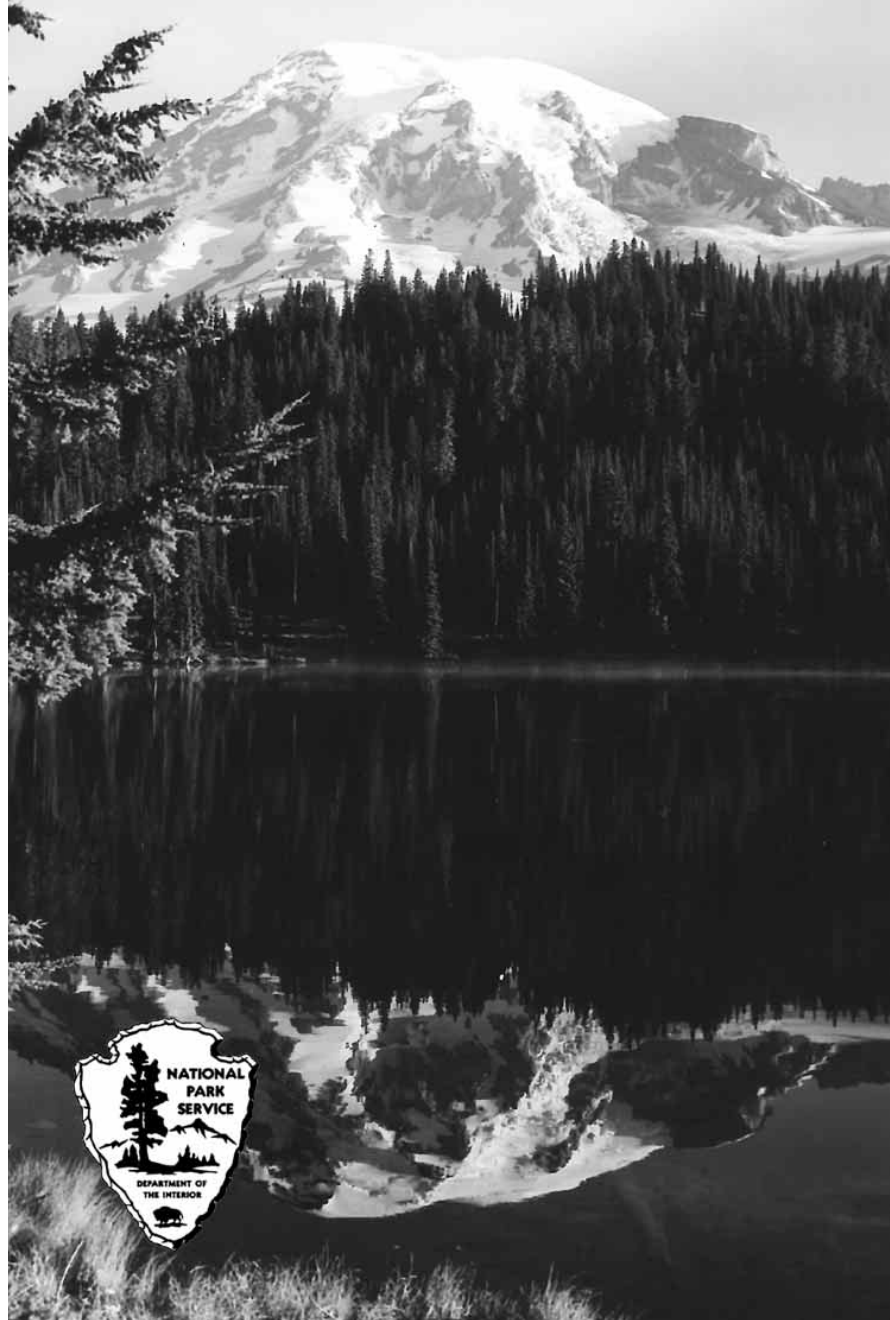


NATURAL RESOURCE CHALLENGE

The National Park Service's Action Plan for Preserving Natural Resources



Natural Resource Challenge

The National Park Service's Action Plan for Preserving Natural Resources

<http://www.nature.nps.gov/challengedoc>



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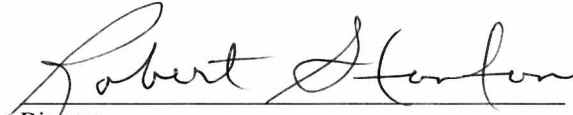
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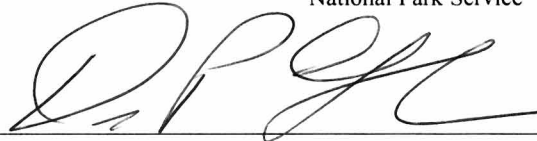
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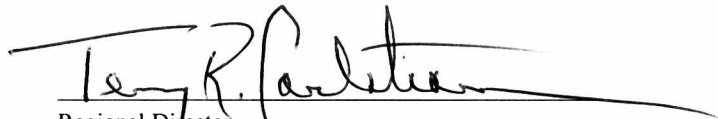
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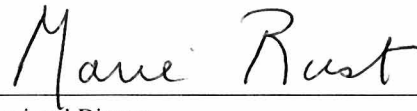
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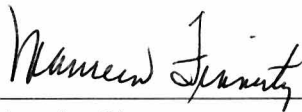
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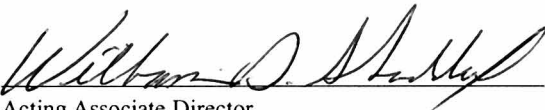
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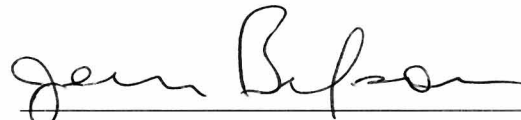
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INTRODUCTION

Organ Pipe Cactus National Monument



The people of this nation have inherited an astounding wealth of forests, seas, rivers, lakes, mountains, deserts, grasslands, and the plants and animals that live there. An eminent biologist predicts that someday our nation's flora and fauna will become as important as its art, its language, and its achievements as a culture. As a nation, we have already set aside our parks to preserve these precious resources and pass them on to our progeny.

We in the National Park Service (NPS) have been charged with the trust of preserving these resources since our creation in 1916. For most of the 20th century, we have practiced a curious combination of active management and passive acceptance of natural systems and processes, while becoming a superb visitor services agency. In the 21st century that management style clearly will be insufficient to save our natural resources. Parks are becoming increasingly crowded remnants of primitive America in a fragmented landscape, threatened by invasions of nonnative species, pollution from near and far, and incompatible uses of resources in and around parks.

