

RESOURCE STEWARDSHIP

Protection and Preservation of Natural and Cultural Resources

Traditionally, preservation of resources was accorded to parks when they were established. However, as outside influences continue encroaching towards and over park boundaries, the protection offered by being a unit of the National Park System is not enough to safeguard habitats and historic landscapes.

Threats to resources in national parks are as varied as the parks themselves. Agricultural runoff containing excess nutrients and pollutants drains into delicate wetlands; air pollution enters the parks from near and far, diminishing visibility and harming sensitive streams, soils, and vegetation; urban encroachment into historic scenes imperils the integrity of cultural landscapes and impairs scenic views; and increasing infestations of non-native invasive plant and animal species disrupt native plant communities and historical landscapes. In addition, some park resources were degraded before parks were established, including historic buildings in need of repair or land with abandoned mines that drain pollutants into park waters.

Increasing or inappropriate visitor use is also a source of accelerating damage to resources. For example, an uninformed visitor can render an archeological site scientifically useless in a short period of time. In some new park units, sites face a danger of being destroyed before ever being identified or documented. The NPS must contend with activities such as poaching or collecting plants, animals, fossils, and historic and archaeological artifacts and defacing cultural and historic buildings. Unrestricted visitation also increases the possibility of disturbing wildlife during sensitive breeding or nesting seasons and trampling fragile plant communities.

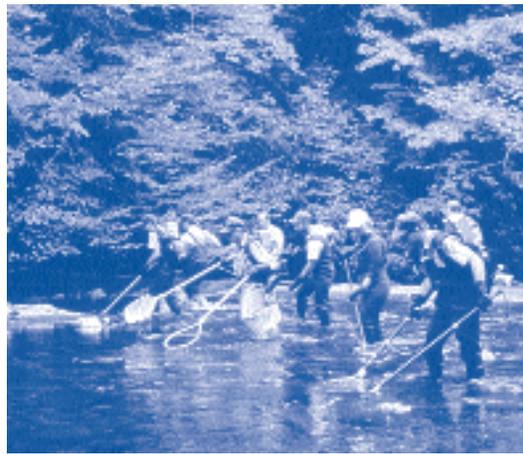
As the American and world populace grows more enthralled by national parks, the National Park Service is developing resource management programs to keep pace with its success in accommodating visitors. To understand and counter the effects of an increasingly human dominated landscape and the high level of visi-

tor use, the NPS undertakes an array of preservation, mitigation, and restoration activities. These actions safeguard irreplaceable resources so that they will remain intact for the ecological, historical, scientific, educational, and aesthetic benefit of future generations.

Natural Resources

From the spectacular mountain ranges and glacier fields of Alaska to the Sonoran deserts of the American Southwest, from the volcanic landscapes of Hawaii to the magnificent barrier islands of the North and Southeastern United States, the National Park Service acts as steward for the natural resources that have inspired, awed, and brought enjoyment throughout this century. The collection of new information and its application must be of sufficient sophistication, scope, and professionalism to meet our stewardship responsibility—preserving over 83 million acres of America's richest natural systems.

The stewardship of natural resources addresses wildlife, fisheries, vegetation, air, water, scenic vistas, natural sounds, and geologic resources. This stewardship requires that we know what and where our resources are,



Fish Survey in Great Smoky Mountain National Park.

the condition of those resources, how to maintain them, and how to restore them. This knowledge is fundamental to the management of national parks.

Wise decisions about the placement of a visitor center or campground, or whether to permit intensive recreational activities depend on first knowing, for example, where there are sensitive breeding or nesting areas and endangered species habitats. If we do not understand geologic or flood hazards, we cannot make certain that visitors and employees will be safe as possible. Similarly, we must understand how the natural systems in the parks function and how human changes to the landscape affect them before we can design protective measures or plan restorations of impacted resources.

The effectiveness of natural resource stewardship can be measured by the extent to which the NPS has available detailed inventories, baseline measures, monitoring stations, and the capability to assess and respond to this information. Having reliable scientific information allows us to detect changes that may signal problems and to take corrective actions before those impacts severely degrade ecosystem integrity or become irreversible. As such, the NPS has developed performance measures to track its progress in obtaining necessary information. These measures will assist the NPS in developing frameworks to systematically monitor resource conditions and evaluate trends.

Knowing the Resources and Their Conditions

The NPS has defined a basic set of 12 inventory data needs critical for every park [see box this page] while recognizing that each park will also have its own additional, specialized inventory needs. To ensure that 11 of the basic 12 data sets are acquired as efficiently as possible, a national program with several Federal and other partners has been established. The Biological Resources Division of the U.S. Geological Survey has responsibility for the twelfth data set. The National Park Service Strategic Plan targets completing 19% of the outstanding needs within five years.

Basic Inventory Data Needs Critical for Every Park

- Historical Data (Bibliography)
- Species Occurrence Information
- Species Status and Distribution Information
- Digital Vegetation Maps
- Digital Cartographic Data
- Digital Soils Maps
- Digital Geology Maps
- Water Resources Inventory
- Water Chemistry for Key Bodies of Water
- Location of Nearby Ambient Air Quality Monitoring Stations
- List of Air Quality-Related Values
- Precipitation and Meteorological Data

This modest target is based on the availability of funding. At the end of FY 1998, the NPS was on track to meet this target. The collection of inventory data needs is run under a Servicewide Inventory and Monitoring (I&M) program.

