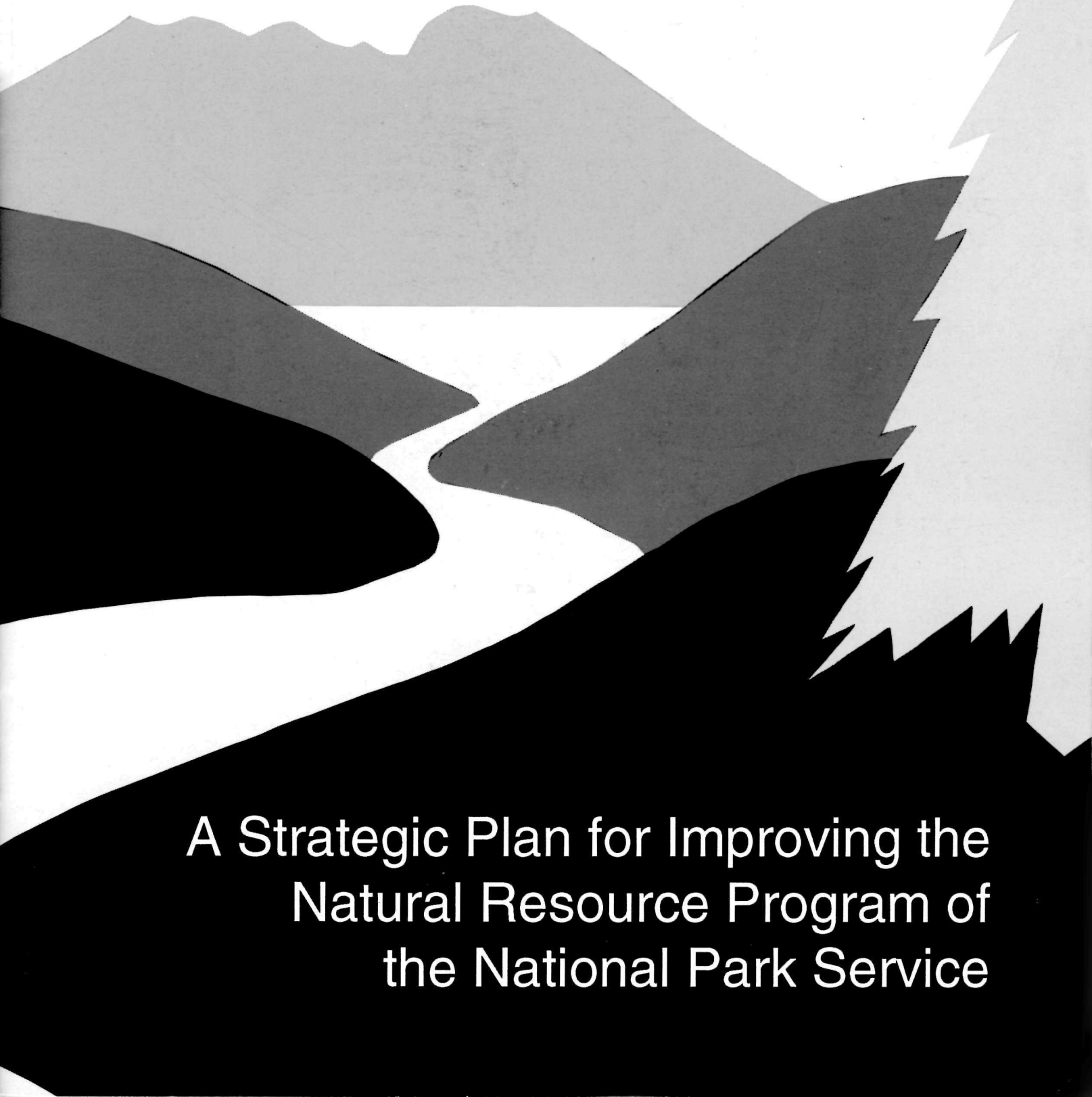
PLANNING *for the* FUTURE



A Strategic Plan for Improving the Natural Resource Program of the National Park Service

U.S. Department of the Interior
National Park Service

INTRODUCTION

The more than 360 units of the National Park System represent a diverse collection of lands and resources. Many of the finest examples of natural areas in the country can be found on park lands. Because they have been protected by the National Park Service in the past, a large number of these areas have survived with virtually intact ecosystems; because they will continue to be protected in the future, these areas are among the most extensive in the country for which there is some hope of long-term ecosystem protection.