Protection of these natural resources now requires active and informed management to a degree unimaginable in 1916. The lack of information about park plants, animals, ecosystems, and their interrelationships is profound. If we are to protect these resources into the far future, we must know more.

INTRODUCTION

We must expand existing inventory programs and develop efficient ways to monitor the vital signs of natural systems. We must enlist others in the scientific community to help, and also facilitate their inquiry. Managers must have and apply this information to preserve our natural resources.

Once this information is in our hands, we must share it widely, so that child and adult, amateur and professional can benefit from the knowledge uncovered in these places. The information contained in the parks should help the surrounding communities, both regional and global, in making choices about their future. Parks and protected places should become increasingly “useful” to surrounding communities as benchmarks and repositories of environmental information.

To unlock this information, we need to revitalize and expand our natural resource programs, strengthen partnerships with the scientific community, and share knowledge with educational institutions and the public.

A successful program would provide answers to these questions:

- What are we protecting and preserving in parks?
- What is the condition of park resources?
- How does the condition of our resources change over time?
- What is the condition of resources outside of park boundaries (air, water, nonnative and migratory species)? What impact do these resources have on park resources?
- What are the implications of these findings to parks and to the larger systems in which they reside?
- What actions need to be taken for preserving the species?
- How can this information be best communicated to the broader society?

GOALS

The NPS must preserve for future generations natural resources such as this diverse old growth forest in Congaree Swamp National Monument.