Inventories. The first inventory set completed was automated bibliographies of the natural resource studies completed to date within each park.

As a first step in addressing species occurrence data, the NPS assessed the status of species occurrence data beginning in 1990. The initial survey found that 80% of the parks have species lists that are less than 80% complete. Currently, only about 90 parks have adequate species lists.

To address both species location data and distribution data for key species, the NPS funded additional biological inventories in FY 1999, allocating \$1.3 million to initiate inventories in 18 parks, bringing the total to 47 parks where biological inventories have been initiated or completed. These inventories are focused on birds, reptiles and amphibians. Completion of these inventories will depend heavily on local partnerships with universities and others, whereas previous inventories have been largely centrally acquired from other Federal agencies.

A final type of biological inventory, vegetation mapping, is the primary responsibility of the Biological Resources Division (BRD) of the U.S. Geological Survey. In FY 1999, the NPS worked with the BRD to initiate vegetation mapping in seven NPS units. In addition to the funding provided by the BRD, the NPS FIRE-PRO program provided cost-sharing funds at three parks. Substantial efforts have been expended to determine how the vegetation maps produced through the I&M Program can benefit fire management needs in parks.

Significant progress has been made in acquiring base cartographic information for parks. Digital cartographic data for 177 parks has been acquired from the U.S. Geological Survey. Through cost-sharing, more than \$7 million of such data has been acquired for the \$4.1 million provided by the NPS, through FY 1999.

Digital soils maps are also acquired through a Federal partnership. NPS is working with the Natural Resources Conservation Service (NRCS) to complete Order 3 soils surveys for all parks, except where more detailed surveys are necessary. In addition, the soil mapping program will provide a digital layer in order to provide flexibility in map design and production. Soil surveys were initiated in two parks during FY 1999, bringing to 38 the total number of park units that are either completed or in progress. An additional 117 parks have soils maps completed outside the I&M program, but many of them need to be digitized. Because of staffing constraints in NRCS, individual maps can take up to 5 years to produce. NPS is considering alternative means of acquiring soils data, while still working with the NRCS to verify the map products.

As a first step in developing geologic inventories, databases of existing geologic information have been completed and summarized for natural resource parks through a contract with the American Association of State Geologists (AASG). The databases will facilitate determining which parks meet the standard for adequate basic geologic information. Nearly 5,000 references to parks in 46 states have been completed. In FY 1999, scoping workshops were held in 11 national park units in Utah. Work-

shop products include a compilation of digital geologic maps and other data, an evaluation of geologic resources concerns, an assessment of geologic map coverage, and a compiled report with basic geologic information, hazards, concerns and needs.

Baseline Water Quality Data Inventory and Analysis Reports have been completed for a total of 185 parks as of the end of FY 1999. The reports provide a complete inventory of water quality parameter data within and adjacent to parks, including monitoring stations and agencies responsible for collecting the data. Additional inventories related to air quality and meteorological data have not been initiated, except that some such data are collected as part of the NPS air quality monitoring network, particularly for parks for which the Clean Air Act mandates specific protections.



Organ Pipe Cactus National Monument.

Monitoring. A Servicewide network of prototype ecosystem monitoring programs is being implemented to help acquire the common basic data sets in an effective and cost-efficient manner. To date, work on 7 of the 11 prototypes has begun, including ongoing projects at Denali National Park, Channel Islands National Park, Shenandoah National Park, Great Smoky Mountains National Park, Cape Cod National Seashore, a grasslands prairie cluster consisting of six small park units including Pipestone and Homestead National Monuments, and a Caribbean cluster that includes three parks. Research and design components of the moni-

toring element are conducted by the Biological Resources Division of the U.S. Geological Survey.

In FY 1999, as part of a Servicewide monitoring system to carry out its Clean Air Act responsibilities, the NPS continued operation of a comprehensive air monitoring network that included ozone monitoring in 33 units, wet acidic deposition sampling in 33 units, dry acid deposition monitoring in 26 units, fine particle sampling in 36 units, and optical visibility monitoring in 18 units. The NPS also funded four snowpack monitoring units in the Rocky Mountains. This network provides NPS and other Federal and state regulatory agencies information on the status and trends of air pollution levels in our national parks and on the long-range transport of air pollutants nationwide and across our borders with Canada and Mexico.

As a result, the NPS has identified the potential source regions and source types responsible for observed effects to the air resources of our national parks. Information derived is used by the Service, Federal and state regulatory agencies, and special commissions to formulate plans to protect and enhance the air resources of our national parks. In FY 1999, the NPS joined with the U.S. Environmental Protection Agency and the Texas Natural Resource Conservation Commission in initiating and funding an extensive field study, the Big Bend Regional Aerosol and Visibility Observational (BRAVO) Study, as directed by Congress. This study will attempt to identify the causes of visibility impairment at Big Bend National Park so that effective binational (U.S.-Mexico) emissions reductions strategies can be formulated to improve air quality at the park. The study will be completed during FY 2000, with final results to be available in FY 2001. Based on the data collected, several NPS units have experienced ozone concentrations that exceeded the level of EPA standards, including Joshua Tree National Park, Sequoia and Kings Canyon National Parks, Shenandoah National Park, Yosemite National Park, and Great Smoky Mountains National Park. Because of these high ozone concentrations, NPS initiated an ozone advisory program to alert employees and visitors when ozone reaches unhealthy levels. NPS was also instrumental in working with the EPA to develop



Visitors learn about NPS invasive non-native species management strategies at George Washington Memorial Parkway.

a regional haze rule to protect visibility in both national parks and wilderness areas.

