RESOURCE MANAGEMENT PLAN

Canyonlands National Park, Utah

Recommended by: _____
Superintendent — Date

Approved by: _____ 12/28/94
for Regional Director — Date

To the Reader:

The project statements contained in this plan are reviewed annually, which may result in revisions and updates. It is also possible that new project statements may be added periodically as needed, or deleted upon completion of a project. Such changes will alter the summary data found in Table 2 and in Programming Sheets 1 and 2. In addition, any changes in park staffing or resource management work distribution will be reflected in Table 1. If current information is required regarding project statements or Table 1 (NPS Resource Personnel), please contact the park directly.

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I. EXECUTIVE SUMMARY

This resource management plan (RMP) identifies specific issues or problems affecting preservation and protection of natural and cultural resources within the boundaries of Canyonlands National Park. Solutions to identified problems are proposed. Many of the problems and their resolutions may seem trivial when compared to greater regional issues affecting the park, such as ever-increasing particulates obscuring the once-pristine air and threatening both natural and cultural resources in the park; changes in the Green and Colorado rivers due to growth of tamarisk and alteration of river flows; and invasion of exotic species. While these regional issues have a major impact on park resources, they are beyond National Park Service control and cannot be resolved with an in-house planning document such as this resource management plan.

For issues within National Park Service control, the single most critical issue affecting preservation and protection of cultural resources in Canyonlands is the rapid rate visitors are damaging sites. Visitor behavior must be altered dramatically within the next few years or the park's sites will be stripped of their artifacts. Likewise, graffiti at rock art and other cultural sites must be stopped. Solutions to these and other problems affecting cultural resources are proposed in this resource management plan.

Visitors also pose major challenges to the preservation and conservation of natural resources of the park. As with cultural resources, part of the solution lies in teaching visitors how to have minimum impacts on the fragile desert ecosystem. In addition to proposals for increased visitor education, this management plan identifies solutions designed to fulfill the National Park Service's mandates to preserve, protect and conserve both natural and cultural resources of Canyonlands National Park.

II. INTRODUCTION

A. Resource Management Plan Purpose

The purpose of this resource management plan is to provide park staff with a working guide for specific issues and problems managing natural and cultural resources within the park. The plan identifies the present status or condition of resources in the park, describes cultural and natural resource management programs currently operating and identifies management actions that are needed to preserve, protect and conserve cultural and natural resources.

This resource management plan's audience is largely intended to be Canyonlands and Rocky Mountain Region National Park Service staff. For them, the most important part of the plan is the Project Statements. These statements are the detailed components (and budget estimates) for specific actions or programs planned by the Resource Management Division of the park. These statements, as well as the narrative that follows, describe specific actions that should be taken to fulfill NPS's mandates to preserve and protect park resources.

This plan is only one component in the planning program of the park. It complements the General Management Plan, Backcountry Management Plan, River Management Plan, Statement for Management and other park planning documents.

B. Purpose for Which Canyonlands was Established and Mandate for Resource Protection

Efforts to turn Utah's canyon country into a national park began about 1935 when Secretary of the Interior Harold Ickes proposed setting aside 7,000 square miles of southeast Utah as Escalante National Monument. This effort was doomed by opposition from state commercial interests and the demands of World War II (Smith 1991), but with the rise of the conservation movement in the 1960s, Senator Frank Moss, Secretary of the Interior Stewart Udall and locals such as Kent Frost took up the battle to preserve the "still untouched" canyon country near the confluence of the Green and Colorado Rivers. Their efforts resulted in congress and President Lyndon B. Johnson setting aside Canyonlands National Park on September 12, 1964. As stated in Public Law 88-590, Canyonlands was established in 1964 "...to preserve an area in the State of Utah possessing superlative scenic, scientific, and archeological features for the inspiration, benefit, and use of the public...". This is the overriding legal mandate which guides the resource management program of the park today.

C. Resource Management Program Objectives

Based on Public Law 88-590, as well as on the various mandates and policies of the National Park Service (NPS), the overriding objective of the Resource Management Division of Canyonlands is to preserve, protect and conserve natural and cultural resources of the park and to comply with Federal laws and mandates such as the National Environmental Policy Act, the National Historic Preservation Act, the Threatened and Endangered Species Act, the Archaeological Resources Protection Act, the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, and various NPS policies. These mandates and policies dictate the specific program components and management objectives for the resource management program. The following sections list some of the more important objectives for the natural and cultural resource management programs. Since museum and archival collections include both cultural and natural resources, objectives for collection management are listed separately.

1. Management Objectives for Natural Resources

Management objectives for the natural resource branch of the Resource Management Division of the park are to preserve and protect the Canyonlands desert ecosystem, including plants, animals, soil, air quality, water, quiet, Quaternary and paleontological resources, etc. Some of the specific management objectives for the natural resource program are listed below in Table 1.

Table 1. Management Objectives for Natural Resources.

- Minimize visitor impacts on natural resources of the park.
- Protect the desert ecosystem (including rare, threatened, endangered and endemic species as well as pristine, disjunct and uncommon plant communities).
- Encourage applied research in ecosystem processes and natural resources within the park.
- Provide the interpretive staff with information about ecological processes occurring within the park.
- Restore natural condition of lands and plant communities altered by human activities, but with consideration for information on their historic values.
- Control exotic species by feasible, approved control methods wherever natural communities are threatened or where control

methods are likely to be successful and with consideration for cultural landscape values.

•Fence out trespass livestock.

•Protect the air quality of the park.

•Protect surface aquatic resources in the park such as streams, seeps, springs and potholes. Protect the underground aquifer from pollution or drawdown so the natural surface waters are not altered.

•Provide for the continued inventory and monitoring of major natural resources (vegetation, wildlife, soils, clean air, water, etc.), so management practices can be modified promptly to reverse and mitigate adverse impacts to those resources.

•Identify Quaternary and paleontological resources of the park. Particularly, 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.

2. Management Objectives for Collections of Natural and Cultural Objects

Since museum objects and collections from the park include both natural and cultural objects, collections management involves both natural and cultural resource branches of the Resource Management Division of the park.

The overriding objective in collection management is to meet NPS Museum Handbook standards and conserve the diverse natural and cultural resources collected from the park. The best way to achieve this objective is to base fund a permanent, professional curator who has the knowledge and skills to ensure proper care and curation of museum and archival collections. Based on the anticipated, long-term need, this position would be part-time, but permanent. Some of the more important objectives of the collections management program are listed in Table 2.

Table 2. Management Objectives for Collections.

•Fund a permanent curator to maintain accountability and ensure curatorial standards are met for museum and archival collections.

•Contract for qualified specialists to examine, identify and catalog objects in existing collections. For example, prehistoric ceramics need to be microscopically identified by specialists in Southwest ceramic typology, and lithics need to be properly typed as well. Natural specimens such as snakes, birds, plants, etc., need to be identified to the finest taxonomic level possible, preferably species or subspecies, and then properly cataloged and curated.

•Establish an historic photographic archive for Canyonlands. The few cataloged historic photographs should be carefully evaluated, appropriate preservation steps such as storage in acid-free folders should be taken, and a search should be made to augment the existing photo collection, specifically, historic photos of the river corridors and vegetation associations should be obtained.

•Locate all off-site collections. Assess whether off-site collections should be brought together in a single repository meeting Federal curation standards.

•Establish an archive with finding aid. Search for relevant archival documents within the park and in outside repositories and private collection; then prepare a finding aid and ensure appropriate curation of the archive. Encourage historians to use the archive when it is complete. Prepare administrative and legislative histories based on the archives.

•Reduce the backlog of uncataloged archival, natural and cultural objects.

•Bring all accession and loan files up to date. Work with natural resource specialists and researchers to ensure accountability for on-going natural resource collections and projects.

•Work with Interpretive Division to ensure that exhibit specimens receive appropriate care.

•Maintain museum records. Update or prepare all museum planning documents such as the Scope of Collection Statement, Collection Management Plan, Integrated Pest Management Plan, etc.

•Monitor and maintain collection environments. Ensure appropriate security standards for collections. Work on Integrated Pest Management plan for storage and exhibit areas.

3. Management Objectives for Cultural Resources

Objectives for cultural resource management are to preserve, conserve and protect cultural resources of the park, while allowing present and future generations to enjoy their cultural heritage, as stated in the enabling legislation for the park and in the NPS Organic Act of 1916. Within this broad objective, specific components of the cultural resource management program are determined by Federal laws and Department of the Interior and National Park Service policies. These mandates and policies require program components in specific areas such as public education and participation, direct and indirect protection of sites, interagency cooperation, etc. Some of the more important management objectives for the cultural resource management program are listed below in Table 3.

Table 3. Management Objectives for Cultural Resources.

•Comply with the National Historic Preservation Act by ensuring all licensed or approved undertakings take into account the effects of the undertaking on properties included in or eligible for the National Register of Historic Places, and prior to approval of an undertaking, afford the Advisory Council on Historic Preservation and the Utah State Historic Preservation Officer an opportunity to comment on the undertaking.

•Intensively inventory the park and document, assess and evaluate its historic, prehistoric and ethnographic cultural resources as mandated by Executive Order 11593, the National Historic Preservation Act, the Historic Sites Act, NPS-28.

•Indirectly protect significant cultural resources through nomination of sites and districts to the National Register of Historic Places, as mandated by the National Historic Preservation Act.

•Indirectly protect internationally significant cultural resources through nomination to the UNESCO world-heritage list. In particular, evaluate the benefits and drawbacks of nominating Horseshoe Canyon rock art sites to world-heritage status.

•Indirectly protect cultural resources of the park through maintaining and updating the site disclosure policy, (a

Superintendent's Directive) in compliance with section 304 of the National Historic Preservation Act, as amended in 1992.

•Physically protect sites and districts by having a trained, uniformed, Archeological Resources Protection Act (ARPA) patrol rangers.

•Physically protect sites by installing physical protection devices that serve as a proxy for patrol rangers, e.g. signs, barriers, register boxes, etc.

•Physically protect sites by performing regular stabilization and maintenance on the stabilized sites in the park, and expand the number of stabilized sites to protect sites from the increasing impacts of visitors.

•Coordinate management of cultural resources within the park with other Federal and state land managing agencies, and regularly exchange information between agencies as directed by the Secretary of the Interior's Federal Strategy for Federal Archaeology.

•Ensure preservation of cultural resources through visitor education and through expansion and improvement of the interpretation of cultural resources in the park. The interpretive program should teach visitors how to behave when visiting non-renewable cultural resources. The interpretive program should also teach visitors why cultural resources are worth preserving and protecting.

•Consult Native Americans and other park-associated communities and ensure their involvement in management decisions for sites or properties which may have traditional, religious, sacred or cultural importance, as mandated by the National Historic Preservation Act, the Native American Religious Freedom Act, the Native American Graves Protection and Repatriation Act, etc.

•Prepare a Memorandum of Agreement with pertinent Native American tribes about discovery situations under NAGPRA.

•Encourage public participation in historic preservation programs.

In summary, the preceding sections have listed some of the more important management objectives of the resource management program of the park. Resources of the park are briefly described in the following section.

III. PRESENT RESOURCE STATUS

A. The Setting

1. Park Districts

Canyonlands National Park has been expanded since it was originally established in 1964 to its present size of 337,370 acres centered around the confluence of the Green and Colorado Rivers. The rivers divide the park into three geographical districts: the Island in the Sky District is the triangle of land between the two rivers, the Needles District lies east of the Colorado River and the Maze District lies to the west of the Green River. Horseshoe Canyon Detached Unit is managed as part of the Maze District since it also lies west of the Green River. In addition, the Green and Colorado River corridors are managed as a separate River District of the park. In summary, the park is divided into the Island in the Sky, Maze, Needles and River districts. While these are administrative districts, they do have limited correspondence with the distribution of resources in the park.

2. Regional Setting and Tourism

The park lies within Grand, Garfield, San Juan and Wayne Counties of southeastern Utah. These counties, as well as local governments and the Utah Travel Council, all actively promote tourism to Canyonlands, as well as to adjacent federal and state lands including Arches National Park, Natural Bridges National Monument, Glen Canyon National Recreation Area, Dead Horse Point State Park, the Moab and Richfield Districts of the Bureau of Land Management and the Manti-La Sal National Forest. The location of the park within this regional complex of public lands is one of the most important aspects determining its visitation pattern, as well as its resource management problems and programs.

The greatest problem for the Resource Management Division of the park is to try to minimize visitors' impacts on park natural and cultural resources. Park visitation has risen dramatically over the last decade. In 1980, less than 60,000 people visited Canyonlands, but by 1985 there were almost 125,000 visitors. The number of visitors reached 342,710 in 1991, 388,122 in 1992 and rose to 434,844 in 1993.

The number of visitors is unevenly distributed within the districts of the park, partly due to access, partly due to visitor interest. The number of visitors to the River District is highly controlled by a permit system. In 1993 11,075 visitors were issued river permits. The Maze District has the next lowest number of visitors,

with 9,353 in 1993. Some 178,171 people visited the Needles and 236,245 visited the Island in 1993. A Backcountry Management Plan, which is currently in preparation, should help regulate visitor numbers and allocate visitor impacts to those zones of the park most capable of withstanding high use.

Visitation to the park is determined in large part by the distribution of paved highways and access roads. The main access road for the Island in the Sky and Needles Districts on the east side of Canyonlands is U.S. Highway 191 which runs north-south between Interstate-70 and U.S. Highways 163 or 160. The main access roads for the Maze District are Utah Highways 24 and 95. Gateway communities for Canyonlands include Green River, Moab, Monticello, Blanding and Hanksville, Utah. The Moab airport is the largest local airport, with regularly scheduled flights to the international airport in Salt Lake City, Utah.

B. Natural Resource Baseline Information and Current Conditions

The following section discusses the current status of baseline information in reference to how it meets NPS-75, the National Park Service Inventory and Monitoring Guideline. NPS-75 outlines minimum standards for inventory and monitoring of natural resources. These minimum requirements are summarized in Table 4, along with a notation as to whether Canyonlands National Park meets, exceeds or does not meet the requirement. The requirements are discussed in further detail below.

Table 4. Summary Table of Natural Resource Baseline Information. Does not meet, meets or exceeds the recommended minimal set of natural resource information in Appendix A of NPS-75.

INVENTORY COMPONENTS	DOES NOT MEET	MEETS	EXCEEDS
1. Historical Data Base	X		
2. Species Information			
a. Species Lists		X	
b. Biologic Surveys	X		
c. Species Distribution	X		
3. Digital Vegetation Maps	X		
4. Digital Cartographic Maps		X	
5. Digital Soils Map	X		
6. Digital Geology Map	X		
7. Water Resource Inventory	X		
8. Water Quality Data		X	
9. Air Quality Stations	X		
10. Air Quality Data			X
11. Precip./Meteorological Data		X	

1. Historical Record Database

The park needs to compile collections of historic scientific material being stored in the park, including rare event records, maps, photographs, manuscripts, specimen collections, etc. An archivist has begun work on Canyonlands' archives, but this work has not been completed. This task is being coordinated through the Cultural Resources Branch of the division.

An automated bibliography of all descriptive documents and scientific studies pertaining to park natural resources also needs to be compiled. An extended search for published and unpublished documents outside the park should be made, and procedures for maintaining currency of the database should be established. Canyonlands currently has very few articles entered into any kind

of database and no standards for ensuring that this work is done. The National Park Service has selected PROCITE as the standard database for creating automated bibliographies. Canyonlands needs to compile its natural resource bibliography and incorporate it into the PROCITE program.

2. Species Information

Canyonlands has 536 vascular plant species, subspecies or varieties entered into a dBase III+ database. This list is a compilation of herbarium specimen records, observations of park staff and research reports. Many of the herbarium specimens have been verified by Dr. Stanley Welsh of Brigham Young University. Not all specimens have been verified, however, and it is likely that some are in error. No comprehensive survey for additional plant species has been conducted, and there are species that grow in seasons of the year or habitats that have likely been missed. It would be desirable to conduct a comprehensive survey to verify existing records and complete the vascular plant list.

Twenty-seven vegetation transects representing 13 vegetation series, following the Brown, Lowe and Pase (1979) vegetation classification scheme, are sampled annually. Hanging gardens and relict communities, such as Douglas Fir and Aspen are not sampled. It would be desirable to add hanging gardens to the monitoring program if an adequate sampling scheme could be developed.

Canyonlands has no federally or state listed threatened or endangered plant species. It has only one Category 2 species, the alcove bog-orchid (Habenaria zothecina). It is in the range of the C2 alcove rock daisy (Pertityle specuicola), but the species has not been found in the park. Additionally, there are nine Category 3 species, plus one species which appears to have been extirpated, Thompson's peteria (Peteria thompsoniae). Between 1989 and 1991, a survey for rare plants was conducted by Dr. Ken Heil of San Juan College. The above species, as well as six additional rare taxa, were searched for and populations mapped. This information has been digitized into the park's GIS database. The C3 Jane globemallow (Sphaeralcea janeae) was monitored for the duration of Ken Heil's project, but follow-up monitoring has not been continued.