GOALS

The National Park Service has prepared a strategic plan in response to the Government Performance and Results Act (GPRA). The NPS Strategic Plan stresses our natural resource stewardship role; its first goal is to preserve park resources. The following natural resource action plan goals are consistent with, but more specific than, the mission goals contained in the NPS Strategic Plan.

1. National parks are preserved so that this generation and future generations can enjoy, benefit, and learn from them.
2. Management of the national parks is improved through a greater reliance on scientific knowledge.
3. Techniques are developed and employed that protect the inherent qualities of national parks and restore natural systems that have been degraded; collaboration with the public and private sectors minimizes degrading influences.
4. Knowledge gained in national parks through scientific research is promulgated broadly by the National Park Service and others for the benefit of society.

CHALLENGES AND STRATEGIES

This section summarizes the major challenges that the National Park Service faces and outlines strategic approaches for the next five years.

The black-footed ferret was restored to Badlands National Park through NRPP project funding.



CHALLENGE

Protect Native Species and Their Habitats

- ***Native and Endangered Species:*** Among the least manipulated environments in our country, the national parks serve as refuges for declining species in the changing American landscape. Parks also serve as repositories of relatively undisturbed baseline information that can be used to assess the condition of plant and animal species in surrounding areas. Comprehensive surveys are needed to identify and locate rare, threatened, and endangered species in parks. Protection and restoration of native plants and animals will require enhanced monitoring efforts, informed management, and collaboration with adjacent land managers and private landowners.
- ***Nonnative Species:*** Nonnative plants, animals, and other organisms pose a major and very widespread threat to the preservation and restoration of natural habitats in the national parks. Identifying, mapping, and evaluating nonnative species are critical for effective management. We must act aggressively with a well-targeted effort to control nonnative species where they jeopardize natural communities in parks. This effort must be based on current control methods, accurate data about nonnative species distribution, and collaboration with surrounding landowners.

CHALLENGES AND STRATEGIES

Piping plover nests are protected at several NPS sites.



Strategic Approaches

Most of the necessary actions to protect the natural biological richness and integrity of America's parks are best tackled on-the-ground, principally within and by the parks themselves, supplemented with project funding directed at park priorities. Therefore, we will continue to establish field-based teams to assess, plan for, and control nonnative species invasions, especially new invasions and invasions in smaller parks. We will also provide larger parks that have significant and ongoing nonnative species invasions with the capability to continuously control targeted species. The U.S. Fish and Wildlife Service has assigned NPS recovery tasks for at least 168 threatened or endangered species. We will provide parks that have threatened and endangered species with the capability of implementing needed recovery actions. In addition, we will accelerate the completion of park vegetation maps to ensure management actions are based on up-to-date habitat information.

CHALLENGES AND STRATEGIES

CHALLENGE

Provide Leadership for a Healthy Environment

- ***Environmental Stewardship:*** The National Park Service will comply with all environmental laws and apply the highest standards of environmental stewardship to our own operations. A system of in-park environmental audits, conducted by the Park Service and others, and environmentally sensitive standard procedures for park operations are necessary to demonstrate sound stewardship.
- ***Air Quality:*** Congress has given the National Park Service responsibility to remedy and prevent damage to the air quality and related values of the units of the National Park System. Sophisticated and comprehensive scientific information is essential to understand and document air quality conditions and degradation of park resources and the visitor experience due to air pollution. Efforts to monitor and understand air quality and related values in parks must be expanded. We must enhance public awareness of regional and international sources that affect the air quality and related values in the National Park System.
- ***Water Resources:*** The protection of national park waters, watersheds, and aquatic life is fundamental to maintaining the integrity of natural resources and the quality of the visitor experience in the parks. A consistent approach to identifying and measuring progress toward meeting water quality standards is essential. Protective standards, scientific monitoring, and a program to ensure the protection of water quality, natural flows, and the health of aquatic systems are required to measure and protect this critical environmental component.