These protected ecosystems provide some of the finest natural laboratories on earth. They are among the last remaining in the country that still retain enough naturalness to reasonably serve as ecological baselines against which scientists can measure the impacts of human activities in the biosphere. In effect, they become canaries in the mine, forewarning of possible dangers to the global environment. Basic research and long-term monitoring programs that describe park natural resources in their current, mostly undisturbed state and record future changes can become part of the Service's greatest contributions to society.

Preserving these natural resources in the face of increasing population growth and attendant land development presents an immense challenge. Predicted global change effects, increasing air and water pollution, increasing visitation and recreational use, and continued incursions by exotic species complicate the task even further. The National Park Service can successfully fulfill its mandate to manage and preserve these resources in perpetuity only through the development of a natural resource program that is scientifically based, professionally staffed, adequately funded, and supported by a long-term commitment from park management and the public. The research program must include basic, long-term studies as well as problem oriented short-term research.

The ability of the National Park Service to fully accomplish these resource preservation functions is not yet adequately developed. Significant improvements and advancements in the structure, commitment, tools, and techniques of the agency's natural resource program are required. This document outlines a plan of action for improving the National Park Service's natural resource program in order to meet the challenges stated above. This strategic plan is designed to make significant improvements in the ability of the National Park Service to manage resources, train its professional staff, and respond to natural resource issues that arise. The plan calls for increases in park and regional base funding for natural resources preservation to levels that reflect identified needs. It gives priority to the modernization of the Service's data management capabilities. It also sets forth methods for producing better trained and more professionally qualified employees, and for clarifying and strengthening natural resource career ladders.

The overall goal of the natural resource program is to institutionalize long-term monitoring, strengthen linkages with other agencies and institutions, create a program that is more professional and effective, and increase management and public support for the natural resource program. With the successful accomplishment of the goals, objectives, and actions outlined in this plan, the National Park Service will be better prepared to face the significant natural resource management challenges of the 1990s and will maintain its position as one of the world's premiere agencies in the management of natural resources.