Canyonlands also has a database listing vertebrate species, including 6 amphibian, 207 bird, 28 fish, 54 mammal and 17 reptile species. Like the plant list, this list is not completely up-to-date and accurate. It would also be desirable to conduct comprehensive inventories for vertebrate species in the park. Dr. Michael Bogan of the National Biological Survey, has begun this work for mammals. Current research investigations are gathering information on both aquatic and terrestrial invertebrate species as well.

Small mammals were monitored in the park from 1987 to 1993. Desert bighorn sheep are monitored through an NRPP initiative. Peregrines have been monitored along the river, as funding has allowed. Neotropical migratory birds have been monitored at 27 sites in the park. One Breeding Bird Survey and one point-count survey continue to be conducted annually.

The park has five federally listed endangered species: peregrine falcon (Falco peregrinus), Colorado squawfish (Ptychocheilus lucius), razorback sucker (Xyrauchen texanus), humpback chub (Gila cypha) and bonytail chub (Gila elegans). The bald eagle (Haliaeetus leucocephalus) has recently been delisted as endangered and converted to threatened status. Two other species in the park which are listed as threatened are the Mexican spotted owl (Strix occidentalis lucida) and the southwestern willow flycatcher (Empidonax trailii extimus). In addition, there are nine vertebrate species in the park listed by the State of Utah as sensitive. Inventories for the Mexican spotted owl and the southwestern willow flycatcher have yet to be conducted. Some monitoring for peregrine falcons and bald eagles has been done, but more thorough and regular surveys are needed. The National Park Service is working with other agencies, such as the U.S. Fish and Wildlife Service, to study the endangered fishes, but there is much more work that can be done. See project statement CANY-N-018 for more information on this topic.

3. Digital Vegetation Maps

A vegetation map for Canyonlands was made by Walter Loope in the 1970s. This map is outdated and not fully accurate. It has not been digitized, but should be until we can create a more accurate map to replace it. The park needs to acquire aerial photographs covering the entire park to use in making a better vegetation map. Ground-truthing will be required as well. It could cost anywhere between $50,000 and $100,000 to create and digitize an accurate vegetation map for Canyonlands National Park.

4. Digital Cartographic Data

The park has acquired hardware for a GIS, is continuing to acquire software and has recently hired a full-time GIS specialist to handle the GIS program. Cartographic data including digital elevation models/digital line graphs consisting of hydrography, hypsography, boundaries and transportation have been entered into the GIS.

5. Digital Soils Map

The park does not have a digitized soils map. The area was mapped by the Soil Conservation Service in 1980, and Soil Survey of Canyonlands Area, Utah, Parts of Grand and San Juan Counties was published in 1991. This information needs to be digitized. It is likely that some of this information should be further ground-truthed and accuracy improved in the future.

6. Digital Geology Map

Geological information is available to the park, but this information has only partially been digitized. Along with the soils map, the geologic map will be digitized by the GIS Specialist in the near future.

7. Water Resources Inventory

The park does have an inventory of major springs, seeps, streams and rivers. There are numerous smaller seeps and potholes in the park, which have not been inventoried. This information would be valuable for the management of wildlife, particularly the bighorn sheep. A more comprehensive inventory of water sources is needed. All of this information will need to be digitized into the GIS as well.

8. Water Chemistry

Since 1983 water chemistry samples have been collected in the park at many springs and in the rivers. There are nine sites along the rivers which have been sampled at least four times per year. There are 50 spring sites that have been sampled. Between 1987 and 1992, 35-45 were sampled at least twice a year. There are 10-15 sites which continue to be sampled at least twice a year. For several years, park staff did their own nutrient analyses using Hach kits and a Bausch and Lomb spectrophotometer. Since 1990 the Utah Department of Environmental Quality has analyzed both river and spring samples for nutrients and metals. Water chemistry data, including temperature, Ph, conductivity, dissolved oxygen and oxygen reduction potential, have always been taken with a Hydrolab unit. These data are currently being analyzed by the Water Resources Division, and the park will soon acquire the Water Quality Database Management System for future analyses. The park has not yet determined an adequate method to measure flow rates at the springs and seeps. E. coli is monitored at the same time water samples are taken at most springs. The park is currently developing methods for rapid bioassessment of macroinvertebrates in both springs and rivers through a contracted researcher.

9. Air Quality

Canyonlands is classified as a Class I airshed under the Clean Air Act of 1989. The park has been monitoring air quality since 1978. An IMPROVE Sampler, an automatic camera and a transmissometer are located on the mesa top at the Island in the Sky. Ozone, sulfur dioxide and meteorology are also monitored. Visibility in the park is excellent, although it is sometimes degraded by fires or activities of the power generating stations in Farmington, New Mexico and Page, Arizona. See project statement CANY-N-011 for more information on this topic.

10. Precipitation and Meteorological Data

Relative humidity and wind speed and direction are measured at the air quality station at the Island in the Sky. Both the Island in the Sky and Needles Districts have meteorological stations which record precipitation, minimum and maximum temperatures daily. A third station records precipitation and temperatures at the Hans Flat Ranger Station in Glen Canyon National Recreation Area west of the park.

C. Current Natural Resource Conditions

1. Geology and Physiography

From prehistoric Native Americans searching for chert outcrops, through geological investigations of John Wesley Powell and other turn-of-the-century explorers, to uranium miners of the 1950s, the geologic resources of Canyonlands have been of major interest and importance. As a result of these explorers, miners and recreationists, geological publications on the park are widely available (Baars and Molenaar 1971; Huntoon, Billingsley and Breed 1982; Mutschler 1969) and the geological resources of the park are well-known.

For park visitors, probably the two most important geological features of the park are the uniquely banded red and white sandstone of the Cedar Mesa formation (exposed in the Needles and Maze Districts) and the White Rim Sandstone exposed in the Island in the Sky District.

Physiographically, the most important features of the park for visitors are the deep canyons cut by the Green and Colorado Rivers and their tributaries. The park's name, Canyonlands, is derived from the physiographer's term Canyon Lands, which is defined as the province south of the Uinta Basin and between the High Plateaus on the west and the Rocky Mountains to the east. As explained by Stockes (1988:241), the park lies at the rugged heart of the Canyon Lands section of the Colorado Plateaus physiographic province in

southeast Utah. The park is characterized by sedimentary rock which has been deformed by anticlines, synclines and monoclines. Uplift of the Colorado Plateau and concurrent erosion have produced the extensive, deep canyon systems which are the defining physiographic feature of the park and of the physiographic section (Lammers 1991).

The condition of the geologic and physiographic resources are stable. Some localized damage to geologic resources may be occurring due to recreational rock climbing. Fewer than 300 climbing permits are issued each year and the activity is not increasing. No new fixed anchors are being allowed. This should ensure the protection of the geologic resources over time. No other threats to geologic resources have been identified.

The only threat to physiographic resources conceivable at this time would be possible subsidence of surface areas due to removal of petroleum deposits or solution mining of potash. No subsidence has been known to occur in the Moab area due to human activities. Solution mining occurs six miles northeast of the park but does not threaten the park. The nearest oil well is located three miles north of the park. No subsidence has been identified with any oil wells in this region.

2. Soils

The entire Canyon Lands physiographic section is characterized by bare rock surfaces with sparse soil and vegetation (Stockes 1988:241). This makes soil, where it occurs, a major natural resource. The Soil Conservation Service (Lammers 1991) published a soil survey and maps containing information that can be used in land management and land-planning programs in Canyonlands. As explained by Lammers (1991:1), the soils in the park vary widely in their characteristics, but most soils in the park are dry and hot.

The condition of soils in the park are stable overall. There is an improvement in the condition of soils due to the cessation of grazing in the park. Trespass grazing still occurs in places and this may have a localized deleterious effect on soil resources. The main threat to soil resources are likely to be from increases in visitation, particularly from backcountry travelers and illegal off road travel by vehicles, including mountain bikers. The new backcountry management plan should help stabilize and perhaps improve the condition of soil resources.

3. Climate

Canyonlands' climate, like all of Utah's climate (Ruffner 1985), is determined by its distance from the equator, its elevation above sea level, its location relative to storm paths over the

Intermountain West and its distance from the principal moisture sources, the Pacific Ocean and the Gulf of Mexico.

Temperatures in the park vary with altitude and latitude (Brough, Jones and Stevens 1987). In Needles at an elevation of 5,040 feet for the years 1965-1986, the annual high was 107° F, the low was -16° F, the normal maximum temperature was 68.3° F, the normal minimum was 37.8° F. The monthly maximum amount of precipitation was 4.43 inches in October 1972, and the average annual precipitation was 8.62 inches. The greatest amount of precipitation in a 24 hour period was 1.12 inches in October 1986.

In the Island in the Sky at an elevation of 5,930 feet for the years 1965-1986, the record high temperature was 102° F in July 1971, the record low was -8° F in December 1978. The normal maximum temperature was 64.1° F, and the minimum normal temperature was 42.2° F. The monthly maximum precipitation was 5.02 inches in October 1972, and the normal annual precipitation was 9.27 inches. The greatest precipitation in a 24 hour period was 1.76 inches in April 1978 (Brough, Jones and Stevens 1987).

Climatic resources are stable to slightly changing, but the reasons and scope of those changes are not understood. No local threats to climatic resources are known to occur. Climatic changes are global in extent and are not well understood. Some climatic changes are natural; others may be anthropogenic. The park does not have the resources to examine climate changes but is willing to cooperate with climate change research should it need to take place in the park.

4. Vegetation

The vegetation of Canyonlands National Park includes the following communities: 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, pinyon pine/ Utah juniper Pinus edulis/ Juniperus osteosperma, snakeweed/ shadscale/ Mormon tea Gutierrezia sarothrae/ Atriplex confertifolia/ Ephedra viridis, greasewood/ four-wing saltbush Sarcobatus vermiculatus/ Atriplex canescens, shadscale/ Garrett saltbush Atriplex confertifolia/ Atriplex garrettii, woodyaster/ galleta Xylorhiza spp./ Hilaria jamesii, bluestar/ woolly-white Amsonia tomentosa/ Hymenopappus filifolius, exotic grassland Bromus tectorum/ Salsola iberica and maidenhair fern/ Jones reedgrass Adiantum capillus-veneris/ Calamagrostis scopulorum. There are also small, isolated Douglas fir Psuedotsuga menziessi communities.

The pinyon-juniper community is the most extensive vegetation type, covering approximately 121,800 acres (48,720 hectares). The saltbush or snakeweed communities are next in coverage accounting for 61,500 acres (36,600 hectares). Blackbrush communities extend over 64,500 acres (25,800 hectares) in the park. Grassland communities account for 3,400 acres (13,600 hectares). The sagebrush community covers 7,600 acres (3000 hectares), while the riparian community encompasses roughly 4,000 acres (1600 hectares). The Douglas-fir relict community encompasses less than 400 acres (160 hectares); the hanging garden community is the smallest vegetal component covering less than 80 acres (30 hectares). Ponderosa pine Pinus ponderosa and quaking aspen Populus tremuloides are present but not extensive enough to be designated as a community types.

The condition of the vegetation resources are stable but locally threatened. Those threats include exotic plant invasions, trespass grazing, recreation and construction. Thirty-seven species of exotic plants have been identified in Canyonlands National Park. The most problematic of these are musk thistle, Russian knapweed, perennial peppergrass, halogeton, Russian thistle, crested wheatgrass, cheatgrass, tamarisk and goathead. In 1994 the last stand of Russian knapweed was treated. Follow-up work will continue, but the eradication of Russian knapweed has been a success. Extensive infestations of halogeton, tamarisk and cheatgrass defy control and have altered areas of native vegetation or have slowed recovery from past grazing. New exotic plants threaten to invade Canyonlands. These include dalmatian toadflax, purple loosestrife, yellow star-thistle and leafy spurge.

Impacts due to trespass grazing can only be alleviated by building fences or, in some cases, developing water sources away from the park. Recreational activities may be impacting some areas of the park, particularly areas where day use is high such as Shafer Canyon and Musselman Arch. Construction activities that impact vegetation are being ameliorated by an intensive revegetation effort.

5. Mammals

Canyonlands is extremely important habitat for desert bighorn sheep Ovis canadensis nelsonii. But in addition to this large mammal, other mammal constituents of the park are the western pipistrel Pipistrellus hesperus, coyote Canus latrans, gray fox Urocyon cinereoargenteus, whitetailed antelope squirrel Ammospermophilus leucurus, Colorado chipmunk Tamias quadrivittatus, canyon mouse Peromyscus crinitus, deer mouse P. maniculatus, pinyon mouse P. truei, desert woodrat Neotoma lepida, porcupine Erethizon dorsatum, blacktailed jackrabbit Lepus californicus, desert cottontail Sylvilagus auduboni and mule deer Odocoilus hemionus.

The condition of mammalian resources at Canyonlands is good overall, but specific information is lacking on most species. Small mammal trapping was done for eight years as part of the long term monitoring program. Information on desert bighorn sheep is the most extensive due to several funding initiatives over the past four years. The desert bighorn sheep population is increasing in the Island in the Sky herd and is very close to carrying capacity. The Needles population, which has suffered from a die-off is slowly recovering. The Maze herd, a transplant population, is slowly spreading out from the transplant site but does not appear to be increasing rapidly. All herds had better than fifty percent lamb:ewe rations in November, 1994 which represents an increasing population.

River otters exist in the park and are frequently seen. Tracks from river otters are common along the river. Information on bats is sketchy and a more complete inventory is needed. Information on other mammals is incomplete and needs to be augmented.

6. Avifauna

Common bird species likely to be found in the park are the turkey vulture Cathartes aura, northern harrier Circus cyaneus, red-tailed hawk Buteo jamaicensis, American kestrel Falco sparverius, mourning dove Zenaidura macroura, great horned owl Bubo virginianus, common nighthawk Chordeiles minor, white-throated swift Aeronautes saxatalis, northern flicker Colaptes auratus, hairy woodpecker Picoides villosus, ash-throated flycatcher Myiarchus cinerascens, horned lark Eremophila alpestris, violet-green swallow Tachycineta thalassina, cliff swallow Hirunda pyrrhonta, scrub jay Aphelocoma coerulescens, pinyon jay Gymnorhinus cyanocephalos, common raven Corvus corax, plain titmouse Parus inornatus, canyon wren Catherpes mexicanus, western bluebird Sialia mexicana, American robin Turdus migratorius, loggerhead shrike Lanius ludovicianus, Bell's vireo Vireo bellii, solitary vireo V. solitarius, gray vireo V. vicinior, black-throated gray warbler Dendroica nigrescens, green-tailed towhee Pipilo chlorurus, rufous-sided towhee P. erythrophthalmus, black-throated sparrow Amphispiza bilineata, dark-eyed junco Junco oreganus, white-crowned sparrow Zonotrichia leucophrys and Brewer's blackbird Euphagus cyanocephalis.

Peregrine falcons are doing well at Canyonlands, reflecting an increase in the population on the Colorado Plateau. In 1989 Canyonlands had five active eyries. Since then there have been another four eyries established. During 1990 and 1991 extensive field work was done to survey likely habitat for peregrines; all the new eyries were reported in the last two years. Reproductive success exceeds that needed to maintain a stable population.

Mexican spotted owls occur in Canyonlands and are probably widespread with reports coming from all districts. It appears that

Mexican spotted owl habitat is common at Canyonlands. No extensive inventory has been undertaken yet, but the park is hopeful that funds will be forthcoming. One Mexican spotted owl researcher is currently working in the Needles District.

Surveys of smaller birds has been done as part of the long term monitoring program for ten years and continues. The park is becoming involved in efforts to monitor neotropical migrants as well as increasing involvement in monitoring of waterfowl and related avifauna as part of the North American waterfowl management plan. One area of concern for the park is the lack of a database for various raptors. This field has been identified as a critical area for monitoring due to the sensitivity of raptors to increasing levels of visitation. The federally listed southwestern willow flycatcher is known to occur in the park; an inventory of this species is needed.

The park has identified the need for a wildlife technician to gather field information on mammals and birds as an important personnel need.

7. Herpetofauna

Common herpetofauna of the park are the red spotted toad Bufo punctatus, Woodhouse toad B. woodhousei, Great Basin spadefoot toad Scaphiopus intermontanus, tiger salamander Ambystoma tigrinum, plateau striped whiptail Cnemidophoras velox, collared lizard Crotaphytus collaris, short-horned lizard Phrynosoma douglassi, sagebrush lizard Sceloporus graciousus, eastern fence lizard S. undulatus, tree lizard Urosaurus ornatu, desert night lizard Xantusia vigilis, side-blotched lizard Uta stansburiana, western whiptail Cnemidophorus tigris, gopher snake Pituophis melanoleucus deserticola, western terrestrial garter snake Thamnophis elegans vagrans and the midget faded rattlesnake Crotalus viridis concolor.

A complete inventory of herptofaunal resources is needed in order to better understand the condition of this resource. Current information is lacking, and the park is concerned about the possible decline in amphibians in particular.