Strategic Approaches

The National Park Service will continue strong support for its Environmental Leadership Program, which focuses on reducing the footprints NPS operations leave on the environment, and on ensuring exemplary environmental performance in NPS facilities. The Environmental Leadership Program already has an established plan of action. This NPS Action Plan for Preserving Natural Resources will concentrate on air and water resource protection. Maintaining and restoring the air quality and water resources in national parks are essential to protecting all of the resources of the National Park System, as well as the quality of the visitor experience.

CHALLENGES AND STRATEGIES

Air quality monitoring station in Denali National Park



More than a decade of monitoring in several parks shows that air pollution is degrading visibility, injuring vegetation, changing water and soil chemistry, contaminating fish and wildlife, damaging monumental and other stonework, and endangering visitor and employee health. Degrading air quality trends are emerging in parks across the country.

We will expand the NPS air quality monitoring network and associated activities to provide improved geographical representation. There will be support for field positions and expanded reporting, collaboration, and studies that address concerns unique to air pollution in rural areas. Air pollution sources within parks will be inventoried and guidance will be developed to help parks reduce their own emissions.

CHALLENGES AND STRATEGIES

Fish survey in Great Smoky Mountains National Park



Over 250 units of the National Park System contain rivers, lakes, reservoirs, glaciers, streams, springs, and wetlands. Many units contain waters with special designations, such as Wild and Scenic Rivers and state-designated Outstanding Natural Resource Waters. The National Park Service needs to establish a water quality monitoring system comparable to our air monitoring network in order to identify park water quality problems across the System and provide information needed to improve aquatic conditions and prevent further degradation. We will establish water quality monitoring stations in 75 park units, with emphasis on areas with special designations. This monitoring program will use aquatic resource specialists and monitoring technicians stationed in parks, as well as other cooperators, such as the United States Geologic Survey (USGS), where appropriate.

CHALLENGE

Connect Parks to Protected Areas and Parks to People

- ***Inventory:*** A consistent set of basic data on natural resources is essential in order to understand the processes that maintain and preserve the national parks. Such an inventory should lead to an understanding of species diversity, abundance, and distribution. Efforts to acquire this basic information must be accelerated in all parks with significant natural resources. The expanding body of knowledge must be professionally managed, widely disseminated to the public, and used to protect the parks from degradation.

CHALLENGES AND STRATEGIES

Visitors learn about NPS invasive nonnative species management strategies at George Washington Memorial Parkway.



- **Monitoring:** Preservation depends on acquiring accurate information about the condition of natural resources, monitoring how that condition changes over time, and developing standards to evaluate changes in condition and the effectiveness of management actions. Currently, a network of parks has begun testing monitoring approaches. These prototype efforts need to be evaluated to help determine successful standards, better monitoring methods, and better methods for managing and disseminating information on changes in resource conditions. The successful strategies should then be applied to all parks with significant natural resources.
- **Collaboration:** The National Park Service must work with others to achieve mutual natural resource goals. Acquiring, applying, and promulgating scientific knowledge gained in parks to ensure protection and enjoyment requires cooperation with public agencies, universities, and non-governmental organizations. Coordinated by our knowledgeable personnel, these collaborative relationships need to be expanded, including the network of Cooperative Ecosystem Studies Units (CESUs) recently created in partnership with the USGS and other Federal agencies.

CHALLENGES AND STRATEGIES

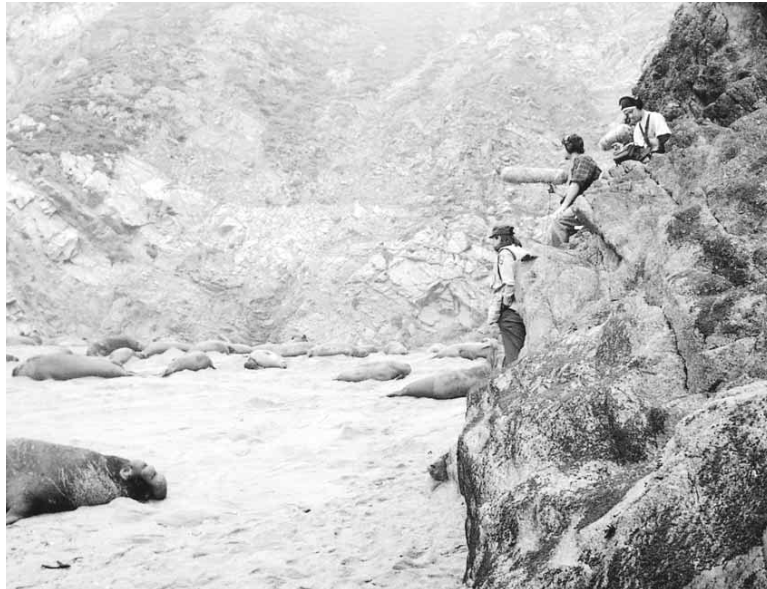
Resource managers monitor the endangered Karner Blue butterfly and restore butterfly habitat in Indiana Dunes National Lakeshore.