In addition, effective natural resource management is dependent upon accurate and accessible information. During 1999, the AQUIMS (Air Quality Information Management System) was enhanced to handle the organization and integration of information from all natural resources areas. The enhanced system, renamed "Synthesis," was selected by the Associate Director of Natural Resource Stewardship and Science to be the standard information management system for all WASO-based natural resource divisions and programs. Natural resource data and information are currently being collected, digitized, standardized, and entered into the "Synthesis" system. The system will be accessible to central offices and parks on local computers, networks, intranets, or the internet. Joint projects to integrate natural and cultural resource information are planned for 2000.

Finally, in FY 1999 the NPS/EPA Park Research and Intensive Monitoring of Ecosystems Network (PRIMENet) saw the completion of monitor installation for ultraviolet radiation, air quality and deposition monitor installation at 14 parks: Acadia, Big Bend, Canyonlands, Denali, Everglades, Great Smoky Mountains, Glacier, Olympic, Rocky Mountain, Shenandoah, Sequoia, Theodore Roosevelt, Virgin Islands and Hawaii Volcanoes National Parks. Data from

these monitors and from associated research into the effects of air pollution and UV stresses on natural ecosystems will provide information to park managers and environmental regulators on how anthropogenic pollutants are affecting our national parks and wilderness areas.

Outcomes and Impacts: Restoring, Maintaining and Protecting Resources

In addition to good information on its resources, effective stewardship requires adapting and applying strategies to maintain, restore, and protect park natural resources. Activities that are a focus of the NPS strategic plan and GPRA goals include management and prevention of exotic species infestations and recovery of threatened and endangered species. FY 1999 accomplishments in the areas of disturbed land restoration, minerals management, fire management, native species restoration, exotic species control, and critical ecosystem studies are discussed below.

Disturbed Land Restoration. The National Park System contains nearly 315,000 acres that have been disturbed by human activities. The disturbances include abandoned roads, dams, railroads, grazed areas, campgrounds, mines, and other abandoned sites, which often cause unwanted and long-lasting problems that affect park resources or facilities. For example, altered soils and landforms adversely affect biological communities and habitats by contributing to exotic plant invasion, or water pollution. Abandoned roads, mine sites, and unsightly landscape scars, cause problems for parks managing areas as wild lands. One hundred ninety-five National Park System units report disturbed areas in need of restoration work. The need to restore these disturbed acres is recognized by the NPS in its GPRA Strategic Plan Goal Ia1A, which sets out a Servicewide restoration goal and targets 10% of the disturbed lands for action by 2002.

In 1999, for the second year, NPS committed specific funds to restore degraded lands and waters and mitigate safety problems from abandoned mineral lands (AML). The NPS AML Program provided \$167,000 to parks for

mine site reclamation, cleanup, and habitat conservation involving 10 separate projects at 7 parks in five Regions. These projects included: (1) the restoration of a naturally functioning stream channel and floodplain along Eureka Creek (Denali NP), which had been severely disrupted by placer mining; (2) the installation of steel gates at underground mine openings at the Rush Mining District (Buffalo National River), thereby conserving critical bat habitat and eliminating unsafe conditions for 30,000 visitors annually; and (3) the restoration of floodplain and associated wetlands along Glorieta Creek (Pecos NHP), which had been severely disrupted by sand and gravel extraction. In addition to AML Program funding, the NPS allocated \$250,000 of Recreational Fee Demonstration Funds toward disturbed lands restoration projects. These projects were selected through a competitive process in FY 1999 and work will be initiated in FY 2000.

Minerals Management. Private mineral development occurs in 28 parks with the potential for future development possible in many more NPS units. Production of non-federally owned oil and gas is the most prevalent mineral operation in parks today, accounting for over 90% of the mineral development in parks. There are almost 600 oil and gas wells in 10 parks across the System. In FY 1999, the NPS received and evaluated proposals to undertake 18 seismic exploration surveys, to drill 12 new oil and



Resource managers monitor sea lions at Point Reyes National Seashore.

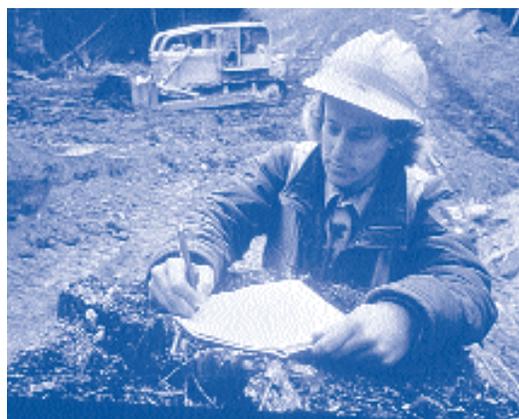
gas wells, and to continue producing at 3 existing wells. To more systematically contend with this development, in FY 1999 the NPS began preparing park-wide oil and gas management plans at Big Cypress National Preserve (FL) and Lake Meredith National Recreation Area (TX). The initiation of these plans came on the heels of similar plans already well underway at Padre Island National Seashore (TX) and Big Thicket National Preserve (TX). Once completed, these mineral management plans will aid park decision making by providing up-front information on resources at risk from oil and gas development and options for control and mitigation of resource impacts. The plans will also help prospective operators to be better informed of park resource protection concerns as they contemplate potential development. Also in 1999, to enhance park resources protection, the NPS held an oil and gas training course for field personnel involved in day-to-day environmental compliance at their parks. Topics covered included oil and gas engineering, environmental protection, regulatory compliance, operations monitoring, spill response, and site reclamation. Staff from all 10 parks with active nonfederal oil and gas operations attended the course.