8. Ichthyofauna

Canyonlands has a badly impacted riverine ecosystem and this has led to major reductions in native fish populations. Most researchers working on the Colorado River endangered fishes report less than one percent of fish captured are native fish. There are currently four species of federally listed endangered fish in the park: the Colorado squawfish Ptychocheilus lucius, razorback sucker Xyrauchen texanus, bonytail chub Gila elegans and humpback chub G. cypha. Two other species are under consideration as

candidates for threatened status; this includes the roundtail chub G. robusta and the flannelmouth sucker Catostomus latipinnis. Other native fish species occurring in the park are bluehead sucker C. discobolus, speckled dace Rhinichthys osculus and the white sucker C. commersoni.

In 1993 the US Fish and Wildlife Service identified critical habitat for the four endangered species of Colorado River native fish. This included all of the river mileage of the Green and Colorado Rivers within the boundaries of Canyonlands National Park and represents a significant part of the total remaining critical habitat. The park has only recently begun to participate in the extensive field research on these endangered fish, supporting where possible the research that is occurring in the park. Research into the fish is being conducted by Utah Division of Wildlife Resources, US Fish and Wildlife Service, US Bureau of Reclamation and the Rocky Mountain Regional Endangered Fish Coordinator. The park has identified the need for a Fisheries Biologist as a significant personnel need.

9. Clean Air and Night Sky

Many visitors come to Canyonlands for its magnificent vistas and clear night sky. Without the lights from a metropolitan area and with the relatively clear air, the air of the park is one of its greatest resources. Air quality is also a resource threatened by increasing local and regional development. Moab, the closest town, has extremely poor air quality due to the use of wood-burning fuel in the winter. Coal-burning power plants such as the one in Huntington, Utah, also impair the air quality of the park. These sources of pollution cannot be regulated by NPS, despite their adverse impact on the park.

Air quality in the park is being degraded by local and regional sources of pollution. The air quality in the region has traditionally been good so even small amounts of pollutants are capable of degrading the clear air significantly. The main impact is visibility. Good baseline data exists for the park.

Night sky resources have been excellent in the past and may be for the immediate future. As time goes by, there is a continued but imperceptible impact on this resource by development. The current need is for baseline data to assess the condition and trend of this resource.

10. Sound

Ambient noise levels in the park are low. The degree of silence one encounters in most areas of the Park is one of its great resources. Any noise detected in the area may be associated with

wildlife activity, wind, 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.

Natural silence is a very noticeable and valuable resource at Canyonlands. The silence that one generally encounters in the park is a unique resource. There are a variety of threats to that resource from visitors, external development and aircraft overflights. The park has no baseline information on the condition or trend of this resource, but a sound monitoring program began in the park in late 1994.

11. Water and Riparian Resources

The Colorado and Green Rivers form the heart of Canyonlands National Park. There is one permanent stream, Salt Creek, in the Needles District. The stream is a significant riparian resource. It forms critical habitat for fish, amphibians, aquatic insects, small mammals, other animals and plants.

Tamarisk growth has largely altered natural vegetation along the rivers and at various streams, springs and washes in the Park. The many springs, seeps and potholes in the park comprise the surface water resources of Canyonlands.

Water quality in the various springs and seeps in the park has been well studied over the past nine years as part of the long term monitoring program. The trend and condition of these springs appears to be good and consistent. Water quality monitoring in the river has been ongoing as well. Water Quality in the river appears to be good and the trend appears to be neutral.

12. Paleontological Resources

Little is known of park paleontological resources. Formations exposed range from Jurassic Navajo Sandstone of the Glen Canyon Group, to the basal, Pennsylvanian Paradox Formation of the Hermosa Group. Based on Stokes (1988), we could expect to find fossils in Table 5.

Table 5. Fossils Expected in Canyonlands by Formation.

Period	Formation/Group	Expected Fossils
Jurassic	Navajo Sandstone	animal tracks (Stokes 1988:120)
Triassic	Kayenta, Wingate, Chinle, Moenkopi	tracks of reptiles and amphibians, including dinosaurs; fossil fish; fossil plants including petrified trees
Permian	Cutler Group: White Rim Sandstone, Organ Rock Shale, Cedar Mesa Sandstone, Elephant Canyon Formation, Halgaito Shale	amphibian and reptile tracks; fusulinids, brachiopods, pelecypods, gastropods, bryozoans, echinoderms, cephalopods, corals, scaphopods, plants, vertebrates
Pennsylvanian	Hermosa Group: Honaker Trail Formation, Paradox Formation	fusulinids, brachiopods, bryozoans, corals, pelecypods, crinoids, gastropods

The park needs a basic inventory of paleontological resources. There have been few impacts to paleontological resources, but this could change if people begin illegal exploitation of park fossil resources for profit. There have been local incidents outside of the park where fossil resources have been looted. The condition of fossil resources in the park remains good with a stable trend. Increases in protection activities and interest in fossil resources by park staff is occurring.

13. Quaternary Resources

Ten years ago, almost nothing was known of the Quaternary resources of the park. However, with the 1985 publication of the first packrat midden analyses from the area (Betancourt and Biggar 1985), new investigations of the Quaternary resources of the park have been undertaken. Significant information has been recovered during a recent contract between the Rocky Mountain Region of NPS and the Quaternary Studies Department of Northern Arizona University. Unpublished results of this contract indicate significant Quaternary resources are present in the park, resources such as fossil packrat middens, bones of now-extinct megafauna, alluvium, etc. Another contract has been issued between the Rocky Mountain

Region and NAU to inventory and assess Quaternary resources reported in the preliminary contract. The new contract will significantly expand the park's ability to manage its Quaternary resources.

Like paleontological resources, Quaternary resources are subject to exploitation by commercial interests. Quaternary resources are generally more fragile than fossil resources, as well. Research is helping us determine the extent of our Quaternary resources and, to some degree, the condition of those resources. The condition of Quaternary resources appears good, and the trend is stable.

D. Cultural Resource Baseline Information

Following the Archaeological Resources Protection Act (ARPA), cultural resources are defined as any material remains of past human life or activities which are of archaeological interest and are at least 100 years of age; following the National Historic Preservation Act (NHPA), cultural resources can be as young as 50 years of age. In this RMP cultural resources include resources as young as 50 years of age. This includes prehistoric, historic and ethnohistoric resources.

Existing conditions for the management of cultural resources in Canyonlands are defined by the current state of knowledge of the resources and by the plans in place for managing cultural resources. This section on baseline information provides a brief overview of the cultural history and cultural resources of the park.

1. Cultural Resource Status: Culture History

The park contains nonrenewable resources left by prehistoric Paleoindian, Archaic and Formative peoples; by protohistoric and historic Ute, Paiute and Navajo; as well as by historic explorers, cattlemen, miners, park staff, and park visitors. These cultural historical peoples and periods are briefly described below, but this is only a summary and is not intended to be a comprehensive description of park cultural history.

Before turning to this summary, it should be noted that only 2% of the park has been inventoried for cultural resources; therefore, we have only a general and somewhat biased idea of the cultural resources present in the park. The bias in the cultural resource database is due to the recordation of major prehistoric structural sites throughout the park, but the lack of documentation of smaller, more typical limited activity sites left in all time periods.

a. Paleoindian Period (10,000-6,000 B.C.). Quaternary studies (e.g. Agenbroad 1991) indicate the park would have been an ideal habitat for the megafauna which were important components of the Paleoindian diet. With a favorable environment and game supply, coupled with two Paleoindian projectile points discovered in the park (one in the Needles District, one in the Maze District), the park may contain Paleoindian occupation sites. Probably the most likely location for these sites would be in abandoned river meanders or in upland areas with riverine access. Any Paleoindian remains are of the utmost significance to understanding the Paleoindian occupation of the region.

b. Archaic Period (7,000 B.C.- A.D. 200). Based on rather limited archaeological survey data, about half the park's cultural resources date to the Archaic period. Archaic people hunted big and small game and gathered wild plant resources within the park and across the Colorado Plateau. Since the biotic resources used by Archaic people were scattered in low densities and were only seasonally available, Archaic archaeological sites are characteristically small, low density scatters of stone tools and debris left from the harvesting, preparation and consumption of wild plants and animals.

In addition to lithic scatters, Archaic hunter-gatherers left rock art throughout the park. The most important Archaic rock art sites are classified as Barrier Canyon Rock Art Style. The type site, i.e. the place where the style was first defined, is Horseshoe Canyon. Horseshoe Canyon was removed from BLM jurisdiction and added to the park so it could receive the added protection of regular ranger patrols. This is discussed in greater detail in latter sections of this plan.

c. Formative Period (A.D. 200-1350). Anasazi used the natural resources of Canyonlands from about A.D. 200 until about A.D. 1300. They relied on wild resources such as firewood and fuel from timber, seeds of wild plants and small and large game animals. The Formative period Anasazi are distinguished from the proceeding Archaic people by their use of alluvial land and flood water farming of domesticated crops such as corn, beans and squash. The Anasazi also relied on the domesticated turkey.

The availability of reliable crops and the larger population led to the building of masonry habitation and storage structures including cysts, pits and granaries. Food and water were also stored, cooked and transported in ceramic vessels. Ceramics and masonry structures of the Anasazi are the most well-known cultural resources in the park, and these sites are densely concentrated in areas of Quaternary alluvium that are near water sources.

These Formative period masonry habitation sites are well-known because early archaeologists (working in the days before intensive inventories) tended to record the large structural sites, and to

ignore the small lithic scatters or other limited activity sites. However, recent intensive inventory work in the Needles District has shown that habitation sites (of the Formative and other periods) make up less than 10% of the sites. Lithic processing sites make up the majority of sites (47%), and Formative period field camps make up the second most common site type (43%).

With the emphasis on Formative period structural sites, archaeologists have expended considerable work trying to define which cultural groups occupied the park and built the structures and created the rock art. Due to similarities between Fremont and Anasazi rock art, Canyonlands has long been thought to be a frontier zone occupied by both Anasazi and Fremont peoples (Tipps and Hewitt 1989). Fremont are distinguished from the Anasazi by stylistic and technological differences. However, lack of systematic inventory and investigations into the cultural resources of the park have limited archaeologists' ability to determine the types of interactions between Anasazi and Fremont in Canyonlands.

d. Protohistoric Period (A.D. 1300-1850). According to oral histories collected by Julian Steward (1938), the Canyonlands area was occupied by Utes and Paiutes. Archaeological evidence indicates this area was occupied by these people from about A.D. 1300 to historic times, although it is not possible to distinguish between Utes and Paiutes based on their material remains. The Navajo appear to have been in the area from about A.D. 1500 onwards (Tipps and Hewitt 1989), but only one possible Navajo wooden structure has been found in Canyonlands. It has completely deteriorated, so it is not possible to determine who constructed it.

Whether Ute, Paiute or Navajo, Protohistoric peoples moved about the Colorado Plateau to obtain scattered and seasonally available natural resources. Given their subsistence pattern, Protohistoric sites are usually small, ephemeral surface scatters of stone tools and flaking debris. This is the same lifestyle as the Archaic. Protohistoric sites are distinguished from Archaic sites by technological differences: Protohistoric peoples used the bow and arrow with small arrow points, as opposed to the large dart points used for the atlatls or spear throwers of the prehistoric Archaic people. Protohistoric sites can also be distinguished from Archaic sites by the presence of brownware pottery, and in some cases, by the presence of Hopi yellow wares. The presence of Hopi yellow wares does not indicate occupation by the Hopi, but rather it points to extensive trade networks operating throughout the Colorado Plateau during the Protohistoric period.

At the present time, the park manages its few ethnohistoric resources along with the other cultural resources of the park. However, to comply with the American Indian Religious Freedom and various policy statements and mandates which call for consultation

with Native Americans and other park-associated communities, both Native Americans and park-associated Anglo communities have been consulted about wayside exhibit plans, proposed visitor center exhibits dealing with their particular cultural group, brochures, and undertakings which might adversely impact cultural properties. At the present time, no traditional cultural properties have been identified, nor are they expected to be identified given the disenfranchisement of the protohistoric and historic Native American communities.

e. Historic Period. While the park has a long and interesting history, historical overviews prepared by Crampton (1964) and Mehls and Mehls (1986) indicate the most important aspects of Canyonlands' history relate to cattle ranching and uranium mining. Cattlemen were the first permanent settlers in the historic period in the park. The park was site of one of the largest cattle companies in the nation at the turn-of-the-century. Given that most cattle operations were small, family-run businesses, the size of the cattle operations in the Canyonlands area were unique and historically significant.

An historic resource study entitled Cattle Raising in the Canyons was prepared by Sheire for the park in 1972. It provides an overview of livestock ranching in the park. Historic overviews of mining have not been prepared, but they would considerably improve the park's ability to assess significance of the existing historic mines and mining features in the park.

While less important to the overall history of the park, minor historic themes include historic exploration, especially the Powell and Macomb Expeditions along the Green and Colorado Rivers; and the fur trade and trappers, including Denis Julien who left inscriptions in the canyons dating to 1836.

2. Status of Cultural Sites Inventory

The NPS is required to survey lands it manages for cultural resources which are eligible for listing on the National Register of Historic Places. While intensive inventory and assessment of cultural resources is mandated by law and NPS policy, only 2.28% or 7,690 acres out of the 337,370 acres in the park have been intensively inventoried for cultural resources to the Secretary of the Interior standards. This low inventory percentage places the park out of compliance with Executive Order 11593 and the National Historic Preservation Act. Additional inventory and assessment of sites is a top priority of the cultural resource management program.

3. Status of Sites and Structures

A management priority is improving the existing documentation of sites and assessing the significance of the known sites (historic and prehistoric) for the National Register of Historic Places. This improved and updated site information should be collected as part of an intensive, systematic cultural resources inventory of the unsurveyed portions of the park.

The lack of a comprehensive, intensive inventory of Canyonlands has left us with a biased sample of documented cultural resources, making it difficult to assess the status and significance of sites for the National Register of Historic Places. Nevertheless, a total of 1,208 sites are documented in the files of the Southeast Utah Group. Of the sites in the files, the accompanying Summary Chart for Sites Documented Chart that 295 sites are considered eligible for listing on the National Register of Historic Places, 713 are not evaluated for National Register significance, and 200 are considered insignificant or ineligible for the National Register. The Utah State Historic Preservation Officer has not yet been asked to concur with the findings of eligibility on all the potentially eligible properties. A goal of the cultural resource management branch is to increase the inventory of sites, and then submit a comprehensive multiple property nomination to the SHPO and the Keeper of the Register.

a. Condition of Sites and Structures. Thirty-four of the documented sites in the park are in good to excellent condition due to the existence of an on-going stabilization and monitoring program run by the Resource Management Division, as well as a site monitoring program of the Visitor Protection Division. The 34 monitored and stabilized sites in Canyonlands are listed in the following table.

Table 6. Monitored and Stabilized Sites in Canyonlands.

Site 42-	Site Name
Sa418	Aztec Butte granaries
Sa1671	Wilhite Trail ruins
Sa1680	-
Sa8517	-
Sa21291	-
Gr1057	Dolls House granaries
Wn372	Alcove Site
Wn374	Horseshoe Shelter
Wn375	High Gallery
Wn418	Great Gallery
Wn665	Harvest Scene
Sa1374	Paul Bunyan's Potty ruins
Sa1470	Tower Ruin
Sa1486	Nine Faces rock art

Sa1491	Whitewash Ruin
Sa1506	Peekaboo rock art
Sa1563	Bighorn Sheep ruin
Sa1586	Big Ruin
Sa1614	All American Man
Sa1628	-
Sa1629	Four Faces
Sa1638	Picto-petro Man
Sa1652	Thirteen Faces
Sa1692	Five Faces
LCS-28	Kirk's Cabin
Sa1663	Ft. Bottom Cabin
Sa4974	Lathrop Canyon ruins
Sa4977	Indian Creek
Wn4	Water Canyon ruins
Wn720, 724	Valentine Bottom Granaries
Wn727	Turks Head ruins

Of the 1,208 sites in the park site files, 255 are in good condition, 252 are in fair condition, 196 are in poor condition, and 12 are known to have been destroyed. Due to inadequate documentation, the condition of 492 sites is unknown.

b. Impacts to Sites and Structures. The site monitoring program has established that adverse impacts to sites are caused by both natural and human agents. While packrats and other natural agents adversely impact sites, generally the greatest damage to sites and threats to the long-term preservation of cultural resources is from park visitors.

Of the human-caused impacts to sites, graffiti is a major problem, affecting almost all of the monitored sites in the park. Looting of surface and subsurface artifacts in sites is increasing, with the greatest impacts from looting occurring in the Needles and Maze Districts, especially in the Salt Creek Archaeological District and Horseshoe Canyon. Unfortunately, most of these National Register listed archaeological properties have had all their artifacts stolen by visitors. An experiment at a highly accessible site in Arches National Park has shown that artifacts are currently being stolen at a rate of two per day. This is completely unacceptable. The park needs to use all means available to halt the looting of its cultural resources.

c. Sites and Structures Listed on the 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. Presently, listed National Register of Historic Places properties are as follows:

Table 7. National Register Listed Properties in Canyonlands, by District.