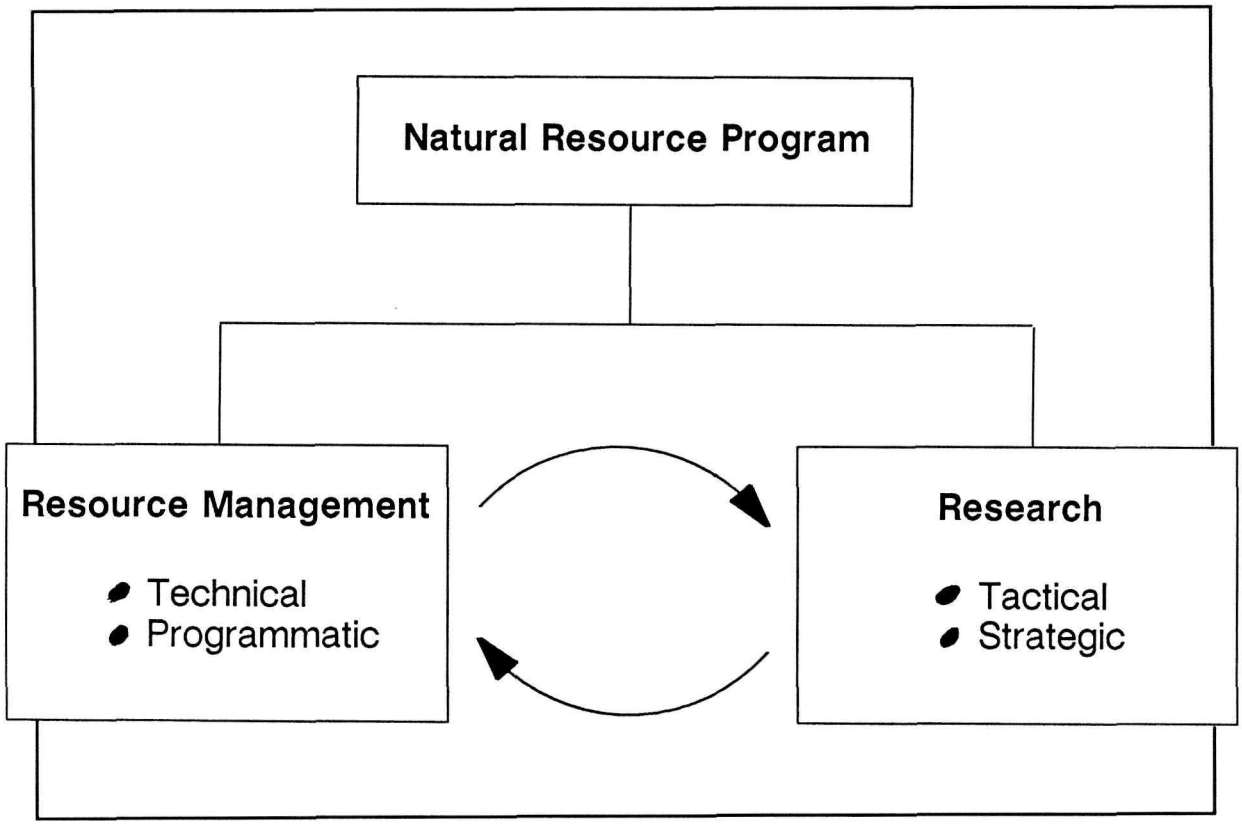


Figure 1: The two basic components of the NPS natural resource program.

THE PROGRAM

In the National Park Service, there is a strong interdependence among natural and cultural resource management, research, interpretation, maintenance, planning, and law enforcement. Activities in one discipline often have significant impacts on those in others. Because of the complexity of the issues, the focus of this document must be limited to the areas of natural resource management and research. However, the actual implementation of any actions proposed in this plan will be carefully coordinated across all disciplines and at all levels of the organization to ensure maximum effectiveness.

The definition of the natural resource program which guided the preparation of this document is a modified version of the expanded definition contained in *NPS-77, The Natural Resources Management Guideline.* The working definition, listed below, encompasses the four main tasks of the natural resource program: knowledge, restoration, maintenance, and protection of the natural resources of the National Park System, including ecosystem functioning and dynamics.

> The natural resource program is the method by which the National Park Service strives to understand natural processes and human-induced effects; mitigate any potential or realized effects; monitor for ecosystem trends; and protect existing ecosystems from further human-induced effects.

As shown in Figure 1, the National Park Service natural resource program consists, in broad terms, of two synergistic components: research and natural resource management. In practice, there is not always a clear distinction between research and resource management activities. Resource monitoring, for example, contains elements of research even though it is largely a resource management function. In some cases, National Park Service organizational units reflect the desired close relationship between these two components by combining them under one division. In other cases, they are managed as distinctly separate but coordinated disciplines. In many parks, the research component is provided by a Cooperative Park Studies Unit at a nearby university rather than by staff stationed in the park. Regardless of how these two disciplines are covered in a given unit, it should be clear that one component without the other results in an incomplete natural resource program.

In addition to the two broad, interrelated components of research and resource management, there are also functional responsibilities of the natural resource program at three organizational levels: the Washington Office, the 10 regional offices, and the individual park units. Washington Office responsibilities are approximately 90% in the programmatic resource management and strategic research areas. Regional offices have nearly equal (50%) responsibilities in programmatic and technical resource management, as well as the strategic and tactical research areas. The parks are almost exclusively (90%) involved with the tasks of technical resource management and tactical research.

The Goals

Four overall goals will direct the actions of the natural resource program. Each goal contains several objectives. Under each objective are the most important actions that need to be taken to achieve the objective.

1. Improve natural resource management and research in the parks, regions, and the Washington Office

2. Provide a scientific foundation for managing natural resources

3. Maximize the utility of natural resource data in planning and managing parks

4. Promote a better understanding of and support for the National Park Service natural resource management and research program

GOAL 1

Improve Natural Resource Management and Research in the Parks, Regions, and the Washington Office.

This goal addresses the human, organizational, and financial aspects of improving natural resource management and research. Several recent advances have been made in this area, including:

- a Servicewide effort to professionalize the workforce
- a near doubling of the allocated funding for natural resources between FY 89 and FY 92
- the establishment of a working group of regional natural resource specialists to share information and common concerns among regions

Since 1982, the Natural Resources Management Trainee Program has been producing a pool of technically trained natural resource professionals. A large percentage of the graduates pursue careers in natural resource management throughout the National Park System. Under the Strategic Plan, the Trainee Program will be reviewed to determine its part in the future of the natural resource program.

