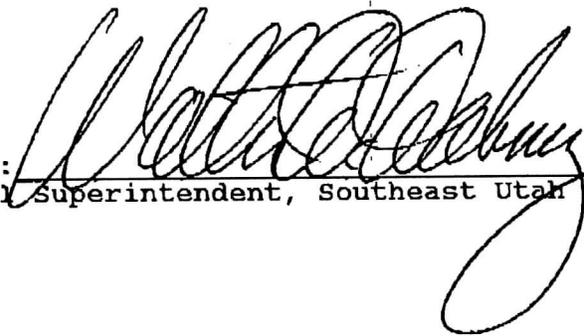


RESOURCE MANAGEMENT PLAN

Arches National Park, Utah

Approved by:  _____
General Superintendent, Southeast Utah Group Date 10/27/96

I. PRIORITY ISSUES

Current status and plans for managing the resources of Arches National Park are discussed in the following document. However, two critical issues demanding immediate attention are described here, along with one other issue requiring more long-term planning.

A. Current Issues and Strategies

One of the greatest threats to Arches National Park is the Atlas Uranium Tailings pile just outside the park entrance. The least-cost solution to the toxic pile is to cap the tailings and leave them in place. Another alternative is to move the pile to a location further from the park and the Colorado River. The environmental and fiscal data to rationally determine which alternative should be followed is simply unavailable at this time. The lack of data is a critical problem affecting the park.

Trespass cattle are one of the greatest adverse impacts to both natural and cultural resources of Arches National Park. Due to the lack of a boundary fence, cattle enter Arches National Park, they trample the soils, overgraze the vegetation, and destroy cultural resources. While fencing is a simple solution to this problem, there are no funds available to solve the fence the park. Thus the impact of the trespass cattle has become a major resource issue.

Another major issue with the potential to adversely affect natural and cultural resources of Arches National Park is the potential threat of oil and gas extraction or other incompatible uses of state in-holdings within Arches National Park. The State of Utah sections within the Park subject to severe adverse impacts are as follows: T23S, R20E Sections 2, 35, 36; T23S, R21E Sections 32 and 36; T24S, R20E Section 1; T24S, R21E Sections 16, 32, and the S1/2 of 36; T23S, R22E Section 32; T24S, R22E S 1/2 Section 32; T25S, R21E Section 2; T25S, R22E NW1/4 NW 1/4 Section 16. While the National Park Service has negotiated with the State of Utah to exchange these in-holdings for federal lands outside the park, no agreement has been reached. Therefore, the threat of oil and gas or other mineral development within Arches, as well as related impacts of providing access to the state lands, is a serious threat to the integrity of the resources of Arches National Park.

All possible efforts should be expended on reducing this threat.

Beyond the immediate threat of mineral development on inholdings there is an equally menacing threat of various mineral developments on lands adjacent to and proximal to the park. These threats include oil and gas development and a potential new potash mine west of the Klondike Bluffs section of the park.

B. Long-Term Issues and Strategies

The most critical issue affecting Arches is the impact of increasing visitation. While Arches exists as a National Park for the enjoyment of the public, its increasing popularity is taking a toll on natural and cultural resources. In this resource management plan, impacts of increasing visitation are addressed for specific localities such as the Courthouse Wash Rock Art Site and the Wolfe Ranch; but more far-reaching strategies are needed to appropriately manage and control visitor impacts to the natural and cultural resources of Arches National Park, the local community, and the Southwestern United States in general.

For reducing visitor related impacts to cultural resources within Arches, a site stabilization program has been established, but surveys of actual visitor behavior at highly visited sites are needed to determine how to manage and control site-specific visitor impacts.

For reducing visitor related impacts to natural resources such as soils, vegetation, wildlife, vistas, natural silence, etc., we need to assess both cumulative and systemic impacts of tourism. Since the Park is a delicate, functioning ecosystem, impacts to one of these natural resources impacts other parts of the system.

Furthermore, Arches National Park is one component of the larger ecosystem of southeastern Utah and the southwestern United States. Impacts of increasing tourism affect not just the resources of Arches National Park, but the whole of southeastern Utah and the Southwest. For example, some of the human and solid wastes generated by visitors to Arches are deposited in landfills and sewage treatment plants in the nearby community of Moab, Utah. Thus, increasing tourism in Arches has a direct impact on the local community, and has the potential for even greater impacts through systemic interrelationships of the land, the aquifer, the socio-economic system, and the whole natural and cultural ecosystem of southeastern Utah and ultimately the Southwestern United States.

In summary, issues that affect the resources of Arches, while they may seem localized, may ultimately have far more global impacts. Long-term strategies for preserving, protecting and conserving natural and cultural resources, while concomitantly presenting them for public enjoyment and education, need to be developed as part of the greater Southwestern regional system.

II. INTRODUCTION

This document identifies natural and cultural resource management problems and outlines steps for solving these problems. The document is divided into natural and cultural resource sections. After a summary of the natural setting of the park, including its socioeconomic context, and a summary of management planning for the park, the park's natural resources, including geology, flora and fauna, Quaternary resources, etc., are described. Objectives in the management of these resources are then presented. The cultural resource section follows the same organizational structure with a description of baseline cultural resource information, such as existing reports, and the status of the cultural sites—inventory. Management objectives for cultural resources are then listed. Collections and curation of natural and cultural objects is presented separately since collections include both natural and cultural resources.

A. The Setting

Arches National Park is located in southeast Utah along and north of the Colorado River in Grand County. The park is five miles (8.3 kilometers) north of Moab, Utah, 100 miles (166.7 kilometers) west of Grand Junction, Colorado, and 240 miles (400 kilometers) southeast of Salt Lake City, Utah. The park is readily accessible by major travel routes such as Interstate I-70 located 20 miles (33.3 kilometers) north of the park headquarters; Utah Highway 191 runs from Interstate I-70 south to Moab and accesses the park entrance road. Passenger rail service to the area is provided by AMTRAK with stations in Green River and Thompson, Utah, and Grand Junction, Colorado. Regularly scheduled commercial air service is available at Walker Field to Grand Junction with commuter and charter flights to Moab, Utah.

The city of Moab (population 5,400) provides all essential services to visitors, having a wide range of accommodations, grocery stores and restaurants. The area surrounding the park (Grand County) is sparsely populated with a density of two people per square mile (0.8 people per square kilometer). Tourism is currently the most important economic activity.

Although uranium mining was one of the most important economic activities in the area from 1950-1980, it has been largely dissipated due to depressed prices and the discovery of more economical sources of uranium-bearing ore in other parts of the world. Currently, the significant mineral extraction activities in the area are solution mining of salt and potash at the Texas-Gulf Mine at Potash, Utah six miles (10.0 Kilometers) southwest of the park, and exploratory drilling for oil and gas on Bureau of

Land Management (BLM) lands between Canyonlands and Arches National Parks.

Some farming and fruit growing occur in the Moab and Spanish Valley areas with grazing occurring on Bureau of Land Management (BLM) and State lands surrounding the park. In addition to the park other major tourist focal points are Deadhorse Point State Park, Canyonlands National Park, Westwater Canyon, the La Sal Mountains and numerous mountain biking and four-wheel drive (4WD) routes on public lands.

The park is 16 miles (26.7 kilometers) from north to south and 8 miles (13.3 kilometers) from east to west. There are a total of 73,379 acres (29,708 hectares) of land within the legislative boundaries of the park.—Of this 6,900 acres (2,793.5 hectares) are state owned school lands and 133 acres (53.8 hectares) is leased to Grand County, Utah as a recreation site. The topography of the area is diverse ranging from open flats to steep-walled cliffs. The area has been greatly effected by geologic activity associated with the salt intrusions of the Paradox formation and the landscape has been carved by the effects of wind and water and preserved by the arid climate and lack of earthquake activity. This has produced a landscape dominated by red sandstone formations such as arches, fins, balanced rocks, mesas, canyons and spires. Major topographic features of Arches National Park are Courthouse Wash, Courthouse Towers, The Windows Section, Salt Valley, Klondike Bluffs, Devil's Garden and the Fiery Furnace. Some of the more famous geologic structures in the park are Landscape Arch, Delicate Arch, Tower Arch, the Marching Men, Skyline Arch, the Three Gossips, the Three Penguins, the Windows, the Parade of Elephants, Balanced Rock and the Great Wall. There are more than 1800 catalogued arches within the park that have a span greater than three feet.