In FY 1999, the NPS evaluated 3 proposals to extract private hardrock minerals at three parks (Dinosaur National Monument, Colorado/Utah; Everglades National Park, Florida; and New River Gorge National River, West Virginia) and development proposals outside the boundaries of five parks (Cumberland Gap National Historical Park, Virginia/Tennessee/Kentucky; Natchez Trace Parkway, Mississippi, Alabama, Tennessee; Olympic National Park, Washington; Ozark National Scenic Riverway, Missouri; and Yellowstone National Park, Wyoming/Montana.) Activities in FY 1999 also included the development of policy and regulatory guidance in protecting park resources from mineral operations both in and adjacent to parks.

Prescribed Burns. One of the natural resource management tools receiving increased use is prescribed burns in fire-dependent ecosystems. Historically the NPS treated an average of 50,000 acres annually. At the

end of FY 1998 102,000 acres had been treated. Requests for fuels reduction projects for FY 1999 total 220,000 acres, this number is expected to increase in FY 2000.

An example is the prescribed burn plan completed in FY 1998 for Saguaro National Monument and implemented during the FY 1999 burn season. In a forested section of the park, home to a Federally listed endangered species, the Mexican spotted owl, fire suppression and grazing since the turn of the century have contributed to an alteration of the pre-settlement vegetation structure. Before 1900 the mean fire return interval average of seven years perpetuated low intensity ground fires. Because of these frequent fires, these forests were resistant to catastrophic fire. Presently, dense pine reproduction as well as encroachment of woody shrubs such as manzanita and a variety of oak species leave park resources vulnerable to large-scale, high-intensity fire that would destroy the owl habitat. A prescribed burn plan has been developed to mimic an ecologically significant natural fire regime. The specific objectives of the prescribed burn are to achieve a 40% reduction of dead and down woody fuels two years post fire and to create a mosaic of burned and unburned vegetation. The burn mosaic will increase the park's ability to pursue a more active Fire Use for Resource Benefits Program which will enhance the fire dependent ecosystem.



Geologist overseeing watershed restoration in Redwood National Park.

Native Species Restoration. In FY 1999, the final design was completed for reclamation of the Glorieta Creek floodplain in Pecos National Historical Park. Prior to NPS acquisition, the floodplain and terrace along the north side of the creek were mined for sand and gravel, and the site was subsequently bulldozed to create two reservoirs for stock watering. The reclamation design involves removing the reservoir walls and converting the site to a complex of ponds, wet meadows, willow thickets, and cottonwood galleries, similar to the natural conditions that existed prior to disturbance. The project includes major earthmoving and revegetation activities. The project is being supported through funding from the Park, the NPS Water Resources Division, and the State of New Mexico.

As an example of another type of native species restoration project, a 10-acre wetland, fed by Boquillas Warm Springs, historically occurred near Big Bend National Park's Rio Grande Village development. Pre-park agricultural development and later NPS maintenance facilities were placed on half of this rare Chihuahuan desert wetland. The remaining wetland area continued to be drained to prevent damage to structures. The intact portions of the wetlands constitute the only natural habitat of the endangered Big Bend mosquitofish (*Gambusia gaigei*). Relocation of maintenance facilities in FY 1999 allowed the Park to begin removal of drainage and other structures. These actions will allow the return of the wetlands to their natural function, with concurrent restoration of the mosquitofish habitat. In a related activity in FY 1999, NPS issued a new set of wetland protection procedures in Director's Order #77-1: Wetland Protection and an accompanying manual. Last updated in 1980, the new guidance strengthens wetland protection through enhanced wetland inventory requirements and procedures for avoiding, minimizing, or compensating for wetland impacts during restoration activities. Additionally, the procedures eliminate unnecessary paperwork and review for projects that have a negligible effect on wetlands.

In another restoration project, FY 1998 saw the completion of the first phase of the endangered black-footed ferret restoration program at



Appropriate maintenance techniques, such as caulking, reduce pesticide use.

Badlands National Park. A cornerstone of the recovery plan for the species as a whole, the Badlands project tested restoration methods to find the most cost-effective and successful means to precondition and introduce captive-reared animals to a natural environment. This testing has resulted in a program generating approximately 80% short-term survivorship (30-60 days post release) and 60% survivorship at initiation of breeding season (150-180 days post release). During the April 1998 breeding season, spotlighting and snow-tracking surveys detected 56 ferrets, the largest free-ranging breeding season black-footed ferret population known since the last known wild population at Meeteetse, Wyoming.