- **Resource Planning:** National park management must be based on a thorough understanding of natural resources and of the potential impacts of in-park or external actions on these resources. All management actions need to be in accord with current, park-based plans that protect resources, integrate resource considerations with other operations, and define the park's role in a regional context. Public involvement and professional peer review are essential for all park plans and programs.
- **Parks for Science:** The long-term preservation of park natural resources makes parks reservoirs of information of great value to humanity. Thus, in addition to the use of science as a means to improve park management, parks can and should be centers for broad scientific research and inquiry. Research should be facilitated in parks where it can be done without impairing other park values. Grants, logistical support, cooperative studies, and other means of facilitating this wider role should be instituted within, or near, a network of parks broadly representative of regional systems. These programs should be developed and operated in collaboration with universities and other science organizations.
- **Parks for Learning:** Protection of park resources requires a knowledgeable public. As stewards of the world's finest system of

CHALLENGES AND STRATEGIES

Resource managers monitor sea lions at Point Reyes National Seashore.



national parks, we have the responsibility to widely share our knowledge about park resources in order to enhance the public's ability to learn from, and to enjoy, its national parks. We must apply innovative techniques to reach out to diverse publics and actively involve them in preserving and restoring, when necessary, the national parks. Recounting our experience in natural resource preservation will inspire a greater public pride in the national parks.

Strategic Approaches

The National Park Service will create networks of parks linked by geography and shared natural resource characteristics to facilitate collaboration, information sharing, and economies of scale in natural resource management. The National Park Service and collaborators in the networks will accomplish natural resource inventory needs and monitor park vital signs. We will develop integrated, standardized databases for natural resource inventory data, maps, and bibliographic information, as well as enhanced web pages and data analysis and retrieval tools to increase usability of natural resource information by both the National Park Service and the larger community. The resource planning process will be improved to provide the foundation for establishing monitoring programs and as a vehicle for incorporating the results of scientific study into park management.

CHALLENGES AND STRATEGIES

Each network of parks will provide a robust interface with other protected areas, people, and organizations in their common landscape. At least one private-public learning center will be developed in each network to facilitate the use of parks as libraries of knowledge and support visiting researchers. Research will be encouraged in the parks in ways that support other park values. A university-based CESU associated with each group of parks will help NPS and other land managers protect, manage, and learn from the nation's public lands. Coordinated interpretation and education programs at each learning center will transfer information about park resources to park-based interpreters and the public at large, through outreach to schools, web site development, and other means.

Foundations of Stewardship

In addition to collaboration with non-NPS entities, the foundation for effective resource stewardship in all of the programs discussed above is the need for a fully professional staff of trained resource managers and other NPS employees. NPS leadership must have unimpeded access to advice from resource professionals. Resource management tools available to park superintendents must be increased significantly to meet future challenges. Our workforce must have the appropriate professional, technical, and leadership skills to be able to identify resource issues; obtain, interpret, and apply scientific information; and solve highly technical and complex policy problems on the ground. Professional development programs for resource managers, rangers, and park managers will be strengthened, and will also be expanded to ensure that all employees have adequate resource understanding to contribute effectively to the mission. We will also ensure that natural resource staffs have opportunities to advance and achieve upper level management positions.