The climate of Arches National Park is arid. It is characterized by hot, dry summers and cool to cold winters. The average annual precipitation of the area is 7.95 inches (202 millimeters). Mean annual temperature is 56° Fahrenheit (13.3° Celsius) and the extreme temperatures are -16° Fahrenheit (-26.7° Celsius) and 112° Fahrenheit (44.4° Celsius). Potential evapotranspiration exceeds precipitation, making effective soil moisture a critical environmental factor. Precipitation peaks occur in March and August. Snow falls between November and March.

B. Management Planning

Arches National Monument was established by Presidential Proclamation No. 1875 on April 12, 1929. The Monument was specifically set aside due to its outstanding and unusual geologic

features. The proclamation states that the Monument was established "to protect extraordinary examples of wind erosion in the form of gigantic arches, natural bridges, "windows", spires, balanced rocks and other unique wind-worn sand-stone formations, the preservation of which is desirable because of their education and scenic value". Geologic research has since established that water is the primary agent of erosion involved, not wind.

In 1938 the Monument was enlarged to include a number of historic and prehistoric cultural sites. Later boundary adjustments were made on November 15, 1938; July 26, 1960; January 21, 1969 and November 12, 1971. On this last date the designation for Arches was changed from a National Monument to a National Park. The acreage was also increased to 73,379 acres (29,708 hectares).

In 1984 a wilderness study recommended 54,450 acres (22,045 hectares) or 75 percent of the park as wilderness. This excluded 6,900 acres (2,794 hectares) of state school lands. The exclusion of state lands and the effected park lands greatly reduces the amount of potential wilderness. Recent developments in the possible acquisition of those lands by the National Park Service could greatly alter the potential for wilderness. Dialogue is currently ongoing between the Governor of Utah and the Secretary of Interior to resolve this issue. Should the National Park Service acquire these lands, a new wilderness proposal will have to be developed.

The Statement for Management for Arches National Park was written in 1988 and revised in 1990. This document addresses the major natural and cultural resource management problems for the Park. The Resource Management Plan is an extension of the Statement for Management and serves as the primary guide for directing resource management decisions in the park.

The General Management Plan for the Park was appended in 1989. This plan provides for basic management direction of the staff. The GMP requires that the park write a Visitor Management Plan before any developments are indicated that are not included in the GMP. The VMP will analyze the impacts the visitors are causing to the resources and define management action once threshold levels are reached.

Arches National Park is one unit of the Southeast Utah Group. The Park Superintendent is supervised by the General Superintendent of the Southeast Utah Group. Under the Group organization the Park superintendent relies on the Group's Resource Management Division for providing direction for project involving research, inventory and monitoring and park specific archaeology. In addition, the Group Office reviews park specific resource management plans and provides advice and assistance when possible. Smaller resource management projects are implemented by the rangers in the Resource

Management and Visitor Protection Division of Arches National Park.

Arches' lands were withdrawn from further entry under the General Mining Laws to include the 1920 Mineral Leasing Act and the 1947 Acquired Mineral Leasing Act. This withdrawal was subject to valid existing rights. At one time there were over 5,000 mining claims in the park but all are now extinguished. However, many mining claims and abandoned mines remain just outside the park in the Yellow Cat Mining District. These could pose a significant threat to the park, especially if the market for uranium should increase in the future. The park should initiate a program to inventory AML sites within the park for potential historical significance, resource impacts, and public safety issues.

All authorized activities and associated impacts ~~are subordinate~~ to the Act of August 25, 1916, establishing the National Park Service. This act and subsequent legislation provides direction for the National Park Service to manage public recreation and to preserve and protect the cultural and natural resources of Arches.

In some cases there is a fine line between acceptable effects and adverse effects. Therefore, management must be based on adequate information and planning.

This Resources Management Plan is a strategic planning document and a key factor in effective management and preservation of Park natural and cultural resources. This plan will be used by the Superintendent and staff to identify and correct significant resource problems, both cultural and natural, that exist in the park. Projects for both the cultural and natural resources in the park were determined in relation to approved management objectives as taken from Arches General Management Plan and Statement for Management. This plan is an extension of those park planning documents and is specific to resource management issues.

The Park's General Management Plan (1980) provides guidelines for future recreation, development and management at Arches. It identifies development and management actions which satisfy public need for recreation, while at the same time protecting the area's natural and cultural resources.

The Resources Management Plan includes a set of project statements which includes proposed action for implementation as well as research actions for both natural and cultural resources. Project statements are determined on the basis of approved management objectives and National Park Service policies. Management constraints and completed research serve as guidelines for current and future projects. Individual project activities are to meet the park's management needs in resource management, monitoring and research.

This Resource Management Plan entails joint cooperation between

the National Park Service and affected private businesses and individuals and local, county, state, federal, and tribal agencies for the coordinated management of the natural and cultural resources of Arches National Park.

III. RESOURCE STATUS

A. Natural Resources Baseline Information

1. Geology

Arches National Park is largely covered by exposed bedrock, weakly developed soils and sand dunes. The park was established because of its unique geologic features, in particular the massive, spectacular natural rock arches formed in the Entrada Sandstone. The geology of Arches National Park is largely determined by the collapsed salt anticline in Salt Valley and to a lesser extent by the collapsed Moab and Cache Valley anticlines. There are ten major sedimentary formations exposed in the park ranging in age from the Pennsylvanian Paradox formation to the Cretaceous Mancos Shale. In stratigraphic order, formations include Paradox, Honaker Trail, Cutler Group, Moenkopi, Chinle, Wingate Sandstone, Kayenta, Navajo Sandstone, Entrada, Morrison, Cedar Mountain, Dakota Sandstone and Mancos Shale. The Paradox formation of salt and gypsum evaporates is a highly plastic formation which has formed the salt anticlinal structures in the park, which collapsed when ground water eroded the salt. The Navajo and Entrada Sandstones crop out over most of the park's surface, with the Entrada forming the majority of the outstanding geologic features. The cliff-forming Wingate Formation exposed along the Colorado River forms the south boundary of the park. Together with the associated Kayenta, Chinle and Moenkopi formations, it forms impressive eight hundred foot cliffs.

2. Soils

The soils in the park are derived from the local sandstones and are classified as fine grained sandy loams, well drained, of predominantly eolian origin with little organic material. The soils are of yellowish-reddish color and the soil depth varies greatly. Approximately 90 percent of the soil in the park falls into the Rizno-Begay Complex. These are soils that are characterized by slopes of 2-10 percent and are fine sandy loams.

The Rizno soils are found on ridges and close to rock outcrops, Begay soils are found in open areas and are deeper. These two soil types are closely intermingled and cannot be separated for mapping purposes. Rizno soils are 4-20 inches (10-50 centimeters) in depth, Begay soils are as deep as 60 inches (150 centimeters).

Both soils are well drained and contain less than one percent organic matter. The vegetation associated with the Rizno soils is comprised of blackbrush Coleogyne ramosissima, Mormon Tea Ephedra viridis, Piñon Pinus edulis and Utah Juniper Juniperus osteosperma. Begay soils support a vegetation type constituted of

galleta Hilaria jamesii, Indian Ricegrass Stipa hymenoides, Mormon Tea Ephedra viridis and Needle and Thread grass Stipa comata.

