Natural Resource Year in Review–2002

A portrait of the year in natural resource stewardship and science in the National Park System

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Sea star, Channel Islands National Park, California. Marine protected areas have been established recently within the national park and adjacent national marine sanctuary to enhance protection of the marine ecosystem (see page 47).

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January

The new year portends progress in the scientific management of park natural resources as a result of the passage in November 2001 of the largest of three fiscal-year budgets to date in support of the Natural Resource Challenge. Added to previous annual base increases of $14.3 million in FY 2000 and $15.2 million in FY 2001, the $20 million increase in FY 2002 provides for continued gains in resource inventories and monitoring, management of native and nonnative species (including threatened and endangered), control of invasive species, water resource protection and restoration, and learning centers. The new funding also emphasizes air quality monitoring and resource restoration and protection.

The National Park Service negotiates water rights settlement agreements for Rainbow Bridge National Monument and Golden Spike National Historic Site in Utah. The agreements protect water resources, including an unnamed spring and Rainbow Bridge Creek at Rainbow Bridge and water supplies for public facilities and steam locomotive demonstrations at Golden Spike.

The Geologic Resources Division hosts a three-day workshop to develop protocols for the conduct of disturbed lands inventories and assessments in national parks. The multidisciplinary team of NPS experts attending the workshop drafts a streamlined inventory and assessment process to promote consistency while providing flexibility to meet park-specific disturbed land restoration needs.

February

The National Park Service negotiates a water rights settlement resolving issues before the Nevada State Engineer related to a groundwater permit application by the Moapa Valley Water District in southeast Nevada. The National Park Service withdrew its protest to the permit in return for a commitment and plan by the water district to monitor the effects of groundwater withdrawals on the regional aquifer system that feeds springs in nearby Lake Mead National Recreation Area and to manage their withdrawals based on analysis of the data to avoid impacts to the springs.

The Assistant Secretary for Fish and Wildlife and Parks asks the State of Kentucky not to issue a permit for the Thoroughbred Generating Station, a 1,500-megawatt, coal-fired power plant proposed for construction near Mammoth Cave National Park, Kentucky, citing the adverse impact emissions from the plant would have on visibility at the national park.

The National Park Service, Canon U.S.A., Inc., and the American Association for the Advancement of Science hold the annual Canon National Parks Science Scholars Symposium in Washington, D.C. The gathering brings together the 21 earlier recipients of the prestigious scholarship award and recognizes eight new scholars selected for 2001 to conduct graduate-level research in the National Park System.

Biologists in Yellowstone National Park document possible Canada lynx tracks in the park as part of a survey for the federally listed threatened species. Two months later, in April, hair samples collected the previous year test positive for lynx DNA.

March

Director Fran Mainella approves proposals to establish 17 additional research and learning centers across the National Park System as conceived in the Natural Resource Challenge. Although funding is not requested for these centers in FY 2003, the recommendation will serve as the basis for their future funding pending review by the Department of the Interior of an evaluation of operational learning centers.

Biologists with Grand Canyon National Park confirm two pairs of California condors nesting below the South Rim in clear view of biologists and the public. Although the nests fail, the biologists remain hopeful about the prospect of successful future reproduction of the endangered bird species in the park.

The National Wildfire Coordinating Group publishes "Burning Questions: A Social Science Research Plan for Federal Wildlife Management Agencies." The report prescribes a social science research agenda to help agency administrators and the public to better understand the human dimensions of wildland fire.

The Park Flight Migratory Bird Program receives the 2002 National Park Partnership Director's Award at the annual convention of the Association of Partners for Public Lands in Charleston, South Carolina. The program exemplifies complex partnering activities to accomplish shared goals for the protection of migratory bird species and their habitats in both U.S. and Mesoamerican national parks and protected areas.