By FY 1999, additions to the population by introduction and wild reproduction resulted in approximately 175 free-ranging ferrets inhabiting the Conata Basin/Badlands Area of southwestern South Dakota. The park has developed an effective program that is ready to go into longer-term operation and the techniques developed by NPS, in partnership with South Dakota, Wyoming, and the USGS Biological Resources Division, have been adapted by new black-footed ferret restoration programs in Montana, Arizona and Colorado.

Exotic Species Control. Endangered species and native plants and habitats are severely effected by exotic species. Approximately 60 percent of threatened and endangered

species are threatened to some degree as a result of exotic species. Therefore, exotic (non-native) species control efforts are important. The NPS is working with other Federal partners in the Federal Interagency Committee for Management of Noxious and Exotic Weeds, which developed a factbook in 1998. The factbook on exotic plants has been widely distributed including all units of the National Park System.

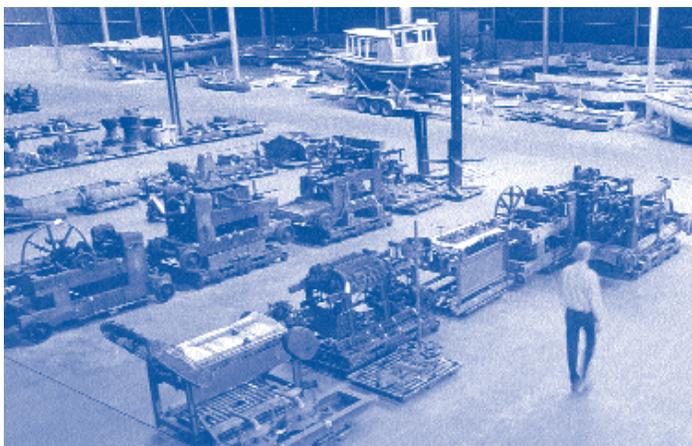
One of the exotic species that has been a problem over the years is tamarisk. Also known as salt cedar, tamarisk occupies approximately one million acres of public and private lands in the Southwest. It threatens many park riparian ecosystems that provide rare and important habitats in the arid West. Native plants have difficulty germinating in dense tamarisk stands due to a lack of light and high soil salinity caused by the tamarisk. Dense tamarisk stands preclude wildlife access to water, and tamarisk, which uses large amounts of water, can even dry up critical water sources. Removal efforts are labor intensive and involve the use of chain saws, herbicides, and occasionally prescribed fire. Parks have had difficulty in gathering enough skilled and equipped crews to attack the plant.

Lake Mead National Recreation Area has a newly established tamarisk control team that is eliminating tamarisk from parks throughout the NPS Pacific West and Intermountain Regions. The team is testing a “SWAT” team approach to controlling exotic species. For each project in a park, the team involves local park staff, teaching them established control methods. Each park also receives a tamarisk control manual developed for the crew. The crew then removes exotic plants from the park’s highest priority area. In its second season in 1999, it has successfully destroyed tamarisk on over 400 acres, with control costs of \$125/acre. Costs are expected to decline with more experience and as control succeeds and follow-up treatments require less effort.

Critical Ecosystem Studies Program. In scientific research, funding under the Critical Ecosystem Studies Program for Everglades restoration continued high priority projects. These included the Across Trophic Level Systems Simulation computer modeling, work on linking high density field topographic data to water flow models, and new and continuing research on Florida Bay and key indicator species, both plant and animal. New work is underway or planned on wetlands, contaminants, and linking landscape scale environmental information to management practices and distributing scientific information more effectively. Together, these studies support determinations about water distribution system reconfigurations, habitat restoration, and adaptive management of the natural resources.

Cultural Resources

Since its establishment in 1916, the National Park Service has been entrusted with the care of hundreds of special places that reflect the rich and complex human story of our Nation. Historic and prehistoric places like the Lincoln Memorial, Navajo National Monument, Brown v. Board of Education National Historic Site, Johnstown Flood National Memorial, Women’s Rights National Historical Park, Chaco Culture National Historical Park, Edison National Historic Site, Golden Spike National Historic Site, Stones River



Large object storage at Alameda Point, San Francisco Maritime National Historic Park

National Battlefield, Eleanor Roosevelt National Historic Site, Wright Brothers National Memorial, and Carl Sandburg National Historic Site tell the stories of our national heritage. From the Civil War to the struggle for civil rights, from invention to transportation, our Nation's history, our triumphs and tragedies alike, are preserved and protected in the National Park System.

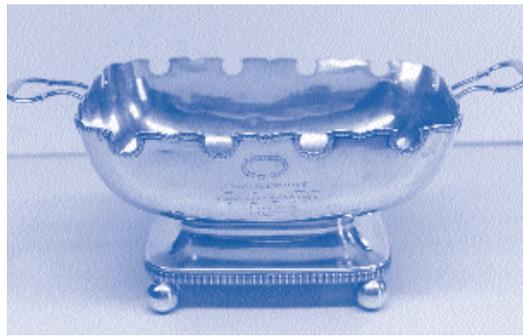
In FY 1999, progress continued to be made in identifying, evaluating, and determining the significance of cultural resources in all units of the National Park System. The information base for planning and resource management has increased, and the Service continued to develop appropriate technologies and methods to inventory, document, monitor, preserve, and protect cultural resources.

Cultural resources topics are covered in the periodic publication, CRM (Cultural Resources Management), which is distributed to units of the National Park System, Federal agencies, American Indian tribes, state governments, local governments, private organizations, and individuals.