3. Vegetation

The vegetation of the park can be divided into twelve vegetative communities. These are Blackbrush/Shadscale (Coleogyne ramosissima/Atriplex confertifolia), Garrett Saltbush/Mat Saltbush (Atriplex garrettii/Atriplex corrugata), Indian Ricegrass/Galleta/Mormon Tea (Stipa hymenoides/Hilaria jamesii/Ephedra viridis), Fremont Cottonwood/Sandbar Willow/Tamarisk (Populus fremontii/Salix exigua/Tamarix ramosissima), Blackbrush (Coleogyne ramosissima), Piñon/Utah Juniper (Pinus edulis/Juniperus osteosperma), Snakeweed/Shadscale/Mormon Tea (Gutierrezia sarothrae/Atriplex confertifolia/Ephedra viridis), Purple Sage/Shinnery Oak/Utah Juniper (Poliomintha incana/Quercus harvardii/Juniperus osteosperma), Sand Sage/Purple Sage/Indian Ricegrass (Artemisia frigida/Poliomintha incana/Stipa hymenoides), Greasewood/Four-wing Saltbush (Sarcobatus vermiculatus/Atriplex canescens), Shadscale/Garrett Saltbush (Atriplex confertifolia/Atriplex garrettii) and Maidenhair Fern/Jones Reedgrass (Adiantum capillus-veneris/Calamagrostis scopulorum). A further description of the vegetation communities will be found in Project Statement ARCH-N-027 Vegetation Management.

4. Mammals

Major mammals common to the park are the Western Pipistrel Pipistrellus hesperus, Gray Fox Urocyon cinereoargenteus, Bobcat Lynx rufus, Whitetailed Antelope Ground Squirrel Ammospermophilus leucurus, Rock Squirrel Spermophilus variegatus, Colorado Chipmunk Eutamias quadrivittatus, Apache Pocket Mouse Perognathus flavescens, Ord Kangaroo Rat Dipodomys ordi, Canyon Mouse Peromyscus crinitus, Deer Mouse P. maniculatus, Piñon mouse P. truei, Northern Grasshopper Mouse Onychomys leucogaster, Desert Woodrat Neotoma lepida, Porcupine Erethizon dorsatum, Blacktailed jackrabbit Lepus californicus, Desert Cottontail Sylvilagus auduboni, Mule Deer Odocoileus hemionus, Desert Bighorn Sheep Ovis canadensis nelsoni, Striped Skunk Mephitis mephitis, Ringtail Bassariscus astatus and Badger Taxidea taxus.

5. Birds

Common bird species likely to be found in the park are the Mourning Dove Zenaidura macroura, Common Nighthawk Chordeiles minor, White-throated Swift Aeronautes saxatalis, Violet-green Swallow Tachycineta thalassina, Ash-throated Flycatcher Myiarchus cinerascens, Say's Phoebe Sayornis saya, Scrub Jay Aphelocoma coerulescens, Common Raven Corvus corax, Piñon Jay Gymnorhinus cyanocephalus, Plain Titmouse Parus inornatus, Cañon Wren

Catherpes mexicanus, Rock Wren Salpinctes obsoletus, Loggerhead Shrike Lanius ludovicianus, Gray Vireo Vireo vicinior, Black-throated Gray Warbler Dendroica nigrescens, Black-throated Sparrow Amphispiza bilineata and Dark-eyed Junco Junco hyemalis, Cooper's Hawk Accipiter cooperi, Golden Eagle Aquila chrysaetos, Red-tailed Hawk Buteo jamaicensis and the Northern Harrier Circus cyaneus.

6. Herptofauna

Common herptofauna of the park are the Red Spotted Toad Bufo punctatus, Woodhouse Toad B. woodhousei, Collared Lizard Crotaphytus collaris, Short-horned Lizard Phrynosoma douglassi, Sagebrush Lizard Sceloporus graciosus, Eastern Fence Lizard S. undulatus, Tree Lizard Urosaurus ornatus, Leopard Lizard Gambelia wislizenii, Side-blotched Lizard Uta stansburiana, Western Whiptail Cnemidophorus tigris, Gopher Snake Pituophis catenifer, Common Garter Snake Pituophis catenifer and the Midget Faded Rattlesnake Crotalus viridis concolor.

7. Sound

Ambient noise levels in the park are low. The degree of silence one encounters in most areas of Arches National Park is one of its great resources. Any noise detected in the area may be associated with wildlife activity, backcountry hikers or an occasional high altitude aircraft. With increased oil and gas activity in the area and the potential for mining in the future, mineral development could add significantly to noise levels. Monitoring and documenting background noise levels before mineral activity increases is essential.

8. Night Sky

Without the lights from a metropolitan area and the relatively clear air, the night sky resources of the park are outstanding. Being located on top of a plateau, one has a nearly 360 degree view of the stars. Numerous visitors, particularly those from the eastern United States or urban areas comment on this resource.

9. Paleontological Resources

Stratigraphic features of the park date to the Cretaceous, Jurassic, Triassic, Permian, and Pennsylvanian. In stratigraphic order, the formations include the following: Paradox, Honaker Trail, Cutler Group, Moenkopi, Chinle, Wingate Sandstone, Kayenta, Navajo Sandstone, Entrada, Morrison, Cedar Mountain, Dakota Sandstone and Mancos Shale. While paleontological resources are known from these formations, little is known of the paleontological resources within the park.

One known paleontological resource from within Arches is the

highly significant dinosaur track site in the boundary of the Entrada and Summerville formations. Tracks of carnivorous dinosaurs (terapods) dating to the Late Middle Jurassic to Late Jurassic cover an area of at least 110 square miles (300 sq. km.) on lands jointly managed by the NPS and the BLM. Only a cursory, reconnaissance investigation of these tracks has been made and detailed information on the extent of the megatrack site within the park is presently unknown. With only three "megatrack" sites known to exist in North America, the Arches site is of national significance. Furthermore, the Moab megatrack site is the only Jurassic track site and it is the oldest known example of this phenomenon. A detailed, systematic, intensive paleontological investigation of this site is urgently needed. Without such an inventory, this unique and highly significant resource cannot be preserved, protected or presented to the public.

10. Quaternary Resources

The Quaternary is the geological period and it is comprised of the Pleistocene and Recent Epochs. Like older paleontological resources, little is known of the Quaternary resources of Arches, but the few studies that have been conducted indicate that highly significant Quaternary resources exist.

For example, Late Wisconsin and Late Holocene pack rat middens from Bison Alcove in the park have yielded important information about changes in paleo-climate and vegetation. Additional pack rat midden studies, as well as studies of the Park's geomorphology, including paleosols, alluvium and erosion patterns, paleohydrology, tree-rings, etc., will yield highly important information about the past. This information will not only provide scientific data, but will allow better management of soils, vegetation, and other natural resources. Quaternary and Pleistocene data also may prove critical in our understanding of global warming and other current climatic trends.

11. Water and Riparian Resources

The Colorado River forms the eastern boundary of Arches. In addition to the 13 miles of Colorado River bounding the park, there is one permanent stream, Salt Valley Wash, in the park. The stream is a significant riparian resource. It forms critical habitat for fish, amphibians, aquatic insects, small mammals, other animals, and plants. This stream has been nominated for Wild and Scenic River status.

Tamarisk growth has largely choked out surface water in the park, but historically several perennial streams, including Courthouse Wash, contributed to the surface water resources of the park. In

addition, there are several springs in the park, including Willow Spring, Sleepy Hollow, and Salt Spring. These, combined with water intermittently available in potholes, comprise the water resources of Arches.

B. Management Objectives for Natural Resources

Management objectives for Arches National Park are to protect and preserve the outstanding erosional features of arches, fins and erosional remnants, the desert plant and animal communities, air and water resources, natural quiet, and Quaternary and paleontological resources in such a way that human impacts on these resources are minimized and that management is consistent with legislative—and—executive requirements and National Park Service policies and guidelines.

Specific management objectives are:

Manage developed areas for intensive visitor use while providing for the maximum protection of the natural environment.

Provide for the public use and enjoyment of the backcountry areas while minimizing the environmental impacts of visitor use and by providing for the maintenance of the primitive character of the backcountry as well as affording protection of the natural resources and ecological processes.