ACTIONS

The actions below respond to one or more of the challenges described above.

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



Actions Underway in FY 1999

1. Information systems for unfunded projects, recurring program needs, resource management, and performance management and tracking will be integrated into a single, web-based system serving all NPS programs.
2. The National Park Service's current GPRA water quality goal targets beach closures due to water pollution. The NPS will amend this goal to prevent deterioration of the highest quality waters and improve the quality of the most degraded waters in units of the National Park System. The measurement of water quality relies on state information, which is not uniform among states. Therefore, the amended goal will be considered as an interim goal until the National Park Service can rely on its own water quality data.
3. The Environmental Leadership Program will be implemented to reduce the impact of park operations on the natural environment. The National Park Service has already begun to improve its environmental stewardship by examining all maintenance, concessions, and other operations to improve sustainability and reduce environmental impact.
4. A Sabbatical-in-Parks program for visiting scientists will be established.

ACTIONS

Actions to be Initiated Immediately

5. A new and uniform scientific research and collecting permit process will be implemented. Applications for research permits for natural and social science projects in the parks will be available on the web.
6. A program to improve career ladders and the management of professional resource positions, Resources Careers, will be fully implemented in all parks with resource management staff (includes cultural resources) by early FY 2000. Each region will designate a collateral Resources Careers coordinator to provide assistance to parks in implementing the program.
7. An aggressive recruitment strategy will be developed to enable highly motivated and qualified people from varied backgrounds to join the NPS natural resource management workforce. A new natural resource management recruitment brochure and web site will be developed, and general NPS recruitment tools will be updated to accurately reflect the range and importance of professional natural resource management positions.
8. Each park's Internet home page, which now must provide standard information the public needs to visit the park, will be revised to showcase the fundamental purpose of the park, the park's major resources, and the significance and context of those resources.
9. A professional-quality short video on the mandate of the NPS Organic Act will be developed. This video will detail the requirements of the Organic Act and subsequent amendments in light of case law. The video will show that our mission is one of preservation of resources above all else, while encouraging the use and enjoyment of parks in that context. The video will be used primarily to educate and inspire NPS employees, but will be useful for the public as well.
10. Current monitoring in non-prototype parks will be assessed and parks organized into approximately 32 geographical and biome-based networks to better coordinate existing and future efforts. The NPS will begin identifying priority locations within each network to establish partnerships with non-NPS entities and learning centers for visiting researchers and outreach.

ACTIONS

11. Lists of nonnative species and Federally listed threatened and endangered species, organized by park (based upon available data and excepting sensitive information), will be posted on the web by 2001.
12. Tools for measuring and comparing the extent and complexity of park natural resource management activities (NR-MAP allocation tables) will begin to be revised and preliminary design of an improved system will begin.
13. The use of science will be emphasized in the Guiding Principles section of the NPS Strategic Plan when next revised.
14. Planning guidance will be revised, and staff will be trained, to fully merge resource stewardship into mainstream park planning, with interim procedures developed. Both Director's Order 2 on Park Planning and the Resource Management Plan guideline will be revised to reflect the changes.

In addition to the above actions, successfully carrying out our natural resource stewardship role in the 21st century will require that we reorient our budget priorities and seek additional capability. The budget plan to guide that effort follows.

BUDGET STRATEGY

THE NEED

Throughout its history, the National Park Service has spent money on serving the people who visit the parks, resulting in excellence in visitor service. The same level of excellence is now needed in natural resource management, requiring a higher budget priority and more emphasis in our workforce on skilled resource managers. In FY 1999, 7.5% of the NPS budget is devoted to natural resources management, and less than 5% of our permanent staff work in jobs directly related to natural resource preservation. Budget decisions must now respond to the deteriorating state of our natural resources and our serious need for information and staffing.

No less than three major budgetary initiatives since the early 1980s have been sought and provided for the purpose of eliminating health, safety, and other facility problems.