•Cave Springs Cowboy Camp, Needles District
•Lost Canyon Cowboy Camp, Needles District
•Kirk's Cabin Complex, Needles District
•Salt Creek Archaeological District, Needles District

•D.C.C.&P. Inscription, near Confluence, River District
•Julien Inscription, Lower Red Lake, River District
•Kolb Inscription at Big Drop #2, River District

•Lathrop Canyon Mining Complex, Island District
•Murphy Trail and Bridge, Island District
•Lathrop Canyon Mining District, Island District (nomination pending)

•Harvest Scene Pictograph Panel, Maze District
•Horseshoe Canyon Pictographs, Maze District
•Downwash, Maze District (nomination pending)

Downwash Ruin (42Wn1666) has recently been determined eligible by the SHPO and is being nominated to the register. Many additional sites within Canyonlands should be listed on the National Register of Historic Places for their ability to yield important information about the past or for other National Register criteria. Affording more sites and districts the indirect protection of National Register listing is a priority in the cultural resources management program.

4. Cultural Context or Themes

NPS defines cultural contexts as the framework within which the significance of a resource can be evaluated as it relates to an ethnographic, historic or prehistoric theme, a particular geographic area, or a specific time period.

Mehls and Mehls (1986) contains a list of 10 historic resource themes for the park (Mehls and Mehls 1986). Themes or cultural contexts applicable to the park from Mehls and Mehls' study are listed in Table 8.

Table 8. Historic Themes (Mehls and Mehls 1986).

- Early Exploration and the Fur Trade
- Early Settlement and the Mormon Frontier
- Early Cattle Industry
- Outlaws
- Early Mining, Oil Exploration and Lumbering
- Transportation and the Isolation of Southeast Utah
- Livestock Raising and Settlement after 1900
- The Conservation Movement and the Growth of Federal Influences
- World War II and After
- Development of Southeastern Utah's National Parks and Monuments after World War II

Based on the History Division of the NPS's History and Prehistory in the National Park System and the National Historic Landmarks Program (1987), historic themes which are pertinent to sites in Canyonlands are listed in the next table.

Table 9. Historic Themes Based on History and Prehistory in the National Park System and the National Historic Landmarks Program, 1987.

- Westward Expansion of the British Colonies and the United States, 1763-1989: The Mining Frontier; The Cattlemen's Empire

- Science: Earth Sciences

- Conservation of Natural Resources: Formation of the Conservation Movement, 1870-1908; The Conservation Movement Matures, 1908-1941

- Historic Preservation: Federal Government Enters the Movement, 1884-1949

Based on the History Division of the NPS's History and Prehistory in the National Park System and the National Historic Landmarks Program (1987), prehistoric themes pertinent to sites in Canyonlands are listed in the next table.

Table 10. Prehistoric Themes (History and Prehistory in the National Park System and the National Historic Landmarks Program, 1987).

•The Earliest Inhabitants: Archaic Adaptations of the Southwest; Archaic Adaptations in Arid Lands

•Post-Archaic and Pre-Contact Developments: Post-Archaic Adaptations

•Prehistoric Archeology, Topical Facets: Prehistoric Architecture; Prehistoric Technology; Prehistoric Social and Political Developments; Prehistoric Arts/Handicrafts; Prehistoric Economics/Trade; Prehistoric Religion, Ideology and Ceremonialism; Prehistoric Settlements and Settlement Patterns; Prehistoric Agriculture/Plant Domestication/Horticulture; Prehistoric Demographics; Prehistoric Cultural Change; Major Contributions to the Development of Culture Histories; Paleoecology

•Ethnohistory of Indigenous American Populations: Native Adaptations to Southwestern Environments; Forced and Voluntary Population Movements; The New Demographics.

In 1994, NPS thematic frameworks were revised. The new themes and topics that appear applicable to history and prehistory in Canyonlands are listed in Table 11. Since these themes are new, they have not yet been formally utilized in evaluating historic properties in the park and a project statement for updating the thematic frameworks for historical resources in the park is attached.

Table 11. Historic Themes for Canyonlands Based on the 1994 Revision of the NPS's Thematic Frameworks.

Peopling Places:
- Health, nutrition, and disease
- Migration
- Community and neighborhood
- Encounters, conflicts, and colonization

Developing the American Economy:
- Extraction and production
- Transportation and communication
- Governmental policies and practices

Transforming the Environment:
- Manipulating the environment and its resources
- Adverse consequences and stresses on the environment
- Protecting and preserving the environment

5. Cultural Resource Baseline Documents

Required cultural resource baseline documents and plans are listed in alphabetical order below. Many of the required collection documents are described in greater detail in the section on the collections.

Archaeological Data Recovery Studies. Relatively few data recovery projects have been undertaken. They are all on file with the park and with MWAC (see Bibliography Section).

Archaeological and Ethnographic Collections Studies. The only artifacts that have been intensively studied are the potsherds. A complete report on the temper and types of ceramics in the collection was completed by Mark Bond, under contract to the park. A full listing of NAGPRA-relevant human remains was completed and submitted to MWAC.

Administrative History. An administrative history of Canyonlands has not been written; however, an article which is basically a legislative history was published by Smith in 1991. A major catalog backlog project currently underway is locating administrative records of the park and bringing them together in a single repository and creating a finding aid for the archival collection.

Archaeological Identification and Evaluation Studies. As explained elsewhere, archaeologists have been documenting sites in the park since the 1950s, however, less than 3% of the park has been intensively inventoried for cultural resources. Therefore, an urgent need is to expand the number of inventoried acres in the park. Until a greater amount of the park is inventoried, the documented sites cannot be properly evaluated for eligibility to the National Register of Historic Places.

Archaeological Overview, Assessment, and Identification Studies. While the LCS contains a narrative summary of archaeology of the park, an up-to-date overview and assessment of the archaeological resources of the park cannot be prepared until a greater amount of the park is inventoried for archaeological resources. With only 2% of the park inventoried, the biases in the kinds and qualities of documented sites cannot be evaluated.

Collection Condition Survey. The collection condition survey is to be conducted by a professional curator, and is usually completed after the Collection Management Plan. Since there is not a professional curator on staff, and since the Collection Management Plan has not been prepared, this survey is not completed.

Collection Management Plan. A Collection Management Plan has not been prepared. Funds to hire the external professional curators to prepare the Collection Management Plan have been requested, but have not yet been obtained. As a first step in preparing a

Collection Management Plan, a meeting was held to determine specific collection and specimen needs of the various Canyonlands divisions (e.g. Interpretation, Natural and Cultural Resource Management). The main collection needs are visual aids for interpretive programs, limited exhibit specimens for the various visitor centers, an herbarium and a comparative collection of properly identified small mammals and reptiles for the Resource Management Division.

Collection Storage Plan. A Collection Storage Plan was prepared in 1990, but it needs to be updated and modified for the new storage area.

Cultural Landscape Report. Since no cultural landscapes have been identified, there are no landscape reports.

Exhibit Plans. Exhibit plans are prepared by Harpers Ferry with little input from the curatorial staff.

Cultural Resource Management Plan. The Cultural Resource Management Plan was approved in 1988. This Resource Management Plan will replace the CRMP and a separate CRMP will not be prepared.

Cultural Landscapes and Cultural Landscape 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." At the present time, no formal cultural landscapes have been identified for Canyonlands and no cultural landscape reports have been prepared.

Cultural Resource Management Plan. The Cultural Resource Management Plan was approved in 1988. This Resource Management Plan will replace the CRMP and a separate CRMP will not be prepared.

Cultural Resource Reports and Bibliography. While the 200+ cultural resource reports about Canyonlands 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 Canyonlands files. By making available more literature on archaeology and cultural resources, interpreters in Canyonlands would be better able to present up-to-date programs about the human history and prehistory of the park.

Cultural Sites Inventory (CSI) and Park Site Files. The CSI narrative and base maps were initially prepared in 1987 by the Mid-west Archeological Center. The CSI has been maintained and updated

by the Southeast Utah Group and the Mid-west Archaeological Center and the Utah State Historic Preservation Office. The maps are updated regularly, although MWAC has not converted old 15' base maps to 7.5' maps. This means the majority of sites recorded in the park are not being updated or printed on the MWAC base maps. Copies of the old 15' base maps, as well as the new 7.5' maps, are located in the Resource Management Office of the SEUG Headquarters in Moab, Utah. A goal is to utilize the new GIS system of the park to convert the 15' map plots of sites to the 7.5' maps and then ground truth the sites to obtain more accurate and precise plots.

Site records are maintained in the Resource Management Office of the SEUG. Cultural resource site files are incomplete based on a comparison of the CSI listing from MWAC and the park files. 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 and LCS, submitting the site records to MWAC and the Utah SHPO, photodocumenting sites, obtaining copies of all recorded sites, etc.

Ethnographic Overview and Assessment. Ethnographic overviews and assessments need to be written, and oral histories and life histories should be documented for Native Americans traditionally associated with Canyonlands, as well as for other people and communities traditionally or historically associated with the park.

Ethnographic Oral Histories (see Oral Histories).

Ethnographic Program. A separate ethnographic program is not developed for the park. This is an area that needs work.

Historic Base Map. The historic base map was prepared along with the historic LCS listings. It is maintained by the park and MWAC.

Historic Furnishings Report. Since there are no furnished historic structures in the park, an historic furnishings report is not required.

Historic Resource Study. Historic Resource Studies have been completed, although additional inventories and recordation of historic sites in the park would result in improved knowledge and better management of historical resources.

Historic Structure Preservation Guides. Historic Structure Preservation Guides need to be prepared for the historic cabins in the park, particularly Kirks Cabin, Cave Springs Cowboy Camp, Lost Canyon Cowboy Camp, Upheaval Bottom Cabin, and Ft. Bottom Cabin. The mines in Lathrop Canyon and the Shafer Basin need to be

intensively inventoried and documented as well, especially since they are National Register listed properties.

Integrated Pest Management Plan for Collections. An Integrated Pest Management Plan is not in place, and insects have damaged museum objects in exhibits and the storage facility. A Housekeeping Plan needs to be written to delegate housekeeping for the collections if a curator position is not funded in the future.

Legislative History. A legislative history has not been prepared. However, as with the administrative history, as soon as the administrative archives of the park are ordered and a finding aid prepared, then the cultural resource division plans on locating a graduate student who would be interested in writing the administrative and legislative history of the park.

List of Classified Structures. The List of Classified Structures provides a fairly comprehensive list of historic sites in the park; however, the plan maps of the structures are inadequate, and the documentation on architecture and other details of the physical properties need to be redone. In addition, the multiple property listing of significant historic resources in the park that was prepared along with the LCS is not sufficiently detailed about individual sites and structures. The listed properties need to be re-recorded and re-evaluated for their significance to American history.

National Catalog of Museum Objects. Another aspect of improving cultural resource documentation is the need for improved collection records. Currently efforts are underway to complete the catalog backlog, to correct incorrect catalog records, and to create accession files, loan files, etc. A project to complete the administrative archives of the park is currently being funded through catalog backlog reduction funds.

National Register of Historic Places. As stated above, there are several multiple property listings for the park, but these are by no means complete. More properties should be listed.

Oral Histories. Many oral histories pertinent to the park have been collected by Gary Shumway and are stored at the University of California at Fullerton and the Edge of Cedars Museum in Blanding, Utah. His oral history project has concentrated on uranium miners, many of whom worked in the area now designated as the park. In addition, several oral histories have been taped and transcribed from park-associated personnel. This is an on-going, although unfunded project. An active and funded program is urgently needed since many of the people associated with the pre-park or early park days are dying.

Scope of Collection Statement. A Scope of Collection Statement for the SEUG was written and approved in 1986, but it needs revising

and updating. It is currently being circulated among park staff to ascertain whether collection needs and plans are addressed. The part-time archivist and the archaeologist are planning are revising the Scope of Collection Statement in 1995 based on the in-house comments.

Social Impact Study. A social impact assessment has not been conducted since the park was created. Additional studies of the impact of the park on local economics and lifeways would be helpful in dealing with local governments and organizations.

SOPs for ARPA Patrols. Standard operating procedures for ARPA site patrols were written in 1992. These SOPs will greatly improve the Archaeological Resources Protection Act patrol program for the park if funding for patrols continues. The SOPs need to be updated in 1995 given changing visitor use patterns.

Traditional Use Study and Traditional Cultural Properties. There is no known use of the park's cultural or natural resources by people who were traditionally associated with those resources. A formal study documenting the lack of traditional cultural properties is needed.

Visitor Use Survey. A Visitor Use Survey needs to be conducted at highly visited sites throughout the park. Such a survey would identify visitors' 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. Visitors also need to be interviewed to determine their needs and expectations when visiting cultural resource properties.

E. Status of Museum Collections

The single greatest issue affecting museum collections of the park is the lack of a permanent, professional curator to maintain collections to NPS and American Association of Museum standards. Aside from the need to catalog uncataloged collections, (especially archives), a curator is needed on a consistent basis to ensure that accessions, loans, inventories, housekeeping, collection access, etc., are maintained to standards; and to ensure that park staff, the public and researchers have access to objects stored in the collections.

As of December 1992, there were an estimated 216,572 objects in the collection. Of these, the majority are archaeological objects (142,608), followed in decreasing order by archival documents (68,800), biological specimens (3,205), paleontological and geologic specimens (1,051) and historic objects (908). since these numbers were compiles, both park staff and researchers have been

actively collecting new biological specimens, as well as other natural history collections. The natural history collection is rapidly growing given an emphasis on research by park staff, NBS and external researchers. The natural history collection will continue to increase in the near future. The archaeological collection is essentially stable, with little or no growth planned expect to collect objects threatened by potential looting.

As shown on the attached Summary Chart for Objects, the majority of museum objects are not curated in-house, they are in off-site repositories. In-house collections include 11,397 cataloged objects and an estimated 65,047 uncataloged objects (backlog), or a total of 76,444 in-house objects. Off-site collections include 129,803 cataloged objects and another 10,325 backlogged objects.

Known off-site collections are housed at the Western Archaeological Conservation Center in Tucson, AZ; the Mid-west Archaeological Center in Lincoln, NB; the Rocky Mountain Regional Office, Lakewood, CO; San Juan College, Farmington, NM; the New Mexico Museum of Natural History, Albuquerque, NM; the Utah Museum of Natural History, Salt Lake City, UT; and Northern Arizona University, Flagstaff, AZ. Given the number of objects stored in off-site repositories, a priority is to assess the off-site collections and repositories and determine whether the objects would be better managed by bringing them together in a single curatorial facility.

Aside from the numbers and conditions of collections listed on the Summary Chart for Objects, other baseline information about collections is given in the Checklist for the Preservation, Protection and Documentation of Museum Property, the various annual reports submitted to WASO, and as described below.

1. Collection Records and Plans

Catalog records were backlogged until 1990 when a temporary curator was hired. The temporary curator made considerable progress in reducing the backlog. There is little backlog left except for archives, objects which need to be re-cataloged. In addition to backlog, there is a large and growing number of new collections made by natural history researchers and park staff.

The number of accessions has increased from 240 from all the years prior to the arrival of the temporary curator in 1990, to 288 as of December 1992. Catalog records have increased from 2,603 for all years prior to 1990, to 35,852 as of December 1992.

The greatest collection record problem is the state of the accession files. If a part-time, professional curator could work on the accession files, it would take approximately one year to clear up the problematical accession records.

visitor center exhibits. For example, in 1990 numerous bird and mammal skins in the collections were deaccessioned and discarded due to insect damage. The IPM plan is the responsibility of the natural resource specialist and a project statement is attached in this RMP.

4. Collections on Exhibit

Permanent exhibits are being designed and installed by Harpers Ferry in the park visitor centers. Temporary exhibits have been installed by park interpretive staffs. A museum security survey contracted by the Rocky Mountain Regional Office demonstrated serious deficiencies in exhibit security and fire suppression facilities in all District visitor centers. Unfortunately the newly constructed Needles Visitor Center was as deficient as the older visitor centers in alarm systems, fire suppression systems and overall security.

5. Collection Security and Fire Suppression

A security survey was completed in FY92 for all of the Southeast Utah Group. The survey found inadequate security and fire suppression systems in both the visitor center and the collection storage area. Where funding permits, the recommended changes will be implemented. These improvements will take place as soon as possible. All low-cost improvements have already been made. The new storage facility will have improved security and fire suppression systems.

V. RESOURCE MANAGEMENT PROGRAMS

A. Overview of Current Natural Resource Program and Needs

The Natural Resource Management section's major activities are as follows:

1. Threatened and Endangered Species

There are currently eight species of endangered or threatened species of wildlife at Canyonlands National Park. Peregrine falcons nest within the park and the park has enough habitat to support a greatly expanded population. Mexican spotted owls are known to occur in similar habitats in the park and a search needs to be done to ascertain their presence. The bald eagle is a transient winter visitor to the park and the southwestern willow flycatcher, Empidonax traillii extimus, a recently listed species, was found in the park in 1993. All four species of endangered Colorado River fish are known to occur in the park.

2. Exotic Plant Control

Exotic plants such as tamarisk, Russian knapweed and musk thistle have invaded Canyonlands. The Natural Resource Specialist surveys for these exotic plants and performs control work. Exotic plant control activities and efforts are expanding.