Protect and perpetuate unique plant species and communities (including rare, threatened, endangered and endemic species as well as pristine, disjunct and uncommon plant communities).

Research and understand basic ecosystem processes at Arches National Park so that human induced impacts can be distinguished from natural processes. Provide the interpretive staff with information concerning ecological processes occurring within the monument.

Restore wherever possible the natural condition of park lands and plant communities altered by human activities.

Mitigate the impacts of exotic plants by feasible control methods wherever natural communities are threatened or where control methods are likely to be successful.

Protect the park resources by the provision of adequate fencing to control and prevent impacts due to trespass by

livestock.

Maintain the high quality of the air resources in the park such that the scenic quality of the viewshed is not hampered and that deposition of particulate matter from combustion does not adversely impact park resources.

Protect surface aquatic resources in the park such as streams, seeps, springs, and potholes and provide for the protection of the underground aquifer.
Protect the unique and high quality night sky and natural quiet resources of the park.

Prevent adverse effects to park lands and resources from external and internal threats stemming from past and present land use and changes in ownership.

Collect and maintain information on the geologic and erosional features of the park, thereby providing for documentation on the condition of those resources and natural changes that occur over time.

Inventory and monitor major natural resources (vegetation, wildlife, soils, clean air, clear vistas, natural quiet and clean water) to enhance the information database and to determine changes in critical resources such that management practices can be modified promptly to reverse and mitigate adverse impacts to those resources.

Identify Quaternary and paleontological resources of the park. Research should be funded to locate, identify, analyze and report on Quaternary geomorphology (including paleosols, alluvial, etc.), packrat middens, mollusks, pollen, tree-ring, and other records.

Educate the public and the staff about what has been and what can be learned from both Quaternary and paleontological resources of the park.

Teach the staff how to identify significant Quaternary and paleontological resources so that the resources can be reported, evaluated and monitored by scientists trained in Quaternary and paleontological research techniques.

Locate and assess the scientific significance of the dinosaur megatrack site and to determine whether the site could be developed into a self-guiding, interpretive, trail for park visitors.

C. Cultural Resources Baseline Information: Service-wide Inventories and Databases of Cultural Resources

1. Cultural Landscape Inventory and Report

Cultural landscapes are defined in NPS-28 as "...a geographic area, including both cultural and natural resources, including wildlife or domestic animals therein, that has been influenced by or reflects human activity or was the background for an event or person significant in human history." The CLI is a computerized inventory of cultural landscapes. Its purpose is to identify cultural landscapes and provide information on their location, development, features and management.

In March, 1997 the park's first cultural landscape inventory was performed at Wolfe Ranch. Another possible cultural landscape that should be evaluated is the view from Edward Abbey's trailer location. Based on his book, *Desert Solitaire*, this view is a significant cultural resource.

2. Cultural Sites Inventory, Including Base Maps

The Cultural Sites Inventory narrative and base maps are maintained by the Mid-west Archaeological Center. The maps are updated on a regular basis. Copies of the maps and files are located in both the Resource Management Office of the SEUG Headquarters in Moab, Utah. The narrative of the Cultural Sites Inventory was prepared in 1987 by the Mid-west Archeological Center. The narrative is on file in the Resource Management Office of the SEUG.

The Mid-west Archeological Center has 173 sites from Arches in its files, the park has 108 sites in its files. The missing records need to be copied and maintained by the park, as well as MWAC. The following discussions of the CSI and status of cultural resources is based on the park CSI.

The CSI contains a total of 108 prehistoric to protohistoric sites that have been documented within Arches National Park. Of the 108 recorded prehistoric to protohistoric sites, only 56 are recorded on the Intermountain Antiquity system (IMACS) forms currently in use. In evaluating the quality of the site forms, documentation is good for 27 sites, fair for 40 sites, and poor for 41 sites. Thus numerous sites need to be relocated, recorded on IMACS forms, photodocumented, and mapped on 7.5' USGS topographic maps.

Structural sites, both historic and prehistoric, are relatively rare in Arches. As stated above, only 29 historic structures are known from Arches. Prehistoric structures are rare in Arches, with 10 documented. Five of these are considered eligible to the National Register, three are unevaluated, two are not eligible.

In addition to historic and prehistoric structural sites, additional site types from Arches include extensive lithic quarry sites, which are generally coextensive with outcrops of the Summerville Formation (Berry 1975:82); open camp sites dating to prehistoric and protohistoric periods; caves or rockshelters dating to prehistoric and protohistoric periods; and rock art sites dating from prehistoric to historic times. Additional sites include

These sites and structures have been documented largely through reconnaissance survey. Very little of the park has been intensively inventoried for cultural resources. To date, a total of 3,284 acres or less than 5% of the 73,379 acres in Arches National Park have been intensively inventoried for cultural resources. The following section briefly describes some of the more important completed inventories in Arches.

a) Inventories from 1930-1965. Documentation of the cultural resources of Arches National Park began prior to the development of uniform inventory and recording requirements. As a consequence, many of the early inventories and site records are inadequate by today's standards. Some of the more important early inventories are described below.

Frank Beckwith was the first to record archaeological sites within the boundaries of the present park. In 1934 Beckwith recorded the Moab Pictograph Panel [REDACTED] near the mouth of Courthouse Wash, a site currently listed on the National Register of Historic Places. Beckwith also visited a rockshelter, [REDACTED], north of the panel where several burials were reported.

In her 1953 report on the archaeology of the La Sal Mountain region, Alice Hunt reported on eight sites within the southern portion of what is presently Arches National Park.

From 1956 through 1972 Lloyd Pierson and other National Park Service personnel recorded an additional 51 sites in what was then Arches National Monument. Pierson was the first to recognize the extensive distribution of prehistoric lithic quarries and lithic scatters in Arches.

b) Inventories from 1966-1989. With the passage of the National Historic Preservation Act of 1966, and with subsequent legislation

such as the National Environmental Policy Act of 1969, the Federal Land Policy and Management Act of 1976, Executive Order 11593, and the Archaeological and Historic Preservation Act of 1974, the number and quality of cultural resource inventories and site documents improved dramatically.

With these legal obligations to locate, assess, preserve and protect cultural resources on Park Service administered land, and to ensure that significant historic properties are not damaged or destroyed by federally licensed, funded or initiated activities, the following archaeological inventories and assessments were conducted in Arches.

In 1973, Lindsay and Madsen reported on a survey of areas proposed for road and sewage development in Arches, but they recorded no archaeological sites.

In 1975 Michael Berry reported on a reconnaissance survey of the northeastern portion of Arches. With the completion of Berry's survey, a total of 89 prehistoric sites were documented within Arches. These included caves or rockshelters, open camp sites, lithic quarry sites, and rock art sites. Berry's work is particularly significant since he noted the majority of sites in Arches were lithic scatters or lithic quarries and that lithic debris occurs in varying concentrations throughout the northeastern portion of Arches. Berry explained that the density and nature of lithic artifacts varies inversely with distance from quarries.

In 1978 Anderson prepared a summary of the cultural resources of Arches National Park. This document served as a basis for the Mid-west Archeological Center's inventories of cultural resources in the Park. These inventories were conducted by MWAC in response to proposed ground-disturbing activities of the National Park Service. These inventories resulted in increased knowledge and understanding of the Park's cultural resources.

The single largest amount of area intensively surveyed was a MWAC survey of 1,160 heavily used acres in Arches (Krammer 1988). In this single survey, 26 sites and 79 isolated artifacts were recorded.

c) Inventories during the 1990s. In compliance with Section 106 of the National Historic Preservation Act, many small archaeological inventories have been completed for ground disturbing activities proposed during the 1990s. Many more inventories will probably be conducted during the decade.

3. List of Classified Structures

There are 29 sites listed on the List of Classified Structures. The 29 historic sites are recorded on the List of Classified Structures or LCS forms and these forms were recently updated by historic architects meeting Secretary of the Interior standards. The 29 historic structures recorded on LCS forms have already been evaluated for inclusion on the National Register of Historic Places. Of these structures, only the Wolfe Ranch and the Rock House or Custodian's Residence are listed on the National Register of Historic Places.