"Links to the Past", the area of the NPS "ParkNet" Web site focussing on cultural resources, provided well over 9,000 Web pages, a number of important databases, six educational features, and over 100 technical publications during FY 1999. The site now reaches an average of 10,000 users per day.

Museum Collections

Museum collections from over 300 units of the National Park System are maintained in parks, six NPS cultural resource centers, and 142 non-federal repositories. The collections of the NPS reflect our natural and cultural heritage. These collections are comprised of over 36 million archeological, ethnological, historical, biological, paleontological, and geological objects and specimens and over 40 million manuscript and archival documents. The number of items maintained by the NPS grew from FY 1998 to FY 1999 by over three million. To date, 59% of the objects and 33% of the manuscript and archival documents are cataloged and available for use.



Monteith presented to Commodore Perry, Perry's Victory and International Peace Memorial

In FY 1999, parks adjusted to using the state-of-the-art automated collections management system that was introduced in FY 1998. During the year an estimated 1.7 million items were cataloged and parks answered nearly 50,000 public research requests for use of the collections. Currently, 64% of park museum storage and exhibit conditions adequately preserve and protect these resources. An estimated 1,940 planning, environmental, storage, security, and fire protection deficiencies were corrected in 230 parks during FY 1999.

Parks made many notable improvements to the documentation, preservation, protection and accessibility of this heritage in FY 1999:

- Colonial National Historical Park, Gettysburg National Military Park, and Longfellow National Historic Site received a Save America's Treasures grant for \$977,100 to repair George Washington's dining and office tents at Colonial, preserve Gettysburg collections, and treat books, furnishings, and decorative arts objects at Longfellow.
- Four Alaskan parks completed the move to new collection storage space on the Alaska Pacific University campus. Collections moved from spaces that met few preservation and protection standards to a vastly improved facility. The parks plan to involve cultural resources management students in the analysis and care of the collections.
- Scotts Bluff National Monument published the book "An Eye for History:

The Paintings of William Henry Jackson” with full color reproductions featuring the park’s paintings. The park has the largest single holding of Jackson paintings illustrating the 19th century American West.

- San Francisco Maritime National Historical Park obtained 43,251 square feet of museum storage space at the former Alameda Naval Air Station to house 81 boats, marine engines, and other large objects. Long-term plans call for storage for five other sites and a public exhibit.
- Perry’s Victory and International Peace Memorial received an important gift of a silver punch bowl and silver cup that had been presented to Commodore Perry by the people of Boston and a fire bucket marked “O. H. Perry 1812 No. 1.”

In FY 1999, NPS completed fourteen major exhibits and five historic furnishings installations thereby expanding public accessibility to these resources in parks.

Cultural Landscapes

The National Park Service defines a cultural landscape as “a geographic area, including both natural and cultural resources, associated with a historic event, activity, or person.” Cultural landscapes in the National Park System range from large rural tracts covering several thousand acres to formal gardens of less than an acre. They reveal important aspects of history through their form, features, and use and illustrate the relationship between cultural and natural resources in a park. The National Park Service recognizes four types of cultural landscapes: historic designed landscapes, historic vernacular landscapes, historic sites, and ethnographic landscapes.

Cultural landscapes are inventoried and basic management information summarizing significance, impacts, condition, and approved treatments is collected and maintained in the Cultural Landscapes Inventory (CLI). Landscapes included in the CLI are either listed in or eligible for the

National Register or are to be treated as cultural resources by law, policy, or decision reached through the planning process even though they do not meet the National Register requirements. Information associated with the CLI is entered into the Cultural Landscapes Automated Inventory Management System (CLAIMS) to provide an automated, analytical tool for assessing information associated with the CLI. In FY 1999, the number of inventories entered into CLAIMS was increased by 30%. Condition has been assessed and assigned to 359 of the landscapes entered in CLAIMS. Based on this assessment, 26.7% are in good condition, 46% are in fair condition, and 27.3% are in poor condition.

Research concerning the history, existing conditions, historical integrity, and treatment alternatives for cultural landscapes is conducted and documented in Cultural Landscape Reports. The Cultural Landscape Report serves as the primary guide for park management decisions regarding treatment and use of cultural landscapes. In FY 1999, approximately 50 reports were prepared based on park management objectives.

As the National Park Service’s only technical center for landscape preservation, training, and technology development, the Olmsted Center for Landscape Preservation strives to strengthen the capacity of parks to preserve and manage their cultural landscapes. Olmsted Center staff works in partnership with parks, other government agencies, and institutions with specialized skills to provide sustainable landscape preservation assistance. Specific project work includes cultural landscape inventories, Cultural Landscape Reports, Preservation Maintenance Plans, and a variety of technical assistance.

Historic and Prehistoric Structures

The National Park Service defines a historic or prehistoric structure as “a constructed work... consciously created to serve some human activity.” Structures are usually immovable, although some have been relocated and others are mobile by design. They include buildings and monuments, dams, millraces and canals, nautical vessels, bridges, tunnels and roads, railroad



NPS worker repairs crumbling mortar of ancient walls at Arizona's Wupatki National Monument as part of the NPS Vanishing Treasures Initiative.

locomotives, rolling stock and track, stockades and fences, defensive works, temple mounds and kivas, ruins of all structural types that still have integrity as structures, and outdoor sculpture.