3. Oil and Gas Development

While lands within the park are withdrawn from mineral leasing, oil and gas exploration activity is occurring within two or three miles of Canyonlands' boundary, and there is increasing potential for oil and gas development north of the park. Oil and gas development is an external threat to the resources (clean air, night sky, solitude and wilderness) of Canyonlands. To monitor this threat, the Natural Resource Specialist reviews and comments on oil and gas environmental assessments (EAs), reviews various planning documents from the Bureau of Land Management (BLM) and Utah Division of Oil, Gas and Mining; coordinates with NPS Mining and Minerals Branch; tracks local oil and gas activities; and reviews leasing sales for tracts adjacent to Canyonlands.

The oil and gas monitoring program is expanding with expansion of the threat. Currently, oil and gas monitoring accounts for 15 percent of the Natural Resource Specialist's time. This need did

not exist a year ago and will probably continue to be important for the near future. This function is likely to expand in the next year due to the backlog in planned drilling. Future demands on time will be dependent on the success of industry in exploiting this reserve.

4. Backcountry Management

The Backcountry Management Plan is currently being revised. With implementation, revisions in the plan will enable the park to better fulfill its mission to preserve and protect park resources.

5. NEPA Compliance

SEUG Resource Management Division is routinely involved in the writing of Resource Management Plans (RMP), environmental assessments (Eas) and other compliance documents. This accounts for the majority of the Natural Resource Specialist's time. There are specific legal requirements for this work and it must be accomplished. Three RMPs are in various stages of completion. The General Management Plan for Canyonlands is currently in preparation. Small ground disturbing activities undertaken by the maintenance division or other divisions of Canyonlands staff are also monitored and NEPA compliance assured by the Natural Resource Management Specialist.

6. Geographic Information System (GIS)

In 1992 the SEUG received the hardware for a GIS. The Resource Management Division is committed to get the GIS hardware and software working as soon as possible. A GS-11 full-time GIS Specialist was hired in October 1994. He is currently working to fully develop the park's GIS program.

7. Administration and Supervision

Approximately 300 hours per year are expended by the Natural Resource Specialist on administration and supervision of seasonal natural resource workers. Additional time is needed to effectively manage the natural resources in the park.

8. Miscellaneous Natural Resource Functions

There are a number of programs which are important to the operation that account for a great deal of time cumulatively. These include Integrated Pest Management (IPM), Mexican spotted owls, reclamation inventory and planning, endangered species, raptors and water

quality. The Natural Resource Specialist handles IPM for all three parks. He is responsible for the annual reporting on the IPM program, submission of 10-21 A requests for pesticide use (eight per year), research into means of pest control (five per year) and coordination with various park personnel on the proper use and storage of pesticides. SEUG currently uses only Garlon 4, Round-up and Dipel 4L. Total time committed by the Natural Resource Specialist to IPM is 100 hours.

9. Improved Understanding of the Park Ecosystem

The NPS needs to ensure comprehensive management of the park ecosystem. The 'common' resources of the park such as coyotes, small mammals, birds, plant communities, soils, etc. are inadequately understood. Population dynamics are poorly known, and without additional information, these species and their role in the functioning of the park and regional ecosystem may well deteriorate with the increase in visitor pressure on the park.

One way management of the natural resources of the park can be improved, is by having a detailed, comprehensive soil map. The NPS needs to work closely with the U.S. Soil Conservation Service and Utah Agricultural Experiment Station to fulfill this need.

Periodic, low level fly-overs (such as on a ten year cycle) are necessary to obtain aerial photographs of the park. Aerial photographs obtained on such a cyclical basis would enable the NPS to better manage resources within the park, and would enable the NPS to monitor external threats, such as oil and gas development in the area.

10. Natural Resource Personnel

There is currently one FTE in the Natural Resource Management Branch to handle the identified work. This FTE supports one permanent, GS-11, full-time, Natural Resource Specialist.

The Natural Resource Specialist's time is divided as follows: 30 percent to wildlife related issues such as peregrine falcons, desert bighorn sheep and endangered species. Forty percent of his time is devoted to compliance issues, Resource Management Plans and oil and gas monitoring. Thirty percent of his time is devoted to general resource management issues. Responsibilities in oil and gas monitoring and GIS development are examples of the increased complexity of the position. This position was upgraded to GS-11 in 1992.

A full-time GS-11 Planner was hired in October to 1994 to write planning documents, environmental assessments, compliance documents, etc. A temporary Biological Technician was converted to

a full-time, permanent GS-9 Biologist in 1994 to oversee the long-term inventory and monitoring program and the vegetation and water branch of the Resource Management Division. The Biologist also coordinates outside research, writes funding proposals and assists with other division projects. A term GS-7 Biological Technician oversees revegetation projects related to construction projects in the park. A National Biological Survey Research Biologist conducts research projects for the park. These positions are supported by seasonal Biological Technicians and Student Conservation Association volunteers.

B. Overview of Current Cultural Resource Management Program and Needs

The park was established to preserve and protect cultural resources and to allow the public to enjoy the accessible and spectacular prehistoric sites; however, visitor access to cultural resources is damaging the sites. Therefore, the primary management objective is to find ways to balance the conflicting goals of allowing the public to visit sites, while preserving, conserving and protecting the resources. Based on the Secretary of the Interior's directives for Federal archaeology programs, on NPS policies, as well as other Federal laws and policies, several program components have been established within the cultural resource program to allow the park to meet its primary management objective in cultural resource preservation. These program components 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: (1) site stabilization, (2) ARPA ranger site patrols, and (3) installing and maintaining physical protection devices.

a. Stabilization and Monitoring Program. With Cultural Cyclical funding from the Rocky Mountain Region, a seasonal GS-07 stabilization expert has monitored and stabilized 34 sites in the park since 1989. When there has been a permanent archaeologist on the staff, the archaeologist has also helped with the stabilization program. By performing routine housekeeping and maintenance on previously stabilized structures, this stabilization and monitoring program helps maintain the Rocky Mountain Regional investment in stabilized structures in the park. When new damage occurs to the sites, the sites are re-stabilized and documentation is completed on the damage and the corrective actions taken.

b. Archaeological Resources Protection Ranger Patrol. With funding from the Regional and Washington Offices, highly visited

sites are regularly patrolled and monitored by law enforcement rangers from the Visitor Protection Division. Standard operating procedures for these ARPA site patrols have been written to guide the seasonal patrol rangers. The program is critical to ensuring long-term preservation of sites and structures since the presence of the patrol rangers discourages deliberate vandalism and since the main responsibility of the rangers is contacting visitors and teaching them how to behave when visiting cultural sites in the park.

c. Physical Protection Devices. Since patrol rangers or archaeologists cannot be present on sites, some proxy measures creating a management presence at sites need to be installed at highly visited and vulnerable sites. These devices include delineated paths to control where people go in visiting fragile sites. 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. Surveillance equipment may also be appropriate at vulnerable sites. Currently, physical protection devices include ammunition boxes with information about the sites and a blank notebook where visitors may leave comments about the sites or

reduce the amounts of graffiti left on the site, and to otherwise provide some physical protection.

2. Site Indirect Protection

Sites and districts are indirectly protected by a disclosure policy and through nomination to the National Register of Historic Places. Public education may also be considered an indirect protective measure, but it is treated separately.

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 Superintendent's Directive. The policy is summarized here.

Many of the archaeological sites within Canyonlands have a long history of tourist use; in fact, Canyonlands was set aside as a national park so the public could access archaeological sites. As stated in Public Law 88-590 in 1964, Canyonlands was established:

> "...in order to preserve an area in the State of Utah possessing superlative scenic, scientific, and archaeological features for the inspiration, benefit, and use of the public..." [emphasis added to original].

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. Although Class II sites are not advertised by the park, visitors may request information about how to find Class II sites. In addition to receiving locational information, visitors are told how to behave when visiting the sites. For example, at a Class II rock art site, visitors are told how to find the site, and they are told not to touch the rock art or to leave any marks or graffiti on the site. At Class II structural sites, visitors are told not to lean or climb on walls, to leave artifacts in place, to stay on existing trails across the sites, etc.

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 and 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. Nomination to the register forces park staff to recognize the public's interest in preserving and protecting sites and districts. For more information about the National Register, see other sections.

4. 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.

5. 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 of potential effect are inventoried for cultural resources and the appropriate reports, evaluations, and documentation are submitted to the State Historic Preservation Office, the Advisory Council on Historic Preservation or the public for their comments and concurrence, as necessary. 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 of indirect protection since the State Historic Preservation Office,

the Advisory Council on Historic Preservation and the public must be allowed to comment on actions which would impair a National Register eligible property.

6. Collection Management

Currently, the cultural resource branch is responsible for collection management. As discussed in a separate section, collections include both natural and cultural objects, and the responsibility for curation and management of these objects could well be shared between the cultural and natural resource management branches. To restate the conclusion from the museum collection section, the greatest need is to ensure objects are appropriately managed through hiring a permanent curator.

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, and NPS policies, 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. Under NAGPRA, consultation about Native American human remains and associated grave goods is also mandated. Inventories of human remains and grave goods have already been completed, and reburial of Puebloan human remains in the collection has been undertaken by a Hopi tribal representative, so compliance with NAGPRA is already in progress.

A major problem with beginning a program of consultation is that funds are unavailable to pay for the Native Americans' travel to the park. In addition, it is extremely difficult to pay for consultation services given NPS procurement regulations which state that the park cannot pay for personal services. Paying consultants violates the purchasing authorities of the procurement staff of the park. An exception is needed in procurement policy where Native American and park-associated community representatives can be paid to travel to the park to consult on specific projects or sites. In addition, funds need to be made available so consultation can be carried out.

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. Cultural Resources Personnel

a. Current Status. Presently, the only permanent cultural resources staff member is a GS-11 archaeologist. This person has full responsibility for the cultural resources management program of Canyonlands and the Southeast Utah Group. This position is base funded through ONPS money which is allocated to the Resource Management Division of the Southeast Utah Group.

The Rocky Mountain Regional Office provided cultural cyclical funding for a GS-7 seasonal stabilization expert to monitor previously stabilized sites and perform stabilization and maintenance on these sites. The funding has covered the stabilization specialists salary and expenses for a three to nine month period during the last five years.

In 1994, the Regional funding for stabilization and monitoring was split between hiring the stabilization expert under contract to perform the routine annual stabilization, and to hire furloughed park rangers to patrol the sites. This program of site patrolling by commissioned law enforcement rangers, and the routine stabilization by a preservation specialist has improved the number of sites visited on an annual basis, and has resulted in a greater backcountry presence. This appears to be a better deterrent to looting and site damage than the stabilization-only program of previous years.

In previous years, cyclical funding from the Rocky Mountain Regional Office enabled the park to hire a temporary GS-7 museum curator. The curator concentrated her efforts on reducing the backlog of uncataloged objects and correcting storage problems. She succeeded in bringing most of the collection storage up to American Association of Museum standards, as well as NPS Museum Handbook standards. The curator made considerable progress in reducing the catalog backlog of archaeological and natural history objects.

In the last two years (1993-1994), catalog backlog funding from WASO has provided the funds to hire a pat-time archivist to reduce the large volume of archival documents. The archivist completed the administrative collection for Arches National Park and Natural

Bridges National Monument. Work is underway on the Canyonlands archives.

b. Needs. The greatest unmet personnel needs are in two broad areas: collections management and site physical protection. Two main positions are needed: (1) a permanent, professional, part-time museum curator and (2) a seasonal site stabilization expert. These needs are described below.

Need for a Curator. The need for a permanent, professional curator is critical. With roughly 65,000 backlogged, uncataloged items, and with on-going research generating collections, a professional, dedicated, part-time curator is needed. The work is not a full, 40 hour per week job; however, there is a constant, consistent 20 hour per week demand for a curator. The curator routinely must deal with researchers who have taken specimens off-site, loans to these off-site researchers, searching for off-site collections, accessions, storage collection and exhibit housekeeping, responding to regional and national reports and information requests, etc. Assigning collections and curation as a collateral duty simply means that collections do not receive adequate attention. The park needs a permanent, part-time curator.

Site Physical Protection Needs. The National Historic Preservation Act was amended to state that Federal agencies can only disclose the location of sites if they can guarantee that no harm will come to the sites as a result of disclosure. To fulfill this mandate, the park has a program of annual stabilization and monitoring of 34 sites, and routine site patrols by uniformed patrol rangers.

The stabilization and monitoring program has been funded through regional cyclical funds, even though it is an on-going need. Each spring and fall, 34 stabilized sites must be maintained. More sites need to be stabilized as visitors continue to seek out and damage additional sites in the backcountry. To continue to allow visitors access to the cultural resources of the park, the Southeast Utah Group needs to base fund a seasonal stabilization expert who can maintain the 34 sites currently being maintained through cyclical funds, and who can add an additional site each year to the stabilization program.

Another deterrent to site looting and destruction is the presence of uniformed patrol rangers. At a minimum, two full-time, seasonal patrol rangers are needed to contact visitors and educate them about appropriate behavior when visiting cultural resource sites in the park, as well as educate them about the cultural resources present in the park. The rangers should be stationed in Horseshoe Canyon and in the Salt Creek Archaeological District, with additional patrols to other highly visited sites and districts within the park.

The ideal solution to the problems of physically protecting sites would be to hire a seasonal, full-time preservation specialist who was also a commissioned law enforcement ranger. With a law enforcement commission, tickets could be written when visitors violated site etiquette and damaged sites. In addition, with stabilization skills, the highly visited structural sites of the park would be protected and the park could continue to allow visitation to the sites.

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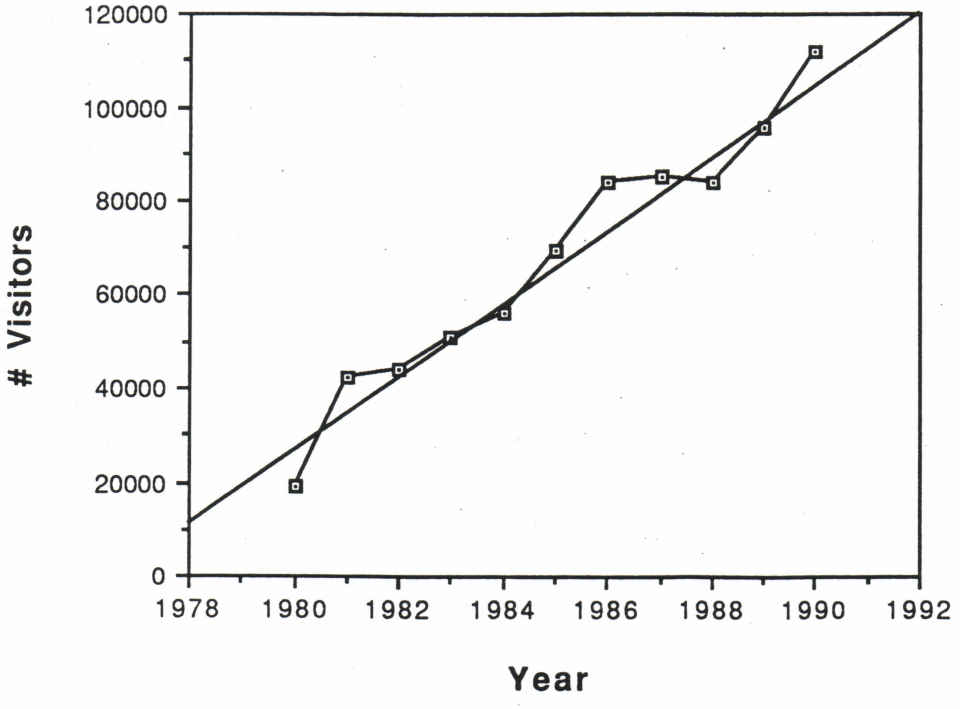
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VI. PROJECT STATEMENTS

Project statements for natural and cultural and integrated resources are appended to this document.