4. National Catalog of Museum Objects

Catalog records were backlogged until 1990 when a seasonal curator was hired. The curator reduced most of the backlog, but a backlog of collections made after 1986 exists.

5. National Register of Historic Places

The National Register of Historic Places is the official list of historic properties recognized by the Federal Government as especially worthy of preservation for the national, state or local significance. Several prehistoric, historic, and ethnographic sites within Arches are listed on the National Register. These nationally recognized sites include the Courthouse Wash Pictograph Panel, and a multi-resource listing for the D. Julien Inscription, the Old Spanish Trail, Ringhoffer Inscription, Rock House-Custodian's Residence, and the Wolfe Ranch Historic District.

Obviously, the majority of National Register listed sites are historic. In addition, at least 48 of the prehistoric to protohistoric sites in the park are considered potentially eligible to the National Register. In addition to documented sites that may be eligible, it is likely that when a greater percentage of the area within Arches National Park is inventoried for cultural resources, additional significant sites will be located and determined eligible for inclusion on the National Register of Historic Places.

a). National Register Cultural Context/Themes

The National Park Service defines cultural contexts as the framework within which the significance of a resource can be evaluated as it related to an ethnographic, historic, or prehistoric theme, a particular geographic area, or a specific time period. The cultural contexts for the NPS have been recently

updated and the themes were used in assessing the significance of LCS structures.

6. Cultural Resources Management Bibliography (CRBIB)

Cultural resources reports about Arches National Park are maintained at the Resource Management Office of the Southern Utah Group. While the 32 cultural resource reports about Arches that are on file have not been entered in the CRBIB system of the NPS, the reports are maintained in a computerized database file. Copies of the major cultural resources reports are currently on file in Arches National Park, although a more complete library of the management reports should be placed in the Arches files and general archaeological literature would be a welcome addition to the library of the park.

7. National Archeological Database (NADB)

NADB records for the state of Utah were processed several years ago under a contract through the Utah SHPO office. Arches National Park records were part of the data that were input.

D. Cultural Resource Baseline Research Reports

The following descriptions of baseline research reports for Arches National Park are derived from the list of required reports in NPS-28.

1. Archaeological Overview and Assessment

This report should describe and assess known and potential archaeological resources in the park. This report has not been prepared since the inventory area for the park is so limited.

2. Archeological Identification/Evaluation Studies

These studies identify locations and characteristics of all or a sample of archaeological resources in the park. The data are part of the computerized CSI database. These studies are usually linked to archaeological overviews and assessments to resolve management and interpretive concerns. Specific identification studies are included in the reports available for the park, and these data are computerized as they become available.

3. Ethnographic Overview and Assessment

This is a basic report emphasizing the review and analysis of archival and documentary data on park ethnographic resources and groups who traditionally define such cultural and natural features as significant to their ethnic heritage and cultural viability. This document has not been prepared for the park. As a first step in preparing for an ethnographic overview and assessment, efforts are being made to expand the park library and CRBIB holdings on ethnographic data and reports.

Despite evidence of protohistoric and historic use of the Arches area, studies need to be conducted to determine the traditional role Arches has played in the lives of Native Americans such as the Utes and Paiutes. Consultation with concerned Native Americans about access, development and interpretation of the Wolfe Ranch and Courthouse Wash rock art sites is currently underway.

4. Cultural Affiliation Studies

This ethnographic study satisfies the need to identify cultural ties among past and present groups that occupied or used, and may still use, park resources, including collections. This document has not been prepared.

While historic remains in Arches are largely limited to Anglo-American ranchers and miners, protohistoric Native American remains are documented in Arches. As mentioned above, there are reports of Navajo burials from Courthouse Wash, and Protohistoric Ute-style rock art is known from Courthouse Wash and the Wolfe Ranch. Protohistoric ceramics have been identified in the collections from the Park. The area presently designated as Arches National Park lies within territory known to have been occupied by historic Utes and Paiutes. Additional cultural resources inventory may well reveal additional use of Arches by Native Americans.

At the present time, Native American groups that might have an interest in the interpretation and conservation of the Ute-style rock art in Arches are being consulted to determine whether they have any concerns about NPS plans to install signs and trails leading to the Wolfe Ranch and Moab or Courthouse Wash rock art panels. Even if no interest is expressed in the management or interpretation of rock art at these two specific sites, potentially concerned Native American groups will be contacted to

establish whether they know of traditional uses of park lands and resources, or whether sacred sites exist within park boundaries.

In addition, ethnographic consultation requirements established in the 1988 National Park Service Management Policies are being reviewed and procedures are soon to be developed to insure that policies are met. These procedures will be developed with the aid of the Regional Ethnographer.

5. Historic Resource Study

An historic resource study provides a historical overview of a park or region and identifies and evaluates a park's cultural resources within historic contexts. Some Historic Resource Studies have been completed, although additional historical work on the park would result in better management of historical resources.

A significant step forward in the management of cultural resources of Arches was the completion of an historic resource study by Mehls and Mehls (1986). The study included both a narrative history of Arches National Park, but also the completion of the List of Classified Structure forms for historic resources throughout the Park. Thematic frameworks for the history of Arches were also included in this study.

6. Cultural Resources Base Map

A base map exists for the park, however, it is based on inadequate inventory data. Base maps are discussed in greater detail in the section on databases (see CSI).

7. Park Administrative History

An administrative history of Arches has not been written, but is urgently needed for park planning and decision-making.

8. Rapid Ethnographic Assessment Procedure

This field study was not initiated as part of the recently completed General Management Plan. Rather than program for a REAP, a full ethnographic overview should be prepared.

9. Scope of Collection Statement

This is the basic curatorial planning document required for all parks. The Scope of Collection Statement was revised and updated in 1995.

10. Historic Structure Preservation Guides

Historic Structure Preservation Guides need to be prepared for the historic sites in the park, particularly the Wolfe Ranch and Cordova Cabin. Other cabins in the park need updated assessments and possibly preservation guides.

11. Visitor Use Survey

A Visitor Use Survey needs to be conducted at highly visited cultural sites throughout the park. The study needs to be conducted to plan and develop protective mechanisms to prevent visitor impacts to sites, especially National Register eligible or listed sites. Such a survey would identify visitor's actual behavior at specific sites, with a focus on inappropriate and damaging behavior. After identifying both inappropriate behaviors and the subpopulations responsible for such behaviors, site specific plans can be developed to prevent adverse impacts of visitors to sites.

In the summer of 1993 a pilot visitor use survey is being [was?] conducted at both the Courthouse Wash and Wolfe Ranch rock art sites. This pilot study will provide preliminary data on numbers of visitors, visitor characteristics, visitor behaviors which adversely impact the sites, etc. A full visitor use survey would identify these data, as well as provide management solutions to identified problems.

E. Culture History

Based on the Cultural Sites Inventory documents and on the specific cultural resources inventories which are described in the following section, Arches National Park is known to contain cultural resources left during the Archaic, Late Prehistoric, Protohistoric, and Historic periods. Evidence for each of these cultural historical peoples and periods is briefly summarized below.

1. Archaic Period

Based on current information, the first peoples to have inhabited

Arches were Archaic hunter-gatherers. The majority of cultural resources in Arches appear to date to the Archaic period. The Archaic period dates from about 8,000 years ago until about A.D. 1. Archaic people entered Arches primarily to gather the fine cherts found in the Summerville Formation. Summerville Chert was used by Archaic and later peoples for stone tools. Consequently, surface scatters of stone tools and debris from the manufacture and sharpening of Summerville stone tools comprise the majority of the archaeological sites in Arches, as well as the main components of the museum collections from the park.