- In the mid 1980s, a \$1 billion effort called the Park Restoration and Improvement Program (PRIP) was funded, nearly all of which went to fixing facility problems.
- In the late 1980s, a program was undertaken called Legacy 99 that was to correct maintenance deficiencies. This program substantially increased the funds available for maintenance and construction rehabilitation.
- A five-year program that is currently underway is meant to reduce facility maintenance backlogs. Again, significant increases to the maintenance programs have resulted.

The PRIP effort, described above, resulted from *one* General Accounting Office report. During the 1980s and 1990s, *numerous* reports began to document the risk we run in not knowing more about our natural resources. Our natural resource managers also made strides in identifying the need for specific products to support management planning and decision-making and then to implement the results. We identified 12 sets of basic data needed at a minimum in the 260 parks that have significant natural resources; many parks will need more. The backlog of natural resource mitigation projects is documented in park resource management plans and totals \$186 million in FY 1999. Parks also have identified significant needs for base funded resource management activities, including \$15 million for threatened and

BUDGET STRATEGY

A carpet of aggressive thorny nonnative star thistle frustrates a visitor.



endangered species activities and \$16 million for invasive nonnative species activities. To meet these two needs alone would require more than a 50% increase above what parks are now spending on all natural resource management activities.

We have now developed a five-year program to begin addressing these deficiencies. The funding required will double the current level available for natural resources management. There are three broad components to this initiative.

- Establish a base operating program that is sufficient to complete all inventories in seven years and monitor the most critical resources in parks with natural resources.
- Eliminate the most critical mitigation problems documented in natural resources management plans and the backlog of natural resource projects.
- Attract the interest of accomplished scientists to address complex park science issues by converting existing park facilities to be useable as centers for research and learning.

BUDGET STRATEGY

THE FY 2000 BUDGET

The President's FY 2000 budget makes a start at reversing the past neglect of the natural resource management function. It includes several increase requests that would begin to implement this plan in important ways. Most of the increase requests are action items, such as acceleration of inventories, which were identified early as priorities and needed limited additional planning or evaluation of appropriate approaches. A few of the increases are priorities that were developed outside of the action plan effort and later recognized as meeting the objectives of the program. The FY 2000 budget includes nearly \$20 million for these increases, described below.

- Acquisition of information for science-based decision-making, working through the *Inventory and Monitoring (I&M) Program*. In partnership with the USGS, the NPS I&M program designs and evaluates I&M techniques and programs. The National Park Service responsibility includes acquisition of 11 of 12 identified basic data sets for every park with significant natural resources. While many parks will continue to have additional specialized needs, the FY 2000 increase will allow the Service to complete all of its basic inventories, except vegetation mapping, in seven years. The USGS funds and oversees the vegetation mapping. (\$8 million)
- *Natural Resource Preservation Program (NRPP) project funding*
The National Park Service funds large management projects such as restoring a degraded watershed with earthmoving equipment and planting native plants or preparing for and overseeing endangered species restoration in a park. The backlog of all types of natural resource projects is \$534 million, including \$186 million for mitigation projects. (Other project needs include specialized inventories, planning, and research.) The FY 2000 budget would increase the current funding (\$5.34 million) by about 50%. A similar program in the USGS funds biological research needs, and is also proposed for an FY 2000 increase. (\$3.5 million)
- The *Native and Exotic Species Management* proposal focuses on coordination and assistance to parks in applied management activities. Examples include: deploying teams of technicians to help parks cut, spray, or otherwise control invasive plants; deploying or training staff to tranquilize wildlife for marking or moving; assisting parks in required threatened and endangered (T&E) species consultations and recovery

BUDGET STRATEGY

Geologist overseeing watershed restoration in Redwood National Park



actions; and consolidating T&E species information that the Service must provide to the U.S. Fish and Wildlife Service (USFWS). The National Park Service has been assigned responsibility by the USFWS for over 2,000 tasks for restoring T&E species. About 60% of the funding would address exotic, also known as nonnative, species control, an issue affecting over 200 parks. To assist smaller parks and address invasions not requiring full-time park-based staff, the increase will allow the National Park Service to establish field-based nonnative species teams. They will assist in meeting the nearly \$75 million in nonnative-species related project needs identified in resource management plans. (\$4 million)