The preservation of historic and prehistoric structures involves two basic concerns: slowing the rate at which historic material is lost, and maintaining historic character. Research on, planning for, and stewardship of structures focus on these concerns. Research defines historical associations, integrity, character, and the causes of material deterioration; planning develops and evaluates proposals for use and treatment in terms of their likely effects; and stewardship entails activities ranging from craft training to the identification and mitigation of threats.

The List of Classified Structures (LCS) is the primary computerized database containing information about park historic and prehistoric structures in which the National Park Service has or plans to acquire any enforceable legal interest. Structures included in the LCS are either listed in or eligible for the National Register or are to be treated as cultural resources by law, policy, or decision reached through the planning process even though they do not meet the National Register requirements. Data fields in the LCS include identification, category of significance, condition, use, threats, cost estimates for treatment, and physical description. In FY 1999, a new Web-based application of the LCS

was developed to enhance management of the information and allow for immediate updating and reporting. As of the end of FY 1999, data on 24,225 structures in 367 parks (97.1% of 378 parks) have been updated. While 44% of the inventoried structures are in good condition; 56% are in poor, fair, or unknown condition.

Research concerning the history, existing conditions, historical integrity, and treatment alternatives for historic structures is conducted and documented in Historic Structures Reports. The Historic Structure Report serves as the primary guide for park management decisions regarding treatment and use of historic structures. In FY

1999, approximately 45 reports were prepared based on park management objectives.

Archeology and Ethnography Program

The Archeology and Ethnography Program provides national leadership and coordination in preserving the heritage of America's places and people—inside and outside the National Park System. The program's mission is to broaden access to information, preserve archeological and ethnographic resources, foster relationships between NPS units and communities or groups with traditional associations with resources in those units, enhance the care of collections and archives, and improve management, planning, and research.

Applied Ethnography. The Applied Ethnography program works with American Indians and other Native Americans, African Americans, occupational groups, and the full array of communities and groups associated with park cultural and natural resources to better understand local interests and resource use. In FY 1999, NPS ethnographers conducted or contracted for cultural anthropology projects to expand the information base for planning, managing, and interpreting cultural, natural, or ethnographic resources with heritage value to communities and groups. By designing and

implementing training—in partnership with the National Parks and Conservation Association—the program also highlighted relationships between African Americans and Hispanic people and the heritage resources they value in parks and communities.

Ethnographic Resource Inventory. A prototype of an inventory database was tested and revised incorporating newly developed data standards. The new prototype is now being field-tested by NPS ethnographers Servicewide. Once the test is complete, the database will be available for use by all NPS staff.

Park NAGPRA. Under the Native American Graves Protection and Repatriation Act, NPS continued its work with Native American tribes and organizations. To date, 33 Notices of Inventory Completion (representing human remains and associated funerary objects) and 8 Notices of Intent to Repatriate (representing unassociated funerary objects, sacred objects, and objects of cultural patrimony) have been published in the Federal Register. Approximately 42 NPS Notices of Inventory Completion and 1 Notice of Intent to Repatriate await publication. Specific guidance on complying with NAGPRA was distributed to park units.

Systemwide Archeological Inventory Program. The Systemwide Archeological Inventory Program initiative has improved the availability of basic information concerning Archeological Resources. The Archeological Sites Management Information System database was formally launched in FY 1997 to help collect management data for inventoried sites in the parks. Approximately 43,000 electronic records have now been consolidated into a national level database from electronic records entered and used at the park and regional support offices. The Service continued to make progress in inventorying archeological resources on park lands. Seventy-four projects were initiated to systematically locate, evaluate, and document archeological sites. Thirteen of the 16 national park clusters now have long-range plans that report on the inventory status and set targets for future inventories. At the national level, the database is being used for GPRA compliance to track the number of archeological sites managed by the Service and their condition.

Park History

The Park History program continued to provide enhanced training opportunities to historians and interpreters through its partnerships with the Newberry Library, the Gilder Lehrman Institute for American History, University of Virginia, and the Seminar for Historical Administration. This year it expanded its program by sponsoring four NPS employees at National Endowment for the Humanities summer seminars. In addition, the program continued its cooperation with the Organization of American Historians and sponsorship of National History Day. In an effort to create a “Community of Scholars” within the Service, it convened a gathering of NPS historians in conjunction with the annual meeting of the National Council on Public History in Lowell, Massachusetts.

The Park History office continued to serve as the Servicewide point of coordination in providing technical information and training in the implementation of the 1995 Programmatic Agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers. In 1999, the office worked with the Park Planning and Special Studies Division on policy consultation on draft park planning documents. It provided Section 106 training for park coordinators and worked on an electronic workbook for Section 106 training. Section 106 training refers to compliance with section 106 of the National Historic Preservation Act of 1966, as amended, which requires Federal agencies having jurisdiction over Federal undertakings to take into account the effect of any undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register.

The National Maritime Initiative continued to cooperate with the maritime preservation community in surveying and evaluating maritime resources and developing standards and priorities for the preservation of resources. In 1999, the Maritime Initiative completed dispensing the first round of interim grants to recipients under the terms of the National Maritime Heritage Grant Program and submitted the first annual report to Congress on this program. It continued gathering information for the first

Historic Lifesaving Station Inventory and made that information available on the World Wide Web (WWW). It participated in international meetings of the Franco-American CSS Alabama Scientific Committee and edited for review the Secretary of the Interior's Standards for Historic Vessel Preservation Projects with Guidelines for Applying the Standards.