2. Late Prehistoric Period

The Late Prehistoric is defined as the time between the introduction of pottery and bow and arrow technology about A.D. 250 and the Protohistoric period around A.D. 1300 (Tipps 1988). During this period, at least two different people are known to have utilized the resources of Arches: the Fremont and the Anasazi. These Late Prehistoric peoples are distinguished by technological and stylistic differences in artifacts, architecture, settlement patterns, etc. Late Prehistoric rock art, storage, and habitation sites have been recorded in Arches, but detailed studies of the Late Prehistoric remains from Arches have not been conducted.

3. Protohistoric Period

According to Julian Steward (1938) the triangle formed by the Dolores River on the north, the Colorado River on the west and the San Juan River on the south was occupied by both Utes and Paiutes.

Archaeological evidence indicates this area was occupied by these people from about A.D. 1250 to historic times, although it is not presently possible to distinguish between Utes and Paiutes based on their material remains. Evidence of such Protohistoric and historic use of Arches is presently limited to rock art (e.g. Wolfe Ranch) and isolated projectile points, although an intensive cultural resources inventory of the park may well reveal more information about Protohistoric and historic Native American use of the park.

4. Historic Period

Explorers entered the region around Arches as early as 1776, but the first documented Anglo-American to actually enter the area presently designated as Arches National Park was fur trapper Denis Julien. Julien carved his name and the date - June 9, 1844 - over

two bighorn sheep petroglyphs on a fin in what is now northern Devils Garden.

During the 1800s other fur trappers, along with traders, slavers, Native Americans, and others crossed the southwest corner of Arches along the Spanish Trail. The segment of the trail through Arches is listed on the National Register of Historic Places.

In 1855 the Church of Jesus Christ of Latter-day Saints (Mormons) sent a colonizing mission to settle at the Colorado River crossing of the Spanish Trail. This was called the Elk Mountain Mission, the members of which established a colony at the place later known as Moab. No records indicate the missionaries entered the center of the park.

The first Anglo-American settlers of what is now Arches were John Wesley Wolfe and his son Fred. In 1888 they established a small ranch near the junction of Salt Wash and Winter Camp Wash, about one-and-a-quarter miles west of Delicate Arch. In 1910, Wolfe sold the ranch and moved back to Ohio. The ranch cabin and corrals are still standing and are listed on the National Register of Historic Places.

Exploitation of uranium, vanadium, oil, gas, and potash has been important in the history of Arches and the surrounding area. In 1922 Alexander Ringhoffer set up a mine in Salt Valley. Ringhoffer inscribed his name near Tower Arch and this inscription is listed on the National Register. In 1955 and 1956, the Pacific Northwest Pipeline Corporation constructed a pipeline to transmit natural gas from wells in the San Juan Basin of Northwestern New Mexico to the Pacific Northwest. This pipeline was built across park lands during the 1950's and scars from the pipeline are still visible.

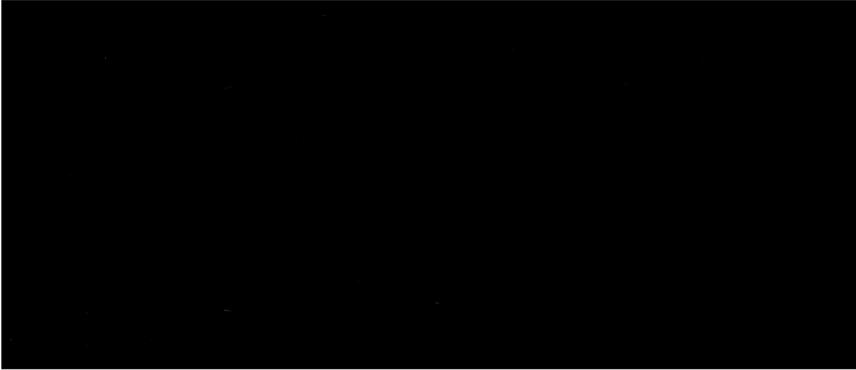
As described under the section on Management Planning, Arches came under the jurisdiction of the National Park Service in 1929. The historical significance of structures, trails and other facilities constructed from 1929 until the present time have yet to be fully assessed. A park administrative history has yet to be written.

F. Condition of Sites and Structures

The park monitors and maintains the following sites:

<u>Site #</u>	<u>Name or Location and Type</u>
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[REDACTED]	[REDACTED]
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The monitoring program has established that adverse impacts to these sites are caused by both natural and human agents. Graffiti is a major problem. While most of the alcove and rockshelter sites in Arches have been vandalized by pothunters, most of this illegal pothunting appears to have been conducted in the past. Vandalism of sites, especially rock art sites, has occurred in the past, but more typical impacts by today's visitors are erosion of archaeological deposits by foot traffic, leaving graffiti on rock art sites, surface collection of obvious stone tools, especially projectile points. Natural impact agents include erosion and animal burrowing and nesting.

Cattle trespass in Arches is a serious impact to archaeological sites. Fragile archaeological deposits are being destroyed by trespass cattle. Fencing the Park will eliminate this particular impact agent. And, with the continuation of the stabilization and monitoring program, as well as the Archaeological Resources Protection site patrol program, sites should remain in excellent condition. The continuation of these programs will enable the Park Service to continue to fulfill its legal mandate to preserve and protect the cultural resources of Arches National Park.

G. Management Objectives For Cultural Resources

The National Park Service is mandated to inventory and assess the significance of all cultural resources on lands it manages. It is also mandated to preserve, protect cultural resources, while at the same time allowing for public access, enjoyment and education about these resources. To preserve and protect sites and still allow for visitation, a cultural resources management program must be in place. Specific objectives of this management program in Arches revolve around the reduction of visitor related impacts to sites, and continuing compliance with the various laws and mandates protecting cultural resources. Some of the specific management objectives of the cultural resource management program

are listed as follows.

Fulfill Executive Order 11593 and other federal regulations by intensively inventorying cultural resources within Arches.

Also, evaluate the significance of sites for the National Register of Historic Places. As stated in sections above, of the 73378.98 acres in Arches, only 3284 acres have been inventoried for cultural resources. This is only 4% of the total area of the Park.

Improve documentation of known sites (historic, protohistoric, prehistoric), and with improved documentation, assess the significance of sites for the National Register of Historic Places. Improved documentation involves recording known archaeological sites on the currently used IMACS site forms. Updating topographic maps and the CSI, submitting the site records to the Utah SHPO, photodocumenting sites, etc. Sites documented prior to the development of the Intermountain site recording system (IMACS) should be relocated and recorded on IMACS forms. Original site forms and photographs should be compared with present conditions and the amount of damage should be determined. Impact agents should be identified and where possible, action should be taken to prevent further deterioration of the cultural resources.

Comply with the various laws and policies protecting cultural resources, especially Section 106 of the National Historic Preservation Act.

Manage and control visitor behavior at cultural properties, particularly at National Register listed properties. As discussed in the General Management Plan, an immediate need is to reduce visitor impacts to the National Register Courthouse Wash Panel and to Wolfe Ranch. Plans are currently being written to guide and control visitor behavior at these two sites. In addition, if the site monitoring program indicates that other sites, especially National Register sites, are being adversely impacted by visitation, then similar visitor management plans will need to be written and implemented to preserve and protect the sites. A first step in controlling visitor damage to sites is to identify the type of visitor and type of impacts to sites. Thus a first step is a visitor use survey at highly visited sites in Arches such as the Wolfe Ranch. Another step is the Site Monitoring, Maintenance and Stabilization Program which identified impact agents to sites.

Maintain and update the archaeological site disclosure policy

to meet the needs of park staff, visitors, and the sites. At the present time, two sites are listed as Class I sites: i.e., site that are depicted on maps and sites where visitors are directed to see cultural resources. The two Class I sites are the Wolfe Ranch and the Courthouse Wash Panel. Plans for managing visitors at these sites are already being written. Class II sites are those that the public can be directed to visit if they specifically ask for directions. At the present time Arches has no Class II sites. Possible Class II sites could include [REDACTED]. If inquiries continue to increase about these sites, then they should probably be added to the site disclosure list as Class II sites.