The objectives and actions listed below build on the above accomplishments to further improve the National Park Service's ability to professionally manage the resources under its stewardship. Based on a thorough evaluation of resource issues and needs, the following objectives have been established.

Objective 1. Identify natural resource program responsibilities.

Action 1. Prepare role and function statements for resource managers and research staffs at the park, regional, and national levels.

Action 2. Define natural resource management and protection responsibilities for line managers at the park, regional, and national levels.

Objective 2. Develop organization, staffing, and budget.

Action 1. Develop strategies to increase the financial and human resources available to address resource problems at the park, region, and Washington Office levels.

Action 2. Develop model organizational structures and staffing plans for resource management and research to ensure effectiveness and promote reasonable consistency among the Washington Office, regions, and parks wherever possible.

Action 3. Identify professional standards for natural resource management and research personnel in the National Park Service.

Action 4. Define career opportunities and strategies for natural resource professionals in the National Park Service.

Objective 3. Develop natural resource training and educational opportunities for natural resource personnel.

Action 1. Identify and establish additional professional development opportunities for National Park Service natural resource personnel and line managers.

Action 2. Develop programs to better use existing personnel authorities to recruit qualified candidates in natural resource disciplines, including under-represented minorities.

Action 3. Conduct an assessment of the current Natural Resources Management Trainee Program.

Action 4. Provide appropriate natural resource training for non-resource management personnel.

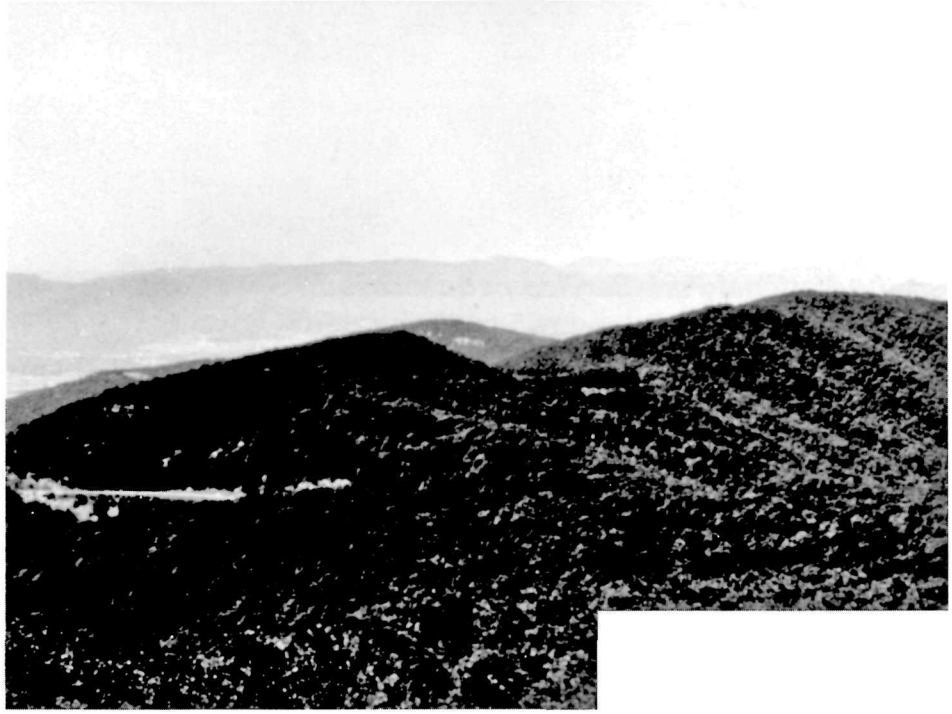
GOAL 2

Provide a Scientific Foundation for Managing Natural Resources.

Several recent or nearly completed developments have resulted in significant progress in our ability to provide credible scientific and management information for sound decision-making. These include:

- revision and improvement of resource management plans, using March 1989 instructions, which should be completed for all parks by March 1993
- development of a computer program that meets resource management plan data needs at park, regional, and Washington Office levels
- completion of NPS-77, a comprehensive guideline on natural resource management
- adoption of the April 1990 task force report establishing a general strategy and program plan for the Servicewide Inventory and Monitoring Program
- completion of a comprehensive assessment of the current state of natural resource inventory information in parks
- completion of NPS-75, a basic guideline for conducting a natural resource inventory and monitoring program in parks

Monitoring is an important part of managing biological natural resources. At Channel Islands National Park, researchers regularly monitor abalone to document population changes. In this picture, a park ranger monitors a tidepool at Santa Barbara Island.



