Survey and assessment of archeological significance of 25 known historic period sites.	1	30,000	
	6. Survey and assess abandoned mining properties	LAME-C-7	Survey and assessment of archeological significance of 25 + historic period mining properties.	1	30,000	
<b>CATEGORY XII: NATIONAL REGISTER NOMINATIONS AND DETERMINATIONS OF ELIGIBILITY</b>						
JOTR	8. Revise National Register nomination for Keys Ranch	JOTR-C-36	Incorporate information about prehistoric resources in the ranch vicinity into a district nomination.	1	10,000	
ORPI	5. Prepare National Register nominations	ORPI-C-29	Prepare National Register Nominations for archeological sites and districts.	5	55,000	
PINN	3. Determine eligibility of archeological and historic resources					No project statement
<b>CATEGORY XIII: OTHER PROJECTS</b>						
CAGR	2. Excavation report Compound F	CAGR-C-18	Report of 1930 excavation never completed. Information important to park's prehistory.	2	10,000	
PEFO	5. Preserve data from eroding sites	PEFO-C-507	Data recovery and salvage at eight sites as pilot project.	3	264,800	
SAFR	1. Records check and surface inspection					No project statement
SAMO	2. Survey proposed fee acquisition lands	SAMO-C-200.060	Survey proposed fee acquisition lands to direct land acquisition to critical priorities.	2	300,000	
SEKI	5. Archeological research design	SEKI-C-25 Pkg 351	Develop archeological research design. This is necessary to complete PMA with California SHPO and Advisory Council for Federal Highway project funding.	1	25,000	

**Table V.2 Classification of SAIP Project Statements for Western Region (Continued)**

PARK	SAIP PROJECT STATEMENTS	RMP #/ 10-238 Pkg #	Scope of project	# of Years	Total \$	Comments
CATEGORY XIII (Continued)						
TONT	2. Assess status of deposits in Upper Ruin		Coordinate with IPM to investigate nature of deposits and determine research and interpretive potential.	2	53,000	
	3. Conduct archeological and chronological research in Upper and Lower ruins and several small sites	TONT-C-10	Conduct architectural study, lab analysis and archeological testing at small sites.	2	38,000	

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