April

After 10 years of study, the Southern Appalachian Mountains Initiative (SAMI) makes recommendations for improving air quality in the Southeast, specifically agreeing to support and promote legislation to reduce sulfur dioxide and nitrogen oxide in and outside the region, and encouraging energy efficiency and conservation. A multiagency coalition that includes the National Park Service, SAMI formed to address the adverse air quality impacts at parks and wilderness areas in the Southeast. The body discusses its recommendations in May at the Fourth Southern Governor's Summit on Air Quality and issues a final report in August.

The Geologic Resources Division holds a three-day workshop at Padre Island National Seashore, Texas, to discuss oil and gas management issues and challenges in national parks. Participants examine a variety of topics, including oil and gas exploration and production engineering, impact mitigation, compliance with the National Environmental Policy Act, soil and groundwater contamination remediation, regulatory compliance, and policy issues.

Cape Hatteras National Seashore, with assistance from the NPS Southeast Region and the Geologic Resources Division, serves as a cooperating agency on an environmental assessment prepared by the U.S. Army Corps of Engineers. The jointly prepared document will serve as the basis for the park's subsequent decision to issue a special use permit to the Army Corps for dredging the Oregon Inlet navigation channel within the park.

May

A restoration plan and environmental assessment for four national park units in the vicinity of San Francisco Bay is completed and will guide the rehabilitation of park resources damaged by a 1996 oil spill. The National Park Service will begin four restoration projects valued at $1.5 million, using funds recovered from the party responsible for the spill through the damage assessment process.

Like the water rights agreement in February, the National Park Service negotiates an agreement resolving issues before the Nevada State Engineer related to groundwater permit applications by Lincoln County and Vidler Water Company in southeast Nevada. Again, the settlement protects Lake Mead National Recreation Area and focuses on monitoring, management, and mitigation of impacts from groundwater pumping by the permittees.

June

Representatives from 13 research and learning centers gather in Estes Park, Colorado, to share accomplishments of the evolving learning center network across the National Park System. They review strategies for attracting and facilitating researchers, involving the public and partners in park science and resource management, and communicating research results for learning and application to park management.

The National Park Service and many other partners meet in Gatlinburg, Tennessee, to discuss the potential for the All Taxa Biodiversity Inventory (ATBI) in Great Smoky Mountains National Park to serve as a model to document all life in other national parks. As a result, Point Reyes National Seashore initiates the first marine ATBI.

The Water Resources Division approves research to investigate the occurrence and effects of snowmobile contaminants in Rocky Mountain and Voyageurs National Parks. Funded by the Recreational Fee Demonstration Program, the four-year, $250,000 project will be conducted by the USGS Columbia Environmental Research Center and also will provide information for staffs of all snowmobile destination parks to design appropriate monitoring programs. The study addresses two executive orders that direct the National Park Service to monitor the effects of off-road vehicles.

July

Highly pressurized oil and gas surge unexpectedly into a well being drilled adjacent to Obed Wild and Scenic River, Tennessee, causing a dangerous blowout at the surface. A large spill accumulates and cascades down steep slopes into park waters, followed by the ignition of escaping natural gas in a huge explosion and fire. National Park Service, EPA, and State of Tennessee personnel respond immediately to suppress the fire, contain and remove the spill, control the well, and assess damage.

Addressing air quality impacts of electrical generation, the Bush Administration's "Clear Skies" legislation is introduced in Congress. Through phased emissions caps the bill would reduce emissions of sulfur dioxide, nitrogen oxides, and mercury from older generators.

The Little Colorado River Adjudication Court Order confirms the binding effect of five water rights settlement agreements involving six national park units in Arizona: Grand Canyon and Petrified Forest National Parks; Walnut Canyon, Sunset Crater Volcano, and Wupatki National Monuments; and Hubble Trading Post National Historic Site.

A flood sweeps through Klondike Gold Rush National Historical Park, Alaska, threatening visitors, cultural resources, and park facilities. With technical assistance from the Geologic Resources Division, the park considers ecologically sensitive ways to stabilize the riverbank and protect park visitors and resources from future floods.