In visibility monitoring programs, photographs taken three times a day track changes in the visibility. Visual range is also determined, as well as the types of particles in the air causing visibility impairment. In the above pictures taken at Shenandoah National Park, visibility on the left is 81 miles; the visual range in the right picture is 6 miles.

The following efforts will further strengthen and accelerate resource management programs.

Objective 1. Develop and implement a program of natural resource inventorying and monitoring in parks.

Action 1. Develop and implement a detailed strategy for conducting natural resource inventories in parks.

Action 2. Implement a natural resource monitoring and evaluation program in at least eight prototype parks by 1995.

Objective 2. Strengthen the National Park Service natural resource research program.

Action 1. Develop and execute a plan to implement the accepted recommendations from the National Academy of Science's evaluation of the National Park Service's research program.

Action 2. Evaluate the adequacy of the network of Cooperative Park Studies Units to meet the identified natural resource management, research, and training needs of the National Park Service.

Action 3. Develop a required peer review process for evaluating research proposals from all researchers from the National Park Service seeking funding.

To manage water resources effectively, both quantity and quality are monitored on a regular basis. In this photo, a Park Service employee monitors water quality on the Pouder River, one of Colorado's scenic rivers.

Objective 3. Establish a professional quality control process for the natural resource program of the National Park Service.

Action 1. Assess status and effectiveness of systems and procedures for ensuring the transfer of scientific information to natural resource managers and decision makers and identify methods to encourage managers to use science; develop and implement new standards and procedures where needed.

Action 2. Develop and implement a peer review process for manuscripts that result from National Park Service research.

Action 3. Review and strengthen the research grade evaluation process to ensure that managers are provided with top quality research results.

Action 4. Develop a series of technical handbooks or manuals as a follow-up to NPS-77 to provide detailed guidance on natural resource management practices.

Action 5. Develop and implement a process to evaluate natural resource programs.

GOAL 3

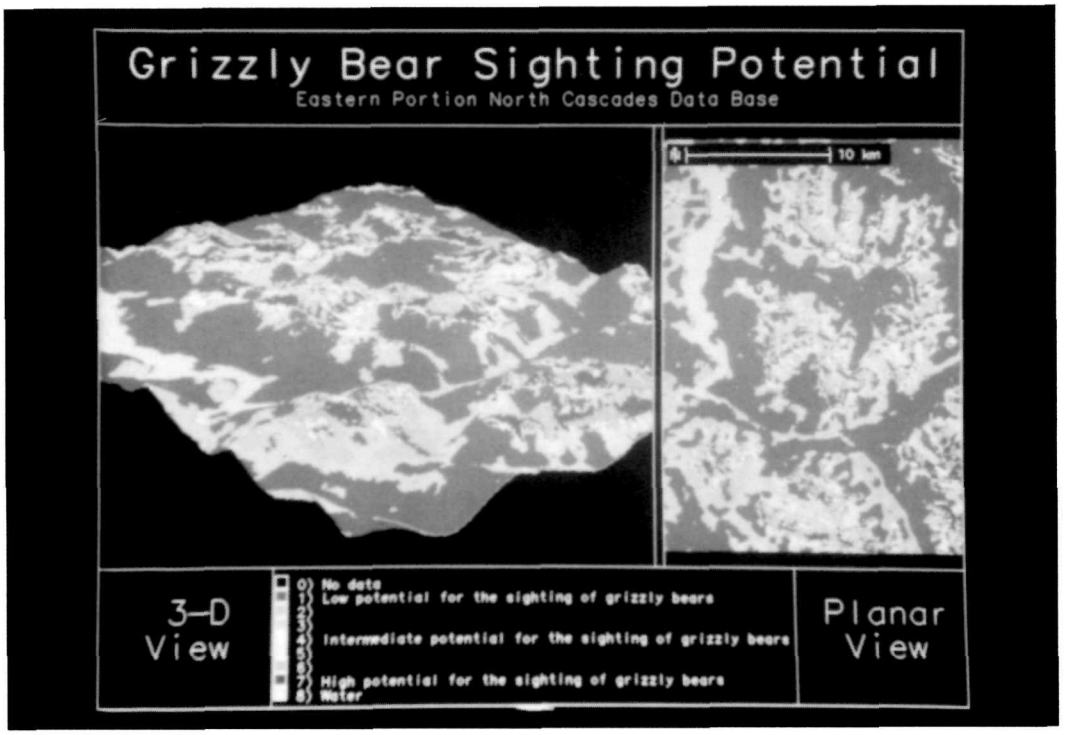
Maximize the Utility of Natural Resource Data in Planning and in Managing Parks.