Preserve and protect sites from visitor impacts by increasing the frequency of contacts between visitors and patrolling rangers. An important management objective is therefore to hire a patrol ranger specifically to make visitor contacts during peak visitation periods. This ranger should patrol both front-country and back-country areas and should educate visitors about proper behavior while visiting cultural resources.

Repair damage to cultural resources caused by natural and human impact agents. The site monitoring and stabilization program has been established to measure and repair damage to sites, but in addition, a management objective is to increase the number of monitored and stabilized sites.

Consult with local Native Americans (Southern Ute, White Mesa Ute, Paiute, and Navajo) concerning locations within the Park of traditional cultural or religious significance. Determine whether Arches was traditionally used for subsistence or for other pursuits. Native American groups will be consulted about plans to improve the access and interpretation of the rock art located at the Wolfe Ranch and Courthouse Wash. Native American will also be consulted about the repatriation of human remains in the collections.

Work on the park administrative history program. Already, some taped interviews of former park personnel have been conducted. The interviews should continue with both former personnel and local people that can document the administrative history of the Park. These interviews should be video taped and the tapes should be placed within the SEUG library and archives.

H. Collections and Curation

Natural and cultural specimens from Arches National Park have been collected since the turn-of-the-century, but these collections, if they still exist, are scattered in repositories across the United States. On-site collections include approximately 2000 objects: including exhibit specimens in the Visitor Center at Arches and museum collections in the two-room SEUG museum storage facility in Arches National Park. Additional collection repositories are the Dan O'Laurie Museum in Moab, UT; the Western Archaeological Conservation Center, Tucson, AZ; and the Mid-West Archaeological Conservation Center, Lincoln, NB. Additional repositories of specimens collected in Arches exist.

1. Museum Planning

A Scope of Collection Statement was written and updated in 1995. A Collection Management Plan needs to be written to guide the park in improving its collection management program. As a first step in preparing a Collection Management Plan, a meeting was held to determine specific collection and specimen needs of the various Arches divisions (e.g. Interpretation, Natural and Cultural Resource Management). The main collection needs are visual aids for park interpretive programs, limited exhibit specimens are needed for the proposed new Visitor Center, and an herbarium.

Exhibit Plans need to be written as soon as funding is set aside for the new visitor center. An Integrated Pest Management Plan is not in place and insects have damaged museum objects. A housekeeping plan needs to be written and implemented for exhibits and museum storage space. A Collection Storage Plan was prepared in 1990, but it needs to be updated since the collections have been moved to the SEUG headquarters building. Collection Condition Surveys are conducted annually as required. Collection annual inventories are conducted when requested by Harpers Ferry and the National Catalog.

2. Collection Access and Security

Improving security of on site collections is an on-going effort. With the hiring of a permanent half-time curator in 1997, physical access to collections in the storage facility is currently regulated.

Many of the collections from Arches National Park are stored in off-site repositories. Access to these collections is difficult, given their geographic distance from the park.

The Arches Library should be considered a resource and managed as such. At the present time, the circulation of library materials is handled by a temporary, part-time librarian. The librarian position is currently funded by Canyonlands Natural History Association (CNHA).

3. Objects

As of 1996, the Arches museum collection includes approximately 18,000 objects.

4. Museum Records

Accession and loan files are not up to date and the accession files are particularly problematical. Catalog records are being generated for new collections as they are received. The backlog has largely been eliminated. The Collection Management Report, annual reports (Form 10-94, 10-349) and other documentation on the museum collection are prepared and submitted as requested.

5. Storage

While considerable progress has been made in upgrading the SEUG museum storage facility, more work is needed. Environmental controls are absent or faulty, with humidity fluctuations a major problem. Other environmental problems in the storage facility exist. Routine or cyclical housekeeping of the storage facilities is not currently budgeted, nor has an Integrated Pest Management (IPM) system been implemented. Pests have been and continue to be a problem in both the storage facilities and in visitor center exhibits. For example, in 1990 numerous bird and mammal skins were deaccessioned and discarded due to insect damage in the storage facility. The present storage space is essentially full. If collections continue to be made, then additional storage space outside the SEUG headquarters building will need to be obtained.

6. Exhibits

In 1990 the SEUG seasonal curator monitored and inventoried the permanent exhibits in the Arches Visitor Center and determined that exhibits are not all up to NPS standards. Steps were taken to correct deficiencies, but considerable work is necessary. For example, an Integrated Pest Management system is not in place. Housekeeping and disaster management plans have not been

formulated. In addition, the exhibits are out-of-date and need improvements.

7. Museum Personnel

From 1991 to March of 1993, a temporary museum curator was employed using Regional Cultural Cyclical funds and Catalog Backlog funds. The curator was able to input accession and catalog records of objects stored at the SEUG storage area into the Automated National Catalog System (ANCS). Most of the catalog backlog of objects collected prior to 1986 was cataloged.

From 1992 to 1995, a part-time, temporary archivist was employed to prepare finding-aids for archival collections. With these two museum professionals on staff, significant improvements in collection management were made.

In 1996, soft money for curatorial positions was unavailable and the SEUG did not allocate base funds for curation; consequently, curatorial responsibilities were transferred to the SEUG archaeologist.

In 1997, a permanent curator was hired using base funds. The funding of a permanent staff member should result in improved collection management.

I. Management Objectives for Collections

The primary objective is manage collections according to directives in the NPS Museum Handbook, NPS-28, the American Association of Museums, and other approved museum guidelines and directives.

J. Overview of Cultural Resource Management Program and Needs

The overriding goal of the cultural resource management program is to preserve and protect cultural resources while allowing the public to access and enjoy them. This goal is partly met by following the Secretary of the Interior's directives for federal archaeology programs, NPS policies, as well as other federal laws and mandates. Specific components of the cultural resource program which are designed to meet this goal are described below.

1. Site Physical Protection

With increasing visitor impacts, sites need increasing physical protection. There are currently three main program components to ensure sites are physically protected: stabilization, ARPA ranger site patrols, installing physical protection devices.

a) Stabilization and Monitoring Program

With Cultural Cyclical funding routine housekeeping and maintenance on previously stabilized structures and sites was performed from 1990 through 1997. In the absence of cyclical soft money, monitoring and stabilization and maintenance will be performed by the SEUG archaeologist as a third priority after ensuring that compliance and collection management is completed.

b) Archaeological Resources Protection Ranger Patrols

Law enforcement rangers can patrol the Class I and II disclosure sites in the park and create a physical presence that will aid in long-term site preservation.

c) Physical Protection

In certain sites, signs, barricades, register boxes need to be installed, and site brochures need to be written about specific sites to prevent vandalism and to improve public knowledge of cultural resources. In 1996, wayside exhibits were installed at the Wolfe Ranch and the Moab Panel. Fences were erected at the Ute Rock Art Panel at Wolfe Ranch. These devices should help reduce graffiti and protect the sites. Surveillance equipment may also be appropriate at vulnerable sites.

2. Site Indirect Protection

Sites and districts are indirectly protected by a disclosure policy and through nomination to the National Register of Historic Places. The disclosure policy is annually reviewed and updated to ensure that only sites receiving direct physical protection are promoted to the public.

Public education may also be considered an indirect protective measure. In 1995 and 1996, the environmental education program for the park educated children about site etiquette at the Wolfe Ranch and Ute Rock Art panel. In addition, the archaeologist and interpreters routinely give lectures and presentations about site protection and cultural resources.

a) Site Disclosure Policy

In compliance with section 304 of the National Historic Preservation Act, sites in the park are indirectly protected by the selective disclosure of site locational information. The disclosure policy is articulated in a Superintendents Directive. The site disclosure policy establishes three classes of sites based on their ability to withstand visitor impacts (due to the sites themselves, active physical protection, indirect protective mechanisms, and on visitors demands to access the sites).