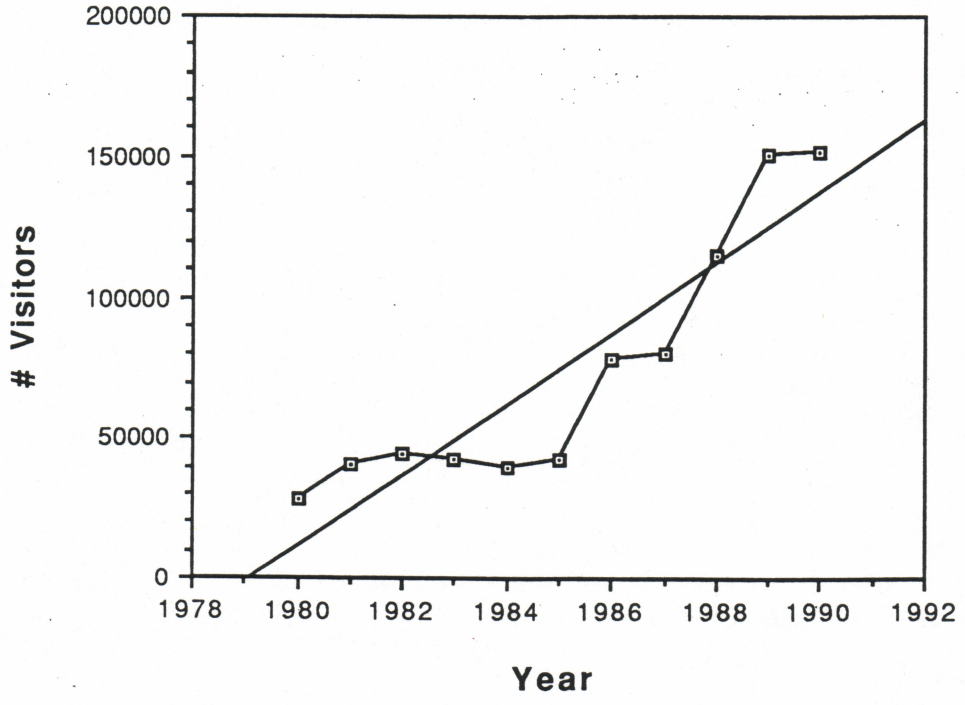
NEEDLES

y = - 1.6022e+7 + 8105.4x R^2 = 0.961



ISLAND IN THE SKY

y = - 2.4935e+7 + 1.2599e+4x R^2 = 0.834



09/17/93
16:00:31

TABLE 1
NPS RESOURCE PERSONNEL
(current year only)

FY: 94
PARK: CANY
REGION: RMRO

TYPE OF NPS EMPLOYEE	FTEs OF RESOURCES WORK		
	Natural	Cultural	Total
Research Scientists	0.6	0.0	0.6
Resources Specialists	0.6	0.6	1.2
025 Park Rangers Res Mgmt	0.5	0.5	1.0
025 Park Rangers Res Prot	1.5	1.5	3.0
025 Park Rangers Res Interp	1.0	1.0	2.0
Maintenance Personnel	1.0	1.0	2.0
Total of RES Personnel	5.2	4.6	9.8
TOTAL PARK FTE: 53.5 PERCENT	9.7%	8.6%	18.3%

End of data

PROGRAMMING SHEET 1
NATURAL
CURRENT YEAR FUNDED ACTIVITIES
($ in thousands)

PROJECT NUMBER	PROJECT TITLE	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	CURRENT YEAR 1994 $$	CURRENT YEAR 1994 FTE	OUTYEAR 1 1995 $$	OUTYEAR 1 1995 FTE	OUTYEAR 2 1996 $$	OUTYEAR 2 1996 FTE	OUTYEAR 3 1997 $$	OUTYEAR 3 1997 FTE	TOTAL $$	TOTAL FTE
003.000	INTEGRATED PEST MANAGMENT			N05 N06	PKBASE-NR	MIT	10.00	0.2	11.00	0.2	12.00	0.2	13.00	0.2	46.00	0.8
005.000	EXTERNAL THREATS			N24 N06	PKBASE-NR	MON	8.00	0.2	9.00	0.2	10.00	0.2	11.00	0.2	38.00	0.8
011.000	AIR RESOURCES MANAGEMENT			N14	AIR-QUAL	MON	10.60	0.1	11.00	0.1	12.00	0.1	13.00	0.1	46.60	0.4
012.000	WATER RESOURCES MANAGMENT			N11	PKBASE-NR	MON	6.00	0.2	6.00	0.2	7.00	0.2	7.00	0.2	26.00	0.8
					TEMP$-NR	ADM	15.00	0.3	15.00	0.3	17.00	0.3	17.00	0.3	64.00	1.2
					Subtotal		21.00	0.5	21.00	0.5	24.00	0.5	24.00	0.5	90.00	2.0
018.000	THREATENED, ENDANGERED AND SENSITIVE SPECIES			N02 N20	NRPP	MON	15.00	0.5	15.00	0.5	15.00	0.5	0.0	0.0	45.00	1.5
020.000	DESERT BIGHORN SHEEP MANAGEMENT			N17 N20	PKBASE-NR	MON	10.00	0.5	11.00	0.5	12.00	0.6	14.00	0.7	47.00	2.3
					RG-NS-RES	MON	40.00	0.8	20.00	0.4	35.00	0.5	0.0	0.0	95.00	1.7
					Subtotal		50.00	1.3	31.00	0.9	47.00	1.1	14.00	0.7	142.00	4.0
021.000	FISHERIES MANAGEMENT			N02 N04	PKBASE-NR	MON	5.00	0.1	6.00	0.1	7.00	0.1	8.00	0.1	26.00	0.4
					NRPP	RES	15.00	0.1	15.00	0.1	15.00	0.1	0.0	0.0	45.00	0.3
					Subtotal		20.00	0.2	21.00	0.2	22.00	0.2	8.00	0.1	71.00	0.7
024.000	VEGETATION MANAGEMENT			N05 N17	PKBASE-NR	MON	20.00	0.6	21.00	0.6	22.00	0.6	23.00	0.6	86.00	2.4
					PKBASE-NR	MIT	5.00	0.1	0.0	0.0	6.00	0.1	6.50	0.1	17.50	0.3
					TEMP$-NR	MIT	0.0	0.0	5.50	0.1	0.0	0.0	0.0	0.0	5.50	0.1
					Subtotal		25.00	0.7	26.50	0.7	28.00	0.7	29.50	0.7	109.00	2.8
025.000	FIRE MANAGEMENT			N07	PKBASE-NR	MIT	7.50	0.2	8.50	0.2	9.50	0.2	10.50	0.2	36.00	0.8
					RG-NS-RES	RES	50.00	0.1	50.00	0.1	50.00	0.1	0.0	0.0	150.00	0.3
					Subtotal		57.50	0.3	58.50	0.3	59.50	0.3	10.50	0.2	186.00	1.1
027.000	INVENTORY AND MONITORING			N05 N17	PKBASE-NR	MON	24.00	1.0	27.00	1.0	30.00	1.0	30.00	1.0	111.00	4.0
10 projects printed					Grand Total		241.10	5.0	231.00	4.6	259.50	4.8	153.00	3.7	884.60	18.1

End of data

PROGRAMMING SHEET 2
NATURAL
UNFUNDED ACTIVITIES
($ in thousands)

PK PRI	PROJECT NUMBER	PROJECT TITL	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	STARTING YEAR $$	STARTING YEAR FTE	OUTYEAR 1 $$	OUTYEAR 1 FTE	OUTYEAR 2 $$	OUTYEAR 2 FTE	OUTYEAR 3 $$	OUTYEAR 3 FTE	TOTAL $$	TOTAL FTE
0	005.100	EXTERNAL THREATS HIGHWAY DEVELOPMENT			N16 N22	PKBASE-NR	MON	3.00	0.1	3.50	0.1	4.00	0.1	4.50	0.1	15.00	0.4
1	006.000	RIVER MANAGEMENT			N12 N18	RG-NS-RES	MIT	45.00	1.5	50.00	1.5	55.00	1.5	60.00	1.5	210.00	6.0
2	020.000	DESERT BIGHORN SHEEP MANAGEMENT			N17 N20	PKBASE-NR	MON	15.00	0.5	16.00	0.5	17.00	0.5	18.00	0.5	66.00	2.0
						RG-NS-RES	MIT	0.0	0.0	0.0	0.0	30.00	0.5	35.00	0.5	65.00	1.0
						Subtotal		15.00	0.5	16.00	0.5	47.00	1.0	53.00	1.0	131.00	3.0
3	009.000	PLUG AND ABANDON FOUR WATER WELLS			N12 N22	RG-RM-NAT	MIT	56.00	0.1	0.0	0.0	0.0	0.0	0.0	0.0	56.00	0.1
4	014.000	NATURAL SILENCE			N16 N20	RG-NS-RES	MON	25.00	0.2	25.00	0.2	25.00	0.2	25.00	0.2	100.00	0.8
	003.000	INTEGRATED PEST MANAGMENT			N05 N06	RG-RM-NAT	ADM	20.00	0.5	0.0	0.0	0.0	0.0	0.0	0.0	20.00	0.5
						RG-RM-NAT	MIT	17.00	0.8	0.0	0.0	0.0	0.0	0.0	0.0	17.00	0.8
						PKBASE-NR	MIT	0.0	0.0	18.00	0.8	19.00	0.8	20.00	0.8	57.00	2.4
						Subtotal		37.00	1.3	18.00	0.8	19.00	0.8	20.00	0.8	94.00	3.7
6	016.000	PALEONTOLOGICAL RESOURCES			N18 N23	RG-NS-RES	RES	30.00	0.1	30.00	0.1	30.00	0.1	0.0	0.0	90.00	0.3
7	026.000	VEGETATION RECLAMATION			N17 N20	PKBASE-NR	MIT	50.00	1.0	55.00	1.0	60.00	1.0	65.00	1.0	230.00	4.0
8	018.000	THREATENED, ENDANGERED AND SENSITIVE SPECIES			N02 N20	PKBASE-NR	MON	15.00	0.5	16.00	0.5	17.00	0.5	18.00	0.5	66.00	2.0
						RG-NS-RES	MON	25.00	0.5	25.00	0.5	0.0	0.0	0.0	0.0	50.00	1.0
						Subtotal		40.00	1.0	41.00	1.0	17.00	0.5	18.00	0.5	116.00	3.0
10	017.000	QUATERNARY RESOURCES			N18 N23	RG-NS-RES	RES	35.00	0.1	35.00	0.1	35.00	0.1	35.00	0.1	140.00	0.4
11	021.000	FISHERIES MANAGEMENT			N02 N04	PKBASE-NR	MON	0.0	0.0	0.0	0.0	0.0	0.0	50.00	1.0	50.00	1.0

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PROGRAMMING SHEET 2
NATURAL
UNFUNDED ACTIVITIES
($ in thousands)

PK PRI	PROJECT NUMBER	PROJECT TITL	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	STARTING YEAR $$	STARTING YEAR FTE	OUTYEAR 1 $$	OUTYEAR 1 FTE	OUTYEAR 2 $$	OUTYEAR 2 FTE	OUTYEAR 3 $$	OUTYEAR 3 FTE	TOTAL $$	TOTAL FTE
12	024.000	VEGETATION MANAGEMENT			N05 N17	PKBASE-NR	ADM	50.00	0.1	0.0	0.0	0.0	0.0	0.0	0.0	50.00	0.1
						PKBASE-NR	MIT	10.00	0.5	11.00	0.5	12.00	0.5	13.00	0.5	46.00	2.0
						Subtotal		60.00	0.6	11.00	0.5	12.00	0.5	13.00	0.5	96.00	2.1
13	007.000	INVENTORY OF MINES AND ABANDONED MINERAL LANDS			N06 N10	RG-NS-RES	MON	40.00	0.3	0.0	0.0	0.0	0.0	0.0	0.0	40.00	0.3
						RG-NS-RES	MIT	0.0	0.0	144.00	0.5	152.00	0.5	160.00	0.5	456.00	1.5
						Subtotal		40.00	0.3	144.00	0.5	152.00	0.5	160.00	0.5	496.00	1.8
14	015.000	NIGHTSKY			N16 N20	RG-NS-RES	MON	10.00	0.1	10.00	0.1	10.00	0.1	10.00	0.1	40.00	0.4
15	023.000	NEOTROPICAL MIGRANT			N17 N24	RG-NS-RES	MON	20.00	0.6	22.00	0.6	24.00	0.6	26.00	0.6	92.00	2.4
16	028.000	ECOSYSTEM HEALTH AND ASSESSMENT			N17 N20	RG-NS-RES	RES	120.00	2.0	130.00	2.0	140.00	2.0	160.00	2.0	550.00	8.0
17	001.000	GEOGRAPHIC INFORMATION SYSTEM			N20 N24	PKBASE-NR	ADM	20.00	0.2	20.00	0.3	22.00	0.3	25.00	0.3	87.00	1.1
						RG-NS-RES	ADM	15.00	0.3	35.00	1.0	38.00	1.0	40.00	1.0	128.00	3.3
						Subtotal		35.00	0.5	55.00	1.3	60.00	1.3	65.00	1.3	215.00	4.4
18	022.000	DEVELOP COLORADO RIVER BENTHIC CHARACTERIZATION			N04 N02	RG-NS-RES	RES	20.00	0.1	20.00	0.1	0.0	0.0	0.0	0.0	40.00	0.2
19	008.000	TRESPASS LIVESTOCK/BURRO MANAGEMENT			N03 N04	RG-NS-RES	MIT	20.00	0.3	22.00	0.3	24.00	0.3	26.00	0.3	92.00	1.2
20	013.000	GRAZING HISTORY			N04 N06	RG-NS-RES	RES	30.00	0.1	15.00	0.1	15.00	0.1	0.0	0.0	60.00	0.3
21	019.000	WILDLIFE RESOURCES			N17 N20	RG-NS-RES	MON	15.00	0.5	16.00	0.5	17.00	0.5	0.0	0.0	48.00	1.5
						RG-NS-RES	RES	7.00	0.1	7.00	0.1	25.00	0.1	25.00	0.1	64.00	0.4
						Subtotal		22.00	0.6	23.00	0.6	42.00	0.6	25.00	0.1	112.00	1.9

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PROGRAMMING SHEET 2
NATURAL
UNFUNDED ACTIVITIES
($ in thousands)

PK PRI	PROJECT NUMBER	PROJECT TITL	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	STARTING YEAR $$	STARTING YEAR FTE	OUTYEAR 1 $$	OUTYEAR 1 FTE	OUTYEAR 2 $$	OUTYEAR 2 FTE	OUTYEAR 3 $$	OUTYEAR 3 FTE	TOTAL $$	TOTAL FTE
23	004.000	BACKCOUNTRY MANAGEMENT			N18	PKBASE-NR	ADM	100.00	1.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00	1.0
						PKBASE-NR	MIT	160.00	3.6	40.00	1.0	44.00	1.2	48.00	1.4	292.00	7.2
						Subtotal		260.00	4.6	40.00	1.0	44.00	1.2	48.00	1.4	392.00	8.2
24	029.000	INVERTEBRATES AND SOIL MIRCOFLORA			N17 N20	RG-NS-RES	RES	30.00	0.3	30.00	0.3	30.00	0.3	30.00	0.3	120.00	1.2
25	002.000	REMOTE SENSING NEEDS			N17 N20	RG-NS-RES	MON	40.00	0.3	40.00	0.3	40.00	0.3	0.0	0.0	120.00	0.9
29	030.000	CYANOBACTERIAL-LICHENMOSS SOIL CRUSTS			N17 N20	RG-NS-RES	RES	40.00	0.6	40.00	0.6	40.00	0.6	40.00	0.6	160.00	2.4
	010.000	BORROW MATERIALS MANAGEMENT			N24	RG-RM-NAT	ADM	10.00	0.1	10.00	0.1	0.0	0.0	0.0	0.0	20.00	0.2
31	031.000	HAZARDOUS SPILLS RESPONSE PLAN			N16 N20	PKBASE-NR	ADM	15.00	0.5	0.0	0.0	0.0	0.0	0.0	0.0	15.00	0.5
	27 projects printed					Grand Total		1108.00	17.5	885.50	13.7	925.00	13.7	933.50	13.9	3852.00	58.8

End of data

PROGRAMMING SHEET 1
CULTURAL
CURRENT YEAR FUNDED ACTIVITIES
($ in thousands)

PROJECT NUMBER	PROJECT TITLE	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	CURRENT YEAR 1994 $$	CURRENT YEAR 1994 FTE	OUTYEAR 1 1995 $$	OUTYEAR 1 1995 FTE	OUTYEAR 2 1996 $$	OUTYEAR 2 1996 FTE	OUTYEAR 3 1997 $$	OUTYEAR 3 1997 FTE	TOTAL $$	TOTAL FTE
001.000	COMPLIANCE WITH NHPA		COMB	C26 C02	PKBASE-CR	MIT	15.00	0.5	15.00	0.5	17.00	0.5	18.00	0.5	65.00	2.0
005.000	ARPA TRAINING		COMB	C25 C24	PKBASE-CR	ADM	1.00	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.1
006.000	COLLECTION MANAGEMENT		OBJC	C24 C03	RG-CR-MTN	PRO	21.00	1.0	0.0	0.0	0.0	0.0	0.0	0.0	21.00	1.0
008.000	SITE INDIRECT PROTECTION		SITE	C18 C12	PKBASE-CR	PRO	1.00	0.2	1.00	0.2	1.00	0.2	1.00	0.2	4.00	0.8
009.000	PROTECTION THROUGH NOMINATION		SITE	C10 C01	PKBASE-OT	PRO	2.00	0.1	2.00	0.1	3.00	0.1	3.00	0.1	10.00	0.4
010.000	HORSESHOE CANYON MGT. PLAN		SITE	C12 C18	PKBASE-CR	PRO	2.00	0.1	2.00	0.1	2.00	0.1	2.00	1.0	8.00	1.3
011.000	IMPROVED DOCUMENTATION, FILE UPDATE		SITE	C01 C07	PKBASE-CR	ADM	1.00	0.1	1.00	0.1	0.0	0.0	0.0	0.0	2.00	0.2
016.000	KIRK CABIN ADAPTIVE REUSE		STRC	C06 C13	RG-REG-MT	PRO	5.00	0.2	0.0	0.0	0.0	0.0	0.0	0.0	5.00	0.2
8 projects printed					Grand Total		48.00	2.3	21.00	1.0	23.00	0.9	24.00	1.8	116.00	6.0