This goal deals with making certain that scientific data are consciously and comprehensively managed so that they are useable, both for the immediate purpose for which they were originally generated and for other, perhaps unanticipated, uses. Several recent advances have been made by the National Park Service, including:

- the Inventory and Monitoring Program's identified requirement for a minimum, or "nominal," computerized data base to characterize the status of the natural resources in 250 of our parks

- the growth of operational geographic information systems in parks throughout the National Park Service

- the establishment of the National Park Service Geographic Data Committee, whose objective is to promote among the various program offices the coordinated development, use, sharing, and dissemination of surveying, mapping, and related spatial data



Many parks currently use GIS technology to manage park natural resources. Resource data is entered into the GIS, which is used to explore alternative approaches to resource management issues. In this example, the locations of historic grizzly bear sightings were used with vegetation data to identify all areas that had landscape features common to these sightings. Identification of these areas is useful for monitoring grizzly bear occurrence or for planning development of visitor facilities such as trails and campgrounds away from potential bear locations.

Today in the National Park Service much of the resource data are entered into a computer and are useful for data analyses, summaries, and reports. Also, electronic data management tools are now widely available for these data bases. However, even though these data are useful to each data base owner, they are, for the most part, isolated from others within the immediate organization and isolated from potential users at other levels. This occurs because the data bases are not designed such that they can be integrated or linked with other data bases. Consequently, we have become "owners" of data rather than "sharers."

The purpose of this goal is to enhance the National Park Service's natural resources management data capabilities, thereby increasing the usefulness of data and decreasing costly redundancy. This can be accomplished by identifying our data needs and the source of these data; establishing formats and standards for access, transfer, and linkages; identifying data management systems and tools; enhancing our data management capabilities (hardware, software, and staff) as appropriate; and documenting the quality of the data. The following efforts would help accomplish this task.

Objective 1. Integrate and coordinate natural resource data bases for resource and program management.

Action 1. Identify the needs, sources, and uses of data bases for planning, natural resource management, and research at the park, regional, and Washington Office levels. (Both Park Service and non-Park Service data bases should be considered.)

Action 2. Develop data formats to facilitate access, transfer, and linkage with other data bases.

Action 3. Identify appropriate data management technologies, techniques, and procedures for use by the National Park Service.

Action 4. Develop data management procedures and methods to facilitate integration of natural resource data bases at all organizational levels, and with other organizations that are sources of data.

GOAL 4

Promote a Better Understanding of and Support for the National Park Service Natural Resource Management and Research Program.

In a program to increase cooperation with private organizations and educate the public about the valuable natural resources in our national parks, the Park Service brought volunteer teachers to Acadia National Park in Maine to conduct inventories of plants and animals on the offshore islands of Acadia and share what they learned with their students. This pilot project was planned and implemented in cooperation with a private non-profit organization specializing in providing volunteers for field research projects. In this picture, a volunteer teacher presses plants collected from Pond Island in Acadia. (Photo by volunteer Linda Raymond.)

This goal recognizes that for the National Park Service to be successful in its resource management responsibilities, agency personnel and the public must be aware of the condition of the resources and of the issues affecting those resources. The National Park Service has little direct authority to remedy existing or to prevent future external activities that might harm park resources and values. However, there are many opportunities for the National Park Service to participate in regulatory and policy arenas and to influence those who make decisions that could result in protection of park resources from external threats. Therefore, it is critical that field personnel be aware of and involved with resolving issues that pose a threat to park resources. Park visitors and the public in general should also be made aware of natural resource conditions and issues; an in-

formed public may be our most effective ally in efforts to remedy and prevent damage to resources in parks.

Objective 1. Develop a reporting system for disseminating information concerning program activities and the current condition of natural resources.

Action 1. Develop template options for a State of the Park Resources Report on a park-by-park basis, based on the Inventory and Monitoring Program.

Action 2. Develop procedures to integrate the State of the Park Resources Report into resource management plan updates, applying first to targeted parks and parks funded by the Inventory and Monitoring Program.