Sites which have a long history of tourist use, are marked on USGS topographic maps, are described in widely available guide books, and are generally known to visitors, are actively promoted as tourist destinations. These highly visited and promoted sites are called Class I sites. Since they receive the greatest impacts from visitors, they receive the greatest direct physical protection to minimize visitor impacts. Thus the site disclosure policy is directly linked to the site physical protection program of the park. Class II sites are more fragile and vulnerable to visitor impacts than Class I sites, but they are also well-known to visitors. Visitors may request information about how to find Class II sites, but in addition to receiving locational information, visitors are told how to behave when visiting the sites. Class III sites are the most vulnerable sites in the park.

Their locations are withheld from the public to ensure their preservation and protection, as mandated in the National Historic Preservation Act and the Archaeological Resources Protection Act.

Locational information about Class III sites is only given out to individuals holding current, valid Archaeological Resources Protection Act permits.

While visitors are not told where Class III sites are located, visitors are welcome to discover them on their own, based on the enabling legislation for the park. In recognition of the damage visitors inflict on Class III sites, these sites are regularly monitored and patrolled. Some of them are also stabilized.

In summary, the adoption of this site disclosure management policy allows the park to balance demands of visitors to access cultural sites, with mandates to preserve, protect sites. The site disclosure policy also relates to other programs of direct and indirect physical protection. As explained above, the Class I sites receive the greatest visitor impacts, it is necessary to direct more managerial resources to the Class I sites to minimize and mitigate visitor damage. Class II and III sites are also impacted by visitors; therefore, they receive direct physical

protection to minimize and mitigate visitor impacts.

b) Site Indirect Protection Through Nomination and Recognition

Sites receive indirect protection through nomination to the National Register of Historic Places. While nomination does not directly protect a site or district, it does allow the public, the State Historic Preservation Office and the Advisory Council on Historic Preservation the opportunity to comment on Park Service undertakings which have the potential to impact National Register sites. Nomination to the register also results in indirect protection since it forces park staff to recognize the public's interest in preserving and protecting sites and districts. For more information about the National Register, see the following sections.

c. Public Education and Participation

As mandated by the Archaeological Resources Protection Act, and in the Secretary of the Interior's Strategy for Federal Archaeology, NPS must ensure participation by citizens and organizations having interests in historic preservation. NPS must foster awareness and appreciation of cultural resources, and must educate the public about the importance of protecting and preserving those resources.

Public education and participation is encouraged by working with amateur archaeologists (Utah Statewide Archaeological Society) and the general public, speaking to schools about cultural resources and preservation, training seasonal interpreters and law enforcement personnel, and speaking to commercial tour guides. The archaeologist and curator sponsor activities during the annual Utah Prehistory Week, and they work closely with local museums. Interpretive exhibits about archaeology and history are present in the visitor center. A brochure about preservation and protection of cultural resources is given out in the visitor centers when backcountry permits are issued. Signs telling visitors about the fragility of cultural resources are posted at the trailheads leading into Horseshoe Canyon and the Salt Creek Archaeological District.

4. National Historic Preservation Act (NHPA) and National Environmental Policy Act (NEPA) Compliance

In compliance with section 106 of the National Historic Preservation Act, when undertakings are planned, the areas are inventoried for cultural resources and the appropriate reports and documentation are submitted to the State Historic Preservation Office, the Advisory Council on Historic Preservation, and the public for their comments and concurrence. Additional compliance

inventories and report writing, such as environmental assessments and environmental impact statements, are performed in compliance with NEPA.

To be in full compliance with NHPA, NEPA, and other federal mandates, a complete, intensive inventory needs to be performed so Canyonlands can fulfill its legal mandates to evaluate and nominate cultural resources for the National Register of Historic Places. Nomination of sites and districts to the register is a form on indirect protection since the State Historic Preservation Office, the Advisory Council on Historic Preservation and the public must be allowed to comment on any action which would impair a National Register eligible property.

5. Collection Management

A curator is responsible for managing park collections according to directives in the NPS Museum Handbook, in NPS-28, and other approved guidelines and directives. A major responsibility of the curator is completing accession and catalog records for these objects.

The curator and archaeologist are responsible for the writing of annual reports for WASO and RMR including: inventory report, curatorial work plan, collection management report, catalog record submission, collection backlog report, museum preservation and protection program fund request. The curator maintains loans, updates Scope of Collection Statement, and ensures accountability for museum objects and collections on an on-going basis.

6. Museum Storage Facility Preservation and Protection

Significant improvements have been made in transferring collections from temporary storage in Arches, to the headquarters building of SEUG; however, the storage room has problems with humidity, security, pests, etc. A collection storage plan is needed, along with a housekeeping plan and IPM plan.

7. Native American Consultation

In compliance with the Native American Religious Freedom Act, the Native American Graves Protection and Repatriation Act, the National Historic Preservation Act, NPS must consult with Native American traditional religious leaders to develop and implement policies and procedures that will aid in determining how to protect and preserve Native American cultural and spiritual traditions. NPS must also assure Indian tribes that undertakings

and policy do not impact properties of traditional religious or cultural importance. Consultation about Native American human remains and associated grave goods is also mandated. Inventories of human remains and grave goods have already been completed, so compliance with NAGPRA is already in progress.

8. Interagency Cooperation and Information Exchange

The Secretary of the Interior's Strategy for Federal Archaeology requires that archaeological information be exchanged at national, state and local levels. Local interagency meetings are held regularly to discuss common management problems and solutions. When funding permits, cultural resource personnel attend national, state, and local professional meetings to ensure information exchange and to remain current in their specialized fields. For example, cultural resource meetings attended in the past include the Utah Professional Archaeology Council meetings, the Society for American Archaeology meetings, Utah Preservation Consortium meetings, American Rock Art Research Association meeting, Utah Rock Art Conservation Working Group meetings, etc.

9. CSI and Object Documentation

a) Cultural Resource Reports

While the cultural resource reports about the park that are on file have not been entered in the CRBIB system, the reports are listed in a computerized database file. Copies of the major cultural resources reports are currently on file in the park, although a more complete library of the management reports and articles on the archaeology of the park should be placed in the park files. By making available more literature on archaeology and cultural resources, interpreters would be better able to present up-to-date programs about the human history and prehistory of the park.

b) Site Files

Site records are maintained in the Resource Management Office of the SEUG. Cultural resource site files are incomplete. A critical need is to improve existing cultural resource site documentation and with the improved documentation, assess the significance of cultural properties for the National Register of Historic Places. Improved documentation involves recording known archaeological sites on the currently used IMACs site forms, updating topographic maps and the CSI, submitting the site records to MWAC and the Utah SHPO, photodocumenting sites, etc.

c) Correcting Catalog Records

Another aspect of improving cultural resource site documentation is the need for scientific analysis of existing collections from the park. Ceramics from the collections have been identified and typed, but a full lithic analysis is needed. Only with such improved documentation can resources of the park be appropriately managed and interpreted to the public.

10. Cultural Resources Personnel

Presently, the only permanent cultural resources staff member is a GS-11 archaeologist. This person, along with ~~the~~ Chief Ranger, is responsible for the cultural resources management program of Arches.

From 1990 through 1996, cultural cyclical funds have been used to pay for monitoring and maintenance of selected cultural sites in the park. This is part of the direct protection of cultural resources program described above. In the absence of soft money funding to hire a seasonal to monitor and maintain sites, the condition of park resources will decline.

Since 1990 through March of 1993 catalog backlog and cultural cyclical funds were used to fund a curator. The curator brought most of the collections up to American Association of Museum and NPS Museum Handbook standards. Catalog backlog funds were also used to hire a half-time archivist. The funding for this position ended in 1996 and work on park archives and collection management ceased until 1997 when the curatorial position for SEUG was filled.

With the hiring of a permanent curator, the greatest need in collection management is the preparation of a collection management plan. This plan will give guidance and direction to the park's collection management program.

The next greatest need is for improved inventory and documentation of cultural sites in the park. With so few acres intensively inventoried, the park has a difficult time managing its cultural resources.

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