August

Resource managers and other technical science staff from five agencies gather in Denver for the second meeting of the vital signs monitoring program. The first 12 monitoring networks to be established report good progress in designing integrated resource monitoring programs in which parks in a common network share professional staff.

The Natural Resource Information Division reports to the Secretary of the Interior that the first five research and learning centers in operation are largely meeting the objectives of increasing partnerships, cooperation, and collaboration among national parks, academe, and the public. One area needing improvement is coordination among parks that host learning centers and other parks in their network.

The National Park Service announces the recipients of the Director's Awards for Natural Resource Stewardship. Michael Soukup, Associate Director for Natural Resource Stewardship and Science, presents the awards and recognizes the seven winners for their contributions to preserving the wealth of natural resources in national parks in 2001.

The Park Flight Migratory Bird Program is one of two NPS programs to be highlighted in an exhibit at the United Nations World Summit on Sustainable Development in Johannesburg, South Africa.

The other, cosponsored by the U.S. Geological Survey, explores biodiversity prospecting and benefits-sharing at Yellowstone National Park as models for sustainable use of national parks or protected areas. Nearly 15,000 world summit participants visit the exhibit hall.

Parks from around the National Park System host special events and give interpretive programs as part of the fifth annual Earth Science Week. The Geologic Resources Division works with the event sponsor, the American Geological Institute, to provide interpretive materials to the parks.

Based on revised air quality analyses, the Assistant Secretary for Fish and Wildlife and Parks withdraws the previous finding that the proposed Thoroughbred Generating Station would adversely impact visibility at Mammoth Cave National Park.

The National Park Service releases the 2001 Annual Data Summary Reports of the Gaseous Pollutant Monitoring Program, summarizing gaseous pollutant and meteorological conditions in individual parks and dry deposition of acidic compounds.

September

The Air Resources Division publishes "Air Quality in the National Parks—Second Edition." The report summarizes air quality status and trends from 1990 to 1999 for haziness, sulfate and nitrate ion concentrations, inorganic nitrogen, and ozone levels in the national parks. Trends for several of the parameters tracked in many national parks are improving.

The first 12 vital signs monitoring networks complete the first phase in a planning and design process to become fully operational, including defining objectives and synthesizing existing data. Phase 2 entails selecting monitoring indicators, and phase 3 focuses on specific methods for carrying out and reporting on resource monitoring.

Fall

Located in Point Reyes National Seashore, California, the Pacific Coast Learning Center receives the Department of the Interior's Environmental Achievement Award for 2002. The host park is credited with making its vision of a learning center—a laboratory where science and education are combined with to increase knowledge and understanding of the natural world in Pacific coast ecosystems—a reality.

October

The California Fish and Game Commission establishes a network of new marine protected areas in Channel Islands National Park and Channel Islands National Marine Sanctuary, effective April 2003. The 10 marine reserves, nine of which are in the national park, are intended to preserve marine ecosystems for exploration, inspiration, and education; to replenish depleted populations; and to sustain fisheries.

Biscayne National Park and the State of Florida sign a memorandum of understanding agreeing to develop a new comprehensive cooperative fisheries management plan to address park fishery issues, including the growing number of recreational and commercial fishers and declining fish stocks.

The Natural Sound Program becomes part of the Air Resources Division of the Natural Resource Program Center. The program combines the aircraft overflights function, which works with the Federal Aviation Administration on management planning for air-tour operators in national parks, and soundscapes management planning, which assists parks in restoring natural background levels of sound in parks. At the same time, the wilderness science function, formerly administered by the Associate Director for Operations and Education, and the Public Use Statistics Office shift to the supervision of the Associate Director for Natural Resource Stewardship and Science.

The University of Idaho's Gary Machlis steps into a new position as NPS Visiting Senior Scientist and full-time coordinator of the network of Cooperative Ecosystem Studies Units. The change creates a vacancy in the Visiting Chief Social Scientist position, now filled by Jim Gramman, professor with the Department of Recreation, Park, and Tourism Sciences at Texas A&M University.