The Office supported the development of numerous research products including historic resource studies and administrative histories and continued to build an extensive web site on the history of the National Park Service.

National Trails System

The National Trails System Act of 1968 established a system that now includes 12 national scenic trails, eight national historic trails, and over 800 national recreation trails. The 20 national scenic and historic trails established by the Act together measure almost 37,000 miles and cross 51 national park areas and 90 national forests.

The Service administers 15 of 20 scenic and historic trails in the System. In FY 1999, trail

operations totaled \$3.6 million. This funded all the trail field offices, with some reserved for national program activities. An additional \$614,000 was available through the NPS Challenge Cost-Share program for partnership projects. In FY 1999, almost 100 National Trail System cost-share projects were matched 3-to-1 by partners. Volunteers serving these trails provided close to 500,000 hours of labor, valued at \$6.9 million, with additional cash contribution of \$4.4 million.

Notable successes in FY 1999 included the following:

- Completion of the comprehensive management plan for the four overlapping national historic trails: California, Oregon, Mormon Pioneer and Pony Express, one of the geographically largest planning efforts ever undertaken by National Park Service.
- Final stages of land protection for the Appalachian National Scenic Trail.
- First-ever meeting of national historic trail partners to form a vision statement and action plan to promote these special trails.

NPS Administered National Scenic (NST) and Historic (NHT) Trails

Year Est'd	Trail	Length (miles.)	States Crossed
1968	Appalachian NST	2,150	ME, NH, VT, MA, CT, NY, NJ, PA, MD, WV, VA, NC, TN, GA
1978	Oregon NHT	2,170	MO, KS, NE, WY, ID, OR
1978	Mormon Pioneer NHT	1,300	IL, IA, NE, WY, UT
1978	Lewis and Clark NHT	3,700	IL, MO, KS, NE, IA, SD, ND, MT, ID, WA, OR
1980	North Country NST	3,200	NY, PA, OH, MI, WI, MN, ND
1980	Overmountain Victory NHT	300	VA, TN, NC, SC
1980	Ice Age NST	1,000	WI
1983	Potomac Heritage NST	700	VA, MD, PA
1983	Natchez Trace NST	690	TN, AL, MS
1987	Santa Fe NHT	1,200	MO, KS, OK, CO, NM
1987	Trail of Tears NHT	1,800	TN, AL, MS, KY, IL, MO, AR, OK
1990	Juan Bautista de Anza NHT	1,200	AZ, CA
1990	California NHT	5,660	MO, KS, NE, WY, ID, UT, NV, CA, OR
1992	Pony Express NHT	1,970	MO, KS, NE, CO, WY, UT, NV, CA
1996	Selma to Montgomery NHT	54	AL
TOTAL		27,094	

Land Acquisition

The acquisition of non-federal lands within the National Park System is necessary to protect park resources and provide for visitor use. Many of the parks are encumbered by non-Federal interest that constitute legally recognized and protected property rights. Of the 83.6 million acres of the National Park System, 4.4 million are privately owned. All privately held interests are potentially subject to use and development. In some cases, proposed developments of these private interests are compatible with the park's purpose and objectives. However, many adversely affect the preservation of cultural, historic, or natural resources, and conflict with park purposes.

Where regulatory authority exists, the NPS may control or condition the use of private interests. However, the NPS cannot deny their use without due process of law and just compensation to the holder of the right. Not all privately held lands within the Park System have been identified for purchase. Land protection plans developed for all units containing private land have identified the minimum land acquisition needs.

In FY 1999, \$135.7 million was obligated for land acquisitions, of which \$38.9 million was granted to the state of Florida for acquisition related to restoration of the Everglades. In total, the Service acquired interests in 1,762 tracts containing 88,898 acres. Of that amount, in support of the Department's South Florida Restoration Initiative, the Service acquired 290 tracts containing 1,898 acres at Big Cypress National

Preserve and 1,091 tracts containing 10,732 acres at Everglades National Park. The purpose of the initiative is to restore and protect the water flow into the Everglades and Florida Bay ecosystems. Of all lands acquired within the National Park System, 67,864 acres were acquired by exchange, 17,892 acres were acquired by purchase, 1,852 acres were acquired by condemnation, 642 acres were acquired by donation, and 648 acres were acquired by transfer from other Federal agencies.

Among several significant properties acquired with the assistance of nonprofit conservation groups were the resource-rich Ka'apahu tract (1,474 acres) at Haleakala National Park in Hawaii and the 327-acre site of the Richfield Coliseum at Cuyahoga Valley National Recreation Area in Ohio.

The protection of Civil War battlefield sites was enhanced with the acquisition in FY 1999 of 21 tracts totaling 290 acres at four different battlefield sites. Completion of the Appalachian National Scenic Trail is closer with the acquisition in FY 1999 of 875 acres.

Significant acquisitions by exchange with the State of Utah were completed at Arches National Park, Capitol Reef National Park, Dinosaur National Monument, and Glen Canyon National Recreation Area.

After FY 1999, there are approximately 1,068,958 acres remaining to be acquired in the National Park System, of which 617,581 acres are located in the Alaska areas. It is estimated that the total land acquisition backlog for the System is over \$1.3 billion.