End of data

PROGRAMMING SHEET 2
CULTURAL
UNFUNDED ACTIVITIES
($ in thousands)

PK PRI	PROJECT NUMBER	PROJECT TITL	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	STARTING YEAR $$	STARTING YEAR FTE	OUTYEAR 1 $$	OUTYEAR 1 FTE	OUTYEAR 2 $$	OUTYEAR 2 FTE	OUTYEAR 3 $$	OUTYEAR 3 FTE	TOTAL $$	TOTAL FTE
2	002.000	SITE PHYSICAL PROTECTION		SITE	C12 C18	RG-CR-MTN	MIT	5.00	0.1	0.0	0.0	0.0	0.0	0.0	0.0	5.00	0.1
						PKBASE-CR	MIT	0.0	0.0	6.00	0.1	7.00	0.1	8.00	0.1	21.00	0.3
						Subtotal		5.00	0.1	6.00	0.1	7.00	0.1	8.00	0.1	26.00	0.4
3	003.000	STABILIZATION AND MONITORING OF CULTURAL RESOURCES		STRC	C12 C15	RG-CR-MTN	MON	10.00	0.3	0.0	0.0	0.0	0.0	0.0	0.0	10.00	0.3
						RG-CR-MTN	MIT	10.00	0.3	0.0	0.0	0.0	0.0	0.0	0.0	10.00	0.3
						PKBASE-CR	MON	0.0	0.0	11.00	0.3	12.00	0.3	13.00	0.3	36.00	0.9
						PKBASE-CR	MIT	0.0	0.0	11.00	0.3	12.00	0.3	13.00	0.3	36.00	0.9
						Subtotal		20.00	0.6	22.00	0.6	24.00	0.6	26.00	0.6	92.00	2.4
4	004.000	ARPA SITE PATROLS, ENFORCEMENT		SITE	C12 C24	SVC-OTHER	PRO	11.00	0.5	12.00	0.6	13.00	0.6	14.00	0.6	50.00	2.3
						REG-OTHER	PRO	11.00	0.5	12.00	0.6	13.00	0.7	14.00	0.6	50.00	2.4
						Subtotal		22.00	1.0	24.00	1.2	26.00	1.3	28.00	1.2	100.00	4.7
5	005.000	ARPA TRAINING		COMB	C25 C24	SPECIAL-$	ADM	3.00	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.00	0.1
						PKBASE-CR	ADM	0.0	0.0	3.00	0.1	3.00	0.1	3.00	0.1	9.00	0.3
						Subtotal		3.00	0.1	3.00	0.1	3.00	0.1	3.00	0.1	12.00	0.4
6	006.000	COLLECTION MANAGEMENT		OBJC	C24 C03	PKBASE-OT	PRO	0.0	0.0	23.00	1.0	0.0	0.0	0.0	0.0	23.00	1.0
						PKBASE-CR	PRO	0.0	0.0	0.0	0.0	27.00	1.0	0.0	0.0	27.00	1.0
						PKBASE-CR	ADM	0.0	0.0	0.0	0.0	0.0	0.0	28.00	1.0	28.00	1.0
						Subtotal		0.00	0.0	23.00	1.0	27.00	1.0	28.00	1.0	78.00	3.0
7	007.000	MUSEUM FIRE PROTECTION, SECURITY		OBJC	C16 C20	REG-OTHER	PRO	15.00	0.5	0.0	0.0	0.0	0.0	0.0	0.0	15.00	0.5
						PKBASE-OT	PRO	0.0	0.0	5.00	0.2	2.00	0.1	2.00	0.1	9.00	0.4
						Subtotal		15.00	0.5	5.00	0.2	2.00	0.1	2.00	0.1	24.00	0.9
9	009.000	PROTECTION THROUGH NOMINATION		SITE	C10 C01	RG-CR-MTN	PRO	5.00	0.2	5.00	0.2	5.00	0.2	6.00	0.2	21.00	0.8
10	010.000	HORSESHOE CANYON MGT. PLAN		SITE	C12 C18	RG-CR-MTN	PRO	4.00	0.2	4.00	0.2	4.00	0.2	4.00	0.2	16.00	0.8
11	011.000	IMPROVED DOCUMENTATION, FILE UPDATE		SITE	C01 C07	RG-CR-MTN	ADM	2.00	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2.00	0.2

continued...

PROGRAMMING SHEET 2
CULTURAL
UNFUNDED ACTIVITIES
($ in thousands)

PK PRI	PROJECT NUMBER	PROJECT TITL	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	STARTING YEAR $$	STARTING YEAR FTE	OUTYEAR 1 $$	OUTYEAR 1 FTE	OUTYEAR 2 $$	OUTYEAR 2 FTE	OUTYEAR 3 $$	OUTYEAR 3 FTE	TOTAL $$	TOTAL FTE
12	012.000	ARCHIVES, ADMIN., LEGISLATIVE HISTORIES		OBJC	C03 C08	RG-CR-MTN	ADM	12.00	0.5	24.00	1.0	12.00	0.5	0.0	0.0	48.00	2.0
13	013.000	NATIVE AMERICAN CONSULTATION		ETHN	C04 C10	SPECIAL-$	ADM	2.00	0.1	2.00	0.1	2.00	0.1	2.00	0.1	8.00	0.4
14	014.000	CULTURAL RESOURCE INVENTORY, EVALUATION		SITE	C02	RG-REG-MT	RES	989.00	12.0	989.00	10.0	989.00	10.0	989.00	10.0	3956.00	42.0
15	015.000	ETHNOGRAPHIC OVERVIEW, ASSESSMENT		ETHN	C04 C01	CRPP	RES	30.00	1.0	15.00	0.5	7.00	0.2	0.0	0.0	52.00	1.7
	016.000	KIRK CABIN ADAPTIVE REUSE		STRC	C06 C13	CRPP	MIT	0.0	0.0	15.00	0.5	0.0	0.0	0.0	0.0	15.00	0.5
	14 projects printed					Grand Total		1109.00	16.5	1137.00	15.7	1108.00	14.4	1096.00	13.6	4450.00	60.2

End of data

TABLE 2
NATURAL AND CULTURAL
CURRENT YEAR FUNDING
($ in thousands - by activity type)

FUNDING SOURCE	TOTAL	RES	MIT	MON	PRO	INT	ADM
PCR1	20.00	0.00	15.00	0.00	3.00	0.00	2.00
RCCM	21.00	0.00	0.00	0.00	21.00	0.00	0.00
POF1	2.00	0.00	0.00	0.00	2.00	0.00	0.00
RMCM	5.00	0.00	0.00	0.00	5.00	0.00	0.00
PNR1	95.50	0.00	22.50	73.00	0.00	0.00	0.00
SNAQ	10.60	0.00	0.00	10.60	0.00	0.00	0.00
PNR2	15.00	0.00	0.00	0.00	0.00	0.00	15.00
SNRP	30.00	15.00	0.00	15.00	0.00	0.00	0.00
RNSR	90.00	50.00	0.00	40.00	0.00	0.00	0.00
TOTAL	289.10	65.00	37.50	138.60	31.00	0.00	17.00

End of data

SUMMARY CHART FOR SITES, STRUCTURES, CANYONLANDS

		CONDITION					IMPACTS				DOCUMENTATION		
SITES	Total	Good	Fair	Poor	Destroyed	?	Severe	Moderate	Low	?	Good	Fair	Poor
National Register significant	295	88	127	73	0	7	73	127	88	7	144	147	4
National Register not significant	200	72	81	34	12	1	46	81	72	1	178	2	19
National Register not evaluated	713	95	44	89	0	484	89	44	95	484	1	3	709
TOTALS	1208	255	252	196	12	492	208	252	255	492	323	152	732
SITES WITH STRUCTURES													
National Register significant	130	44	40	41	0	3	41	40	44	3	57	72	1
National Register not significant	16	6	4	6	0	0	6	4	6	0	14	0	2
National Register not evaluated	221	35	12	24	0	150	24	12	35	150	0	1	220
TOTALS	367	85	56	71	0	153	71	56	85	153	71	73	223

RMP

CANY

Date approved: 12-94

If Draft -- Expected Completion Date: _____
Copy of Draft in Colorado Plateau System Support Office:
___ Yes ___ No

Project Statement Software data Submitted for FY '96'

Actual Date of Update: 4/2/96

Park RMP Contact: _____ Telephone No. _____

NOTES:

CANYONLANDS NATIONAL PARK CULTURAL RESOURCE DOCUMENTATION CHECKLIST

TITLE	CURRENT AND APPROVED	INCOMPLETE: NEEDS REVISION	NEEDED
PLANNING DOCUMENTS			
Preauthorization and Authorization	X		
Statement for Management	X		
Outline of Planning Requirements	X		
General Management Plan		X	
Development Concept Plan	X		
Resources Management Plan	X		
Interpretive Prospectus	X		
SERVICEWIDE INVENTORIES, LISTS, CATALOGS, REGISTERS			
Cultural Resources Bibliography		X	
Cultural Sites Inventory		X	
List of Classified Structures		X	
National Catalog of Museum Objects		X	
National Register of Historic Places		X	
BASIC CULTURAL RESOURCE DOCUMENTS			
Archeological Overview and Assessment			X
Archeological Identification Studies			X
Archeological Evaluation Studies			X
Ethnographic Overview and Assessment			X
Ethnographic Oral Histories		X	
Ethnographic Program			X
Historical Base Map	X		
Historic Resource Study	X		
Park Administrative History			X
Scope of Collection Statement		X	

SPECIAL RESOURCE STUDIES AND PLANS			
Archeological and Ethno. Collection Studies		X	
Archeological Data Recovery Studies		X	
Collection Management Plan			X
Collection Storage Plan		X	
Collection Condition Survey			X
Cultural Landscape Report			X
Ethnohistory			X
Exhibit Plan	X		
Historic Furnishings Report	X		
Historic Structure Preservation Guide		X	
Historic Structure Report		X	
Social Impact Study		X	
Special History Study	X		
Traditional Use Study			X

SUMMARY CHART FOR SITES, STRUCTURES, CANYONLANDS

		CONDITION					IMPACTS				DOCUMENTATION		
SITES	Total	Good	Fair	Poor	Destroyed	?	Severe	Moderate	Low	?	Good	Fair	Poor
National Register significant	295	88	127	73	0	7	73	127	88	7	144	147	4
National Register not significant	200	72	81	34	12	1	46	81	72	1	178	2	19
National Register not evaluated	713	95	44	89	0	484	89	44	95	484	1	3	709
TOTALS	1208	255	252	196	12	492	208	252	255	492	323	152	732
SITES WITH STRUCTURES													
National Register significant	130	44	40	41	0	3	41	40	44	3	57	72	1
National Register not significant	16	6	4	6	0	0	6	4	6	0	14	0	2
National Register not evaluated	221	35	12	24	0	150	24	12	35	150	0	1	220
TOTALS	367	85	56	71	0	153	71	56	85	153	71	73	223

02/28/95
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TABLE 1
NPS RESOURCE PERSONNEL
(current year only)

FY: 94
PARK: CANY
REGION: RMRO

TYPE OF NPS EMPLOYEE	FTEs OF RESOURCES WORK		
	Natural	Cultural	Total
Research Scientists	0.3	0.0	0.3
Resources Specialists	1.8	0.6	2.4
025 Park Rangers Res Mgmt	0.5	0.5	1.0
025 Park Rangers Res Prot	3.0	2.0	5.0
025 Park Rangers Res Interp	2.0	2.0	4.0
Maintenance Personnel	1.0	1.0	2.0
Total of RES Personnel	8.6	6.1	14.7
TOTAL PARK FTE: 81.0 PERCENT	10.6%	7.5%	18.1%

TABLE 2
NATURAL AND CULTURAL
CURRENT YEAR FUNDING
($ in thousands - by activity type)

FY: 94
PARK: CANY
REGION: RMRO

FUNDING SOURCE	TOTAL	RES	MIT	MON	PRO	INT	ADM
PCR1	20.00	0.00	15.00	0.00	3.00	0.00	2.00
RCCM	21.00	0.00	0.00	0.00	21.00	0.00	0.00
POF1	2.00	0.00	0.00	0.00	2.00	0.00	0.00
RMCM	5.00	0.00	0.00	0.00	5.00	0.00	0.00
PNR1	95.50	0.00	22.50	73.00	0.00	0.00	0.00
SNAQ	10.60	0.00	0.00	10.60	0.00	0.00	0.00
PNR2	15.00	0.00	0.00	0.00	0.00	0.00	15.00
RNSR	90.00	50.00	0.00	40.00	0.00	0.00	0.00
SNRP	15.00	15.00	0.00	0.00	0.00	0.00	0.00
TOTAL	274.10	65.00	37.50	123.60	31.00	0.00	17.00

PROGRAMMING SHEET 1
CULTURAL
CURRENT YEAR FUNDED ACTIVITIES
($ in thousands)

PROJECT NUMBER	PROJECT TITLE	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	CURRENT YEAR 1994 $$	CURRENT YEAR 1994 FTE	OUTYEAR 1 1995 $$	OUTYEAR 1 1995 FTE	OUTYEAR 2 1996 $$	OUTYEAR 2 1996 FTE	OUTYEAR 3 1997 $$	OUTYEAR 3 1997 FTE	TOTAL $$	TOTAL FTE
001.000	COMPLIANCE WITH NHPA		COMB	C26 C02	PKBASE-CR	MIT	15.00	0.5	15.00	0.5	17.00	0.5	18.00	0.5	65.00	2.0
005.000	ARPA TRAINING		COMB	C25 C24	PKBASE-CR	ADM	1.00	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.1
006.000	COLLECTION MANAGEMENT		OBJC	C24 C03	RG-CR-MTN	PRO	21.00	1.0	0.0	0.0	0.0	0.0	0.0	0.0	21.00	1.0
008.000	SITE INDIRECT PROTECTION		SITE	C18 C12	PKBASE-CR	PRO	1.00	0.2	1.00	0.2	1.00	0.2	1.00	0.2	4.00	0.8
009.000	PROTECTION THROUGH NOMINATION		SITE	C10 C01	PKBASE-OT	PRO	2.00	0.1	2.00	0.1	3.00	0.1	3.00	0.1	10.00	0.4
010.000	HORSESHOE CANYON MGT. PLAN		SITE	C12 C18	PKBASE-CR	PRO	2.00	0.1	2.00	0.1	2.00	0.1	2.00	1.0	8.00	1.3
011.000	IMPROVED DOCUMENTATION, FILE UPDATE		SITE	C01 C07	PKBASE-CR	ADM	1.00	0.1	1.00	0.1	0.0	0.0	0.0	0.0	2.00	0.2
016.000	KIRK CABIN ADAPTIVE REUSE		STRC	C06 C13	RG-REG-MT	PRO	5.00	0.2	0.0	0.0	0.0	0.0	0.0	0.0	5.00	0.2
8 projects printed																
					Grand Total		48.00	2.3	21.00	1.0	23.00	0.9	24.00	1.8	116.00	6.0

End of data

PROGRAMMING SHEET 1
NATURAL
CURRENT YEAR FUNDED ACTIVITIES
($ in thousands)