The draft "Guidance on Assessing Impacts and Impairment to Natural Resources" is made available for field review. The information and criteria in the document are intended to assist parks in evaluating and characterizing impacts during the planning process.

November

The second phase of nonnative black rat eradication at Channel Islands National Park takes place with aerial application of a specially formulated and permitted rodenticide on West Anacapa Island. Two years of monitoring will be needed to assess the efficacy of the treatments, but after just one year all signs are positive that East Anacapa is free of black rats thanks to treatments in 2001.

Biologists from the National Park Service and interns from Latin America meet in Honduras for a workshop to improve knowledge and coordination of migratory bird monitoring programs across the Western Hemisphere. The exchange is coordinated by the NPS Office of International Affairs and supports the Park Flight Program, a partnership to conserve migratory bird species in the United States and Mesoamerican national parks and protected areas.

December

The All Taxa Biodiversity Inventory at Great Smoky Mountains National Park logs an estimated 51 moth and butterfly species new to science as a result of an intensive two-day, late-spring inventory. Altogether, the ATBI has documented 334 undescribed species and an additional 2,121 new park records over the course of its five-year history.

The Air Resources Division conducts an international peer review of the Western Airborne Contaminants Assessment Project, which will assess risk to seven western national parks (Denali, Noatak, Olympic, Mount Rainier, Rocky Mountain, Glacier, and Sequoia) from persistent organic pollutants and other airborne toxic compounds. Peer reviewers critique the research plans and implementation strategies related to snow, water, sediment, fish, vegetation, subsistence foods, and laboratory analysis.

Dr. Louise Hose joins the National Park Service as the first permanent director of the National Cave and Karst Research Institute, located in Carlsbad, New Mexico. The move signals a new phase for the start-up institute, which was created by legislation in 1998 as a federal-private partnership. The institute is developing collaborative programs to facilitate research and public education aimed at improving cave and karst resource management.

The GeoScientists-in-the-Parks program, administered by the Geologic Resources Division, places 64 geoscientists in more than 65 units of the National Park System. The program meets geologic resource management and interpretation needs in parks. The astonishing number of placements in 2002 is 10 times the number of geoscientists placed in parks since 1996, the inaugural year of the program.

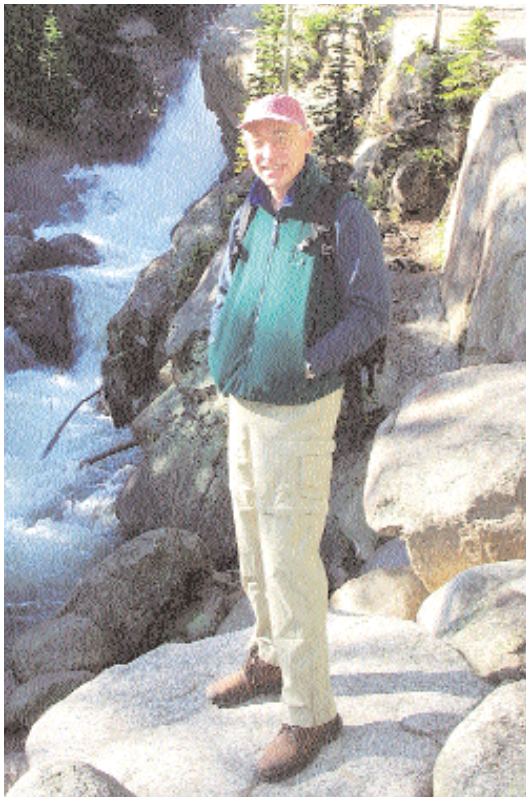
Mountain lion tracks, Big Bend National Park, Texas. Noninvasive techniques, particularly DNA sampling, are being used to study mountain lions in several southwestern parks (see page 23).

"Accumulating scientific knowledge historically has not been a commitment process. It goes in fits and starts based on funding and changes in staff.... We must go beyond information collection to build institutional memory for understanding the ecology of the landscape."

Michael A. Soukup, 13 August 2002, second meeting of the inventory and monitoring networks

The Year in Review

NPS PHOTO BY CRAIG AXTELL



Associate Director Soukup at Alberta Falls, Rocky Mountain National Park, Colorado.

Reflections on 2002

by Michael Soukup

THE MISSION OF THE NATIONAL PARK SERVICE—to preserve roughly 83 million acres in more than 385 national parks unimpaired for the enjoyment of future generations—is as honorable and extraordinary as it is complex and technical. The variety, scope, and size of the units we manage and the need to keep them unimpaired require a sophisticated knowledge of how natural systems work and what does and does not harm them. This year saw continued progress under the National Park Service's program to double the level of effort and budget for natural resource management in parks. Since its inception, the Natural Resource Challenge has been a multiyear program and commitment by NPS leaders to double the base funds spent on natural resource management, from approximately $100 million of the $2.3 billion NPS budget to $200 million annually. Although keeping the Challenge on track in a period of tight budgets and other pressing priorities has proved difficult, the fourth year's budget looked promising as the year closed under a continuing resolution.

Part of one's satisfaction in helping the National Park Service fulfill its mission comes from working alongside many committed and talented people who have dedicated their lives to furthering the national parks. Regrettably, in 2002 the National Park Service lost one of its most valuable scientific assets—a person with a deep and long-term understanding of park resources—Jim Allen. We pay tribute to him on page 54. The Service also lost to cancer one of its most well-respected leaders, Boyd Evison, a friend to natural resources and to all aspects of park management. Boyd was one of the first high-level managers to understand the need for science in parks and is remembered by many current NPS employees in natural resource disciplines as their first advocate.

"We need special kinds of science advisors for ... managers."

The loss of these men, plus the retirements of many senior managers who were strong leaders of the Natural Resource Challenge, has made me think about the circumstances and processes that produce the institutional memory of the National Park Service. For example, the practice of having dedicated research scientists and park naturalists in and focused on parks, and consequently managers who have depended directly upon them and their understanding of natural phenomena, has faded.

When the Natural Resource Challenge was developed, two needs stood out as especially critical. The first was the need to broaden the appreciation within the culture of the National Park Service for managing with state-of-the-art science. The second was the need for a wide range of science-based information. The Challenge is making great strides in acquiring basic inventory information. If fully funded, the Natural Resource Challenge will give the inventory and monitoring networks the infrastructure and foundation required to gather and analyze resource condition and trend data into the future. Managers will not have to guess at whether they are managing in such a way that tomorrow's park visitor will be able to experience the unspoiled natural heritage of the nation.

What remains to be done? Half of the monitoring infrastructure was unfunded at the end of FY 2002, leaving half of the parks without the capability to monitor park resource conditions and trends. And it is too early to tell what lasting impact the Challenge will have on broadening the culture of the National Park Service.

Managing park resources requires much more than good scientific information. Information must be synthesized into an understanding that can be applied in the full context of legal mandates amidst many other demands on parks and the National Park System. Managers must make long-term investments in understanding park resources and use that knowledge to make difficult decisions that protect resources while welcoming visitor enjoyment. For as natural resources become more popular in the modern landscape, the roles our national parks will play in an urbanized society will intensify, guaranteeing great interest in the rationale underlying any management decision. We need managers who can bring people together, fairly consider all sides, and make prudent decisions.

We need special kinds of science advisors for those managers. Parks need research scientists who stay in parks for much of their career, who accumulate and institutionalize a deep knowledge of park resources by synthesizing all the data developed by all scientists who can be encouraged to work in parks. They must communicate with numerous audiences and devise ways to perpetuate that understanding when they leave. The professional staffs and natural resource programs of the National Park Service today are certainly heartening. Yet it is not clear how we can develop the kind of human resources represented by people like Jim Allen or how we can retain their levels of understanding in parks over time.

The year 2002 saw continued solidification of the gains made to date through the Natural Resource Challenge, but also indicated where and how far we have to go to ensure the unspoiled natural park experience of the future. ■

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