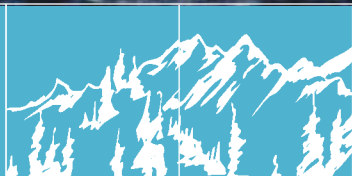


STATE
♦ OF THE ♦
PARKS®

july 2003

DENALI NATIONAL PARK AND PRESERVE

A Resource Assessment



NATIONAL PARKS CONSERVATION ASSOCIATION





Cover and above: Mount McKinley, known in Alaska simply as “Denali” following the name used by Alaska natives for millennia, is the highest mountain in North America at 20,320 feet. Photos by Jim Shives.

STATE OF THE PARKS® Program

More than a century ago, Congress established Yellowstone as the world’s first national park. That single act was the beginning of a remarkable and ongoing effort to protect this nation’s natural, historical, and cultural heritage.

Today, Americans are learning that national park designation alone cannot provide full resource protection. Many parks are compromised by development of adjacent lands, air