Action 3. Work with Interpretation at the park level to develop a one-page brochure from the State of the Park Resources Report for distribution to park visitors.

Action 4. Develop triennial regional and national State of the Park Resources Reports based on an analysis and synthesis of park-level reports.

Action 5. Update the Servicewide Natural Resources Assessment and Action Program (NRAAP) Report in standard, computerized format by December 1995.

Objective 2. Support interpretive programs and displays highlighting natural resource issues.

Action 1. Work with Interpretation at park, regional, and Washington Office levels to develop interpretive programs, displays, and materials addressing natural resource issues.

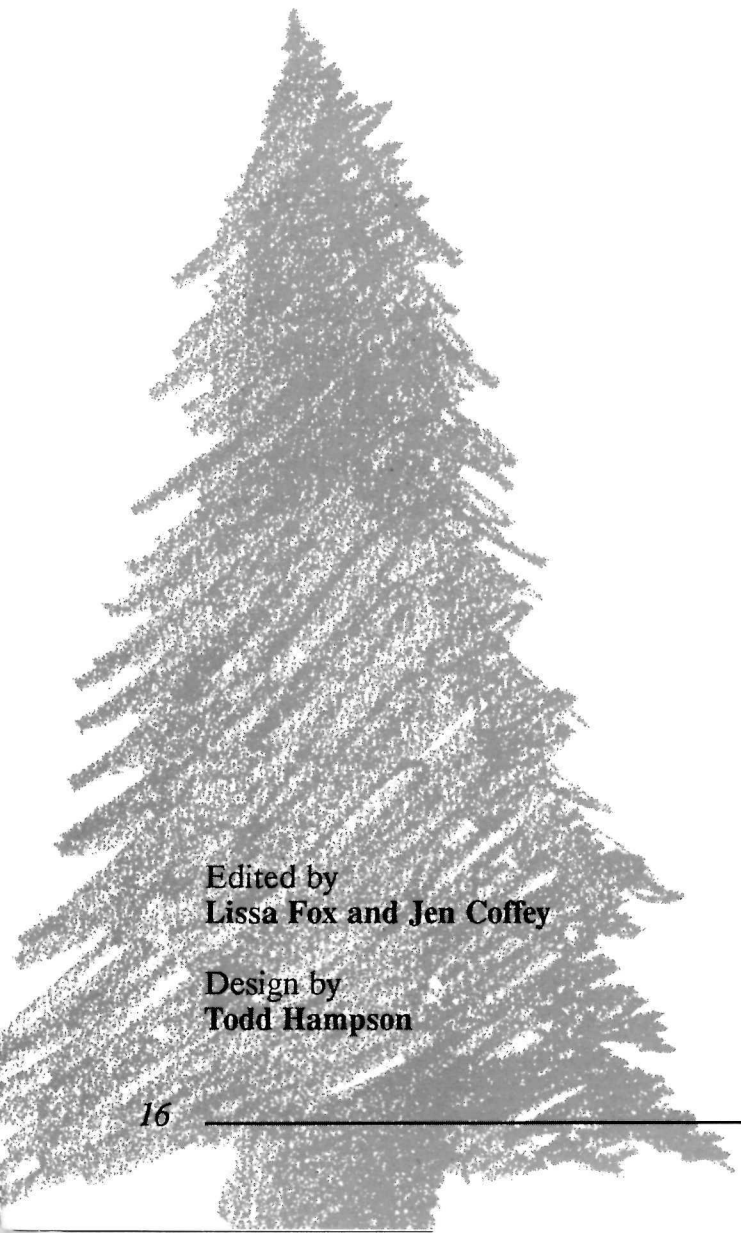
Action 2. Work with the Contracting Division and researchers to add a requirement in every research study for a deliverable that summarizes the results of the study in a nontechnical format suitable for presentation to the general public, including graphics, visual media, slides, etc.

Objective 3. Develop understanding, cooperation, and partnership with public and private organizations and individuals.

Action 1. Develop appropriate mechanisms for coordinating National Park Service research and resource management activities with other agencies, institutions, and organizations.

Action 2. Sponsor or cosponsor symposia, specialty conferences, scientific meetings, etc., relating to park natural resource issues.

Action 3. Develop pilot projects that demonstrate the practical benefits of interagency cooperation in addressing natural resource issues.



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