FY: 94
PARK: CANY
REGION: RMRO

PROJECT NUMBER	PROJECT TITLE	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	CURRENT YEAR 1994 $$	CURRENT YEAR 1994 FTE	OUTYEAR 1 1995 $$	OUTYEAR 1 1995 FTE	OUTYEAR 2 1996 $$	OUTYEAR 2 1996 FTE	OUTYEAR 3 1997 $$	OUTYEAR 3 1997 FTE	TOTAL $$	TOTAL FTE
003.000	INTEGRATED PEST MANAGMENT			N05 N06	PKBASE-NR	MIT	10.00	0.2	11.00	0.2	12.00	0.2	13.00	0.2	46.00	0.8
005.000	EXTERNAL THREATS			N24 N06	PKBASE-NR	MON	8.00	0.2	9.00	0.2	10.00	0.2	11.00	0.2	38.00	0.8
011.000	AIR RESOURCES MANAGEMENT			N14	AIR-QUAL	MON	10.60	0.1	11.00	0.1	12.00	0.1	13.00	0.1	46.60	0.4
012.000	WATER RESOURCES MANAGMENT			N11	PKBASE-NR	MON	6.00	0.2	6.00	0.2	7.00	0.2	7.00	0.2	26.00	0.8
					TEMP$-NR	ADM	15.00	0.3	15.00	0.3	17.00	0.3	17.00	0.3	64.00	1.2
					Subtotal		21.00	0.5	21.00	0.5	24.00	0.5	24.00	0.5	90.00	2.0
020.000	DESERT BIGHORN SHEEP MANAGEMENT			N17 N20	PKBASE-NR	MON	10.00	0.5	11.00	0.5	12.00	0.6	14.00	0.7	47.00	2.3
					RG-NS-RES	MON	40.00	0.8	20.00	0.4	35.00	0.5	0.0	0.0	95.00	1.7
					Subtotal		50.00	1.3	31.00	0.9	47.00	1.1	14.00	0.7	142.00	4.0
021.000	FISHERIES MANAGEMENT			N02 N04	PKBASE-NR	MON	5.00	0.1	6.00	0.1	7.00	0.1	8.00	0.1	26.00	0.4
					NRPP	RES	15.00	0.1	15.00	0.1	15.00	0.1	0.0	0.0	45.00	0.3
					Subtotal		20.00	0.2	21.00	0.2	22.00	0.2	8.00	0.1	71.00	0.7
024.000	VEGETATION MANAGEMENT			N05 N17	PKBASE-NR	MIT	5.00	0.1	0.0	0.0	6.00	0.1	6.50	0.1	17.50	0.3
					PKBASE-NR	MON	20.00	0.6	21.00	0.6	22.00	0.6	23.00	0.6	86.00	2.4
					TEMP$-NR	MIT	0.0	0.0	5.50	0.1	0.0	0.0	0.0	0.0	5.50	0.1
					Subtotal		25.00	0.7	26.50	0.7	28.00	0.7	29.50	0.7	109.00	2.8
025.000	FIRE MANAGEMENT			N07	PKBASE-NR	MIT	7.50	0.2	8.50	0.2	9.50	0.2	10.50	0.2	36.00	0.8
					RG-NS-RES	RES	50.00	0.1	50.00	0.1	50.00	0.1	0.0	0.0	150.00	0.3
					Subtotal		57.50	0.3	58.50	0.3	59.50	0.3	10.50	0.2	186.00	1.1
027.000	INVENTORY AND MONITORING			N05 N17	PKBASE-NR	MON	24.00	1.0	27.00	1.0	30.00	1.0	30.00	1.0	111.00	4.0
9 projects printed																
					Grand Total		226.10	4.5	216.00	4.1	244.50	4.3	153.00	3.7	839.60	16.6

End of data

PROGRAMMING SHEET 2
CULTURAL
UNFUNDED ACTIVITIES
($ in thousands)

PK PRI	PROJECT NUMBER	PROJECT TITL	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	STARTING YEAR $$	STARTING YEAR FTE	OUTYEAR 1 $$	OUTYEAR 1 FTE	OUTYEAR 2 $$	OUTYEAR 2 FTE	OUTYEAR 3 $$	OUTYEAR 3 FTE	TOTAL $$	TOTAL FTE
1	002.000	SITE PHYSICAL PROTECTION		SITE C12 C18		RG-CR-MTN MIT		5.00	0.1	0.0	0.0	0.0	0.0	0.0	0.0	5.00	0.1
						PKBASE-CR MIT		0.0	0.0	6.00	0.1	7.00	0.1	8.00	0.1	21.00	0.3
						Subtotal		5.00	0.1	6.00	0.1	7.00	0.1	8.00	0.1	26.00	0.4
2	003.000	STABILIZATIO N AND MONITORING OF CULTURAL RESOURCES		STRC C12 C15		RG-CR-MTN MIT		10.00	0.3	0.0	0.0	0.0	0.0	0.0	0.0	10.00	0.3
						RG-CR-MTN MON		10.00	0.3	0.0	0.0	0.0	0.0	0.0	0.0	10.00	0.3
						PKBASE-CR MIT		0.0	0.0	11.00	0.3	12.00	0.3	13.00	0.3	36.00	0.9
						PKBASE-CR MON		0.0	0.0	11.00	0.3	12.00	0.3	13.00	0.3	36.00	0.9
						Subtotal		20.00	0.6	22.00	0.6	24.00	0.6	26.00	0.6	92.00	2.4
3	004.000	ARPA SITE PATROLS, ENFORCEMENT		SITE C12 C24		REG-OTHER PRO		11.00	0.5	12.00	0.6	13.00	0.7	14.00	0.6	50.00	2.4
						SVC-OTHER PRO		11.00	0.5	12.00	0.6	13.00	0.6	14.00	0.6	50.00	2.3
						Subtotal		22.00	1.0	24.00	1.2	26.00	1.3	28.00	1.2	100.00	4.7
4	005.000	ARPA TRAINING		COMB C25 C24		SPECIAL-$ ADM		3.00	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.00	0.1
						PKBASE-CR ADM		0.0	0.0	3.00	0.1	3.00	0.1	3.00	0.1	9.00	0.3
						Subtotal		3.00	0.1	3.00	0.1	3.00	0.1	3.00	0.1	12.00	0.4
5	006.000	COLLECTION MANAGEMENT		OBJC C24 C03		PKBASE-OT PRO		0.0	0.0	23.00	1.0	0.0	0.0	0.0	0.0	23.00	1.0
						PKBASE-CR PRO		0.0	0.0	0.0	0.0	27.00	1.0	0.0	0.0	27.00	1.0
						PKBASE-CR ADM		0.0	0.0	0.0	0.0	0.0	0.0	28.00	1.0	28.00	1.0
						Subtotal		0.00	0.0	23.00	1.0	27.00	1.0	28.00	1.0	78.00	3.0
6	007.000	MUSEUM FIRE PROTECTION, SECURITY		OBJC C16 C20		REG-OTHER PRO		15.00	0.5	0.0	0.0	0.0	0.0	0.0	0.0	15.00	0.5
						PKBASE-OT PRO		0.0	0.0	5.00	0.2	2.00	0.1	2.00	0.1	9.00	0.4
						Subtotal		15.00	0.5	5.00	0.2	2.00	0.1	2.00	0.1	24.00	0.9
7	009.000	PROTECTION THROUGH NOMINATION		SITE C10 C01		RG-CR-MTN PRO		5.00	0.2	5.00	0.2	5.00	0.2	6.00	0.2	21.00	0.8
8	010.000	HORSESHOE CANYON MGT. PLAN		SITE C12 C18		RG-CR-MTN PRO		4.00	0.2	4.00	0.2	4.00	0.2	4.00	0.2	16.00	0.8
9	011.000	IMPROVED DOCUMENTATIO N, FILE UPDATE		SITE C01 C07		RG-CR-MTN ADM		2.00	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2.00	0.2

continued...

PROGRAMMING SHEET 2
CULTURAL
UNFUNDED ACTIVITIES
($ in thousands)

PK PRI	PROJECT NUMBER	PROJECT TITL	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDI SOURC	ACT TYP	STARTING YEAR $$	STARTING YEAR FTE	OUTYEAR 1 $$	OUTYEAR 1 FTE	OUTYEAR 2 $$	OUTYEAR 2 FTE	OUTYEAR 3 $$	OUTYEAR 3 FTE	TOTAL $$	TOTAL FTE
10	012.000	ARCHIVES, ADMIN., LEGISLATIVE HISTORIES		OBJC C03 C08		RG-CR	TN ADM	12.00	0.5	24.00	1.0	12.00	0.5	0.0	0.0	48.00	2.0
11	013.000	NATIVE AMERICAN CONSULTATION		ETHN C04 C10		SPECI	-$ ADM	2.00	0.1	2.00	0.1	2.00	0.1	2.00	0.1	8.00	0.4
12	014.000	CULTURAL RESOURCE INVENTORY, EVALUATION		SITE C02		RG-RE	MT RES	989.00	12.0	989.00	10.0	989.00	10.0	989.00	10.0	3956.00	42.0
13	015.000	ETHNOGRAPHIC OVERVIEW, ASSESSMENT		ETHN C04 C01		CRPP	RES	30.00	1.0	15.00	0.5	7.00	0.2	0.0	0.0	52.00	1.7
14	016.000	KIRK CABIN ADAPTIVE REUSE		STRC C06 C13		CRPP	MIT	0.0	0.0	15.00	0.5	0.0	0.0	0.0	0.0	15.00	0.5
	14 projects printed																
						Grand	otal	1109.00	16.5	1137.00	15.7	1108.00	14.4	1096.00	13.6	4450.00	60.2

End of data

PROGRAMMING SHEET 2
NATURAL
UNFUNDED ACTIVITIES
($ in thousands)

PK PRI	PROJECT NUMBER	PROJECT TITL	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	STARTING YEAR		OUTYEAR 1		OUTYEAR 2		OUTYEAR 3		TOTAL	
								$$	FTE	$$	FTE	$$	FTE	$$	FTE	$$	FTE
1	006.000	RIVER MANAGEMENT			N12 N18	RG-NS-RES	MIT	45.00	1.5	50.00	1.5	55.00	1.5	60.00	1.5	210.00	6.0
2	020.000	DESERT BIGHORN SHEEP MANAGEMENT			N17 N20	PKBASE-NR	MON	15.00	0.5	16.00	0.5	17.00	0.5	18.00	0.5	66.00	2.0
						RG-NS-RES	MIT	0.0	0.0	0.0	0.0	30.00	0.5	35.00	0.5	65.00	1.0
						Subtotal		15.00	0.5	16.00	0.5	47.00	1.0	53.00	1.0	131.00	3.0
3	009.000	PLUG AND ABANDON FOUR WATER WELLS			N12 N22	RG-RM-NAT	MIT	56.00	0.1	0.0	0.0	0.0	0.0	0.0	0.0	56.00	0.1
4	014.000	NATURAL SILENCE			N16 N20	RG-NS-RES	MON	25.00	0.2	25.00	0.2	25.00	0.2	25.00	0.2	100.00	0.8
5	005.100	EXTERNAL THREATS HIGHWAY DEVELOPMENT			N16 N22	PKBASE-NR	MON	3.00	0.1	3.50	0.1	4.00	0.1	4.50	0.1	15.00	0.4
6	003.000	INTEGRATED PEST MANAGMENT			N05 N06	RG-RM-NAT	ADM	20.00	0.5	0.0	0.0	0.0	0.0	0.0	0.0	20.00	0.5
						RG-RM-NAT	MIT	17.00	0.8	0.0	0.0	0.0	0.0	0.0	0.0	17.00	0.8
						PKBASE-NR	MIT	0.0	0.0	18.00	0.8	19.00	0.8	20.00	0.8	57.00	2.4
						Subtotal		37.00	1.3	18.00	0.8	19.00	0.8	20.00	0.8	94.00	3.7
7	016.000	PALEONTOLOGICAL RESOURCES			N18 N23	RG-NS-RES	RES	30.00	0.1	30.00	0.1	30.00	0.1	0.0	0.0	90.00	0.3
8	026.000	VEGETATION RECLAMATION			N17 N20	PKBASE-NR	MIT	50.00	1.0	55.00	1.0	60.00	1.0	65.00	1.0	230.00	4.0
9	018.000	THREATENED, ENDANGERED AND SENSITIVE SPECIES			N02 N20	PKBASE-NR	MON	15.00	0.5	16.00	0.5	17.00	0.5	18.00	0.5	66.00	2.0
						RG-NS-RES	MON	25.00	0.5	25.00	0.5	0.0	0.0	0.0	0.0	50.00	1.0
						Subtotal		40.00	1.0	41.00	1.0	17.00	0.5	18.00	0.5	116.00	3.0
10	017.000	QUATERNARY RESOURCES			N18 N23	RG-NS-RES	RES	35.00	0.1	35.00	0.1	35.00	0.1	35.00	0.1	140.00	0.4
11	021.000	FISHERIES MANAGEMENT			N02 N04	PKBASE-NR	MON	0.0	0.0	0.0	0.0	0.0	0.0	50.00	1.0	50.00	1.0

continued...

PROGRAMMING SHEET 2
NATURAL
UNFUNDED ACTIVITIES
($ in thousands)

PK PRI	PROJECT NUMBER	PROJECT TITL	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	STARTING YEAR $$	STARTING YEAR FTE	OUTYEAR 1 $$	OUTYEAR 1 FTE	OUTYEAR 2 $$	OUTYEAR 2 FTE	OUTYEAR 3 $$	OUTYEAR 3 FTE	TOTAL $$	TOTAL FTE
12	024.000	VEGETATION MANAGEMENT			N05 N17	PKBASE-NR	ADM	50.00	0.1	0.0	0.0	0.0	0.0	0.0	0.0	50.00	0.1
						PKBASE-NR	MIT	10.00	0.5	11.00	0.5	12.00	0.5	13.00	0.5	46.00	2.0
						Subtotal		60.00	0.6	11.00	0.5	12.00	0.5	13.00	0.5	96.00	2.1
13	007.000	INVENTORY OF MINES AND ABANDONED MINERAL LANDS			N06 N10	RG-NS-RES	MON	40.00	0.3	0.0	0.0	0.0	0.0	0.0	0.0	40.00	0.3
						RG-NS-RES	MIT	0.0	0.0	144.00	0.5	152.00	0.5	160.00	0.5	456.00	1.5
						Subtotal		40.00	0.3	144.00	0.5	152.00	0.5	160.00	0.5	496.00	1.8
14	015.000	NIGHTSKY			N16 N20	RG-NS-RES	MON	10.00	0.1	10.00	0.1	10.00	0.1	10.00	0.1	40.00	0.4
15	023.000	NEOTROPICAL MIGRANT			N17 N24	RG-NS-RES	MON	20.00	0.6	22.00	0.6	24.00	0.6	26.00	0.6	92.00	2.4
16	028.000	ECOSYSTEM HEALTH AND ASSESSMENT			N17 N20	RG-NS-RES	RES	120.00	2.0	130.00	2.0	140.00	2.0	160.00	2.0	550.00	8.0
17	001.000	GEOGRAPHIC INFORMATION SYSTEM			N20 N24	PKBASE-NR	ADM	20.00	0.2	20.00	0.3	22.00	0.3	25.00	0.3	87.00	1.1
						RG-NS-RES	ADM	15.00	0.3	35.00	1.0	38.00	1.0	40.00	1.0	128.00	3.3
						Subtotal		35.00	0.5	55.00	1.3	60.00	1.3	65.00	1.3	215.00	4.4
18	022.000	DEVELOP COLORADO RIVER BENTHIC CHARACTERIZATION			N04 N02	RG-NS-RES	RES	20.00	0.1	20.00	0.1	0.0	0.0	0.0	0.0	40.00	0.2
19	008.000	TRESPASS LIVESTOCK/BURRO MANAGEMENT			N03 N04	RG-NS-RES	MIT	20.00	0.3	22.00	0.3	24.00	0.3	26.00	0.3	92.00	1.2
20	013.000	GRAZING HISTORY			N04 N06	RG-NS-RES	RES	30.00	0.1	15.00	0.1	15.00	0.1	0.0	0.0	60.00	0.3
21	019.000	WILDLIFE RESOURCES			N17 N20	RG-NS-RES	MON	30.00	1.0	32.00	1.0	34.00	1.0	0.0	0.0	96.00	3.0
						RG-NS-RES	RES	32.00	0.2	32.00	0.2	25.00	0.1	25.00	0.1	114.00	0.6
						Subtotal		62.00	1.2	64.00	1.2	59.00	1.1	25.00	0.1	210.00	3.6

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PROGRAMMING SHEET 2
NATURAL
UNFUNDED ACTIVITIES
($ in thousands)

PK PRI	PROJECT NUMBER	PROJECT TITL	PKG NUM	CULT RES TYPE	SYSTEM-WIDE ISSUE	FUNDING SOURCE	ACT TYP	STARTING YEAR		OUTYEAR 1		OUTYEAR 2		OUTYEAR 3		TOTAL	
								$$	FTE	$$	FTE	$$	FTE	$$	FTE	$$	FTE
22	004.000	BACKCOUNTRY MANAGEMENT			N18	PKBASE-NR	ADM	100.00	1.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00	1.0
						PKBASE-NR	MIT	160.00	3.6	200.00	4.6	220.00	4.8	242.00	5.0	822.00	18.0
						Subtotal		260.00	4.6	200.00	4.6	220.00	4.8	242.00	5.0	922.00	19.0
23	029.000	INVERTEBRATES AND SOIL MIRCOFLORA		N17	N20	RG-NS-RES	RES	30.00	0.3	30.00	0.3	30.00	0.3	30.00	0.3	120.00	1.2
24	002.000	REMOTE SENSING NEEDS		N17	N20	RG-NS-RES	MON	40.00	0.3	40.00	0.3	40.00	0.3	0.0	0.0	120.00	0.9
25	030.000	CYANOBACTERIAL-LICHENMOSS SOIL CRUSTS		N17	N20	RG-NS-RES	RES	40.00	0.6	40.00	0.6	40.00	0.6	40.00	0.6	160.00	2.4
26	010.000	BORROW MATERIALS MANAGEMENT		N24		RG-RM-NAT	ADM	10.00	0.1	10.00	0.1	0.0	0.0	0.0	0.0	20.00	0.2
27	031.000	HAZARDOUS SPILLS RESPONSE PLAN		N16	N20	PKBASE-NR	ADM	15.00	0.5	0.0	0.0	0.0	0.0	0.0	0.0	15.00	0.5
		Grand Total						1148.00	18.1	1086.50	17.9	1118.00	17.8	1127.50	17.5	4480.00	71.3

27 projects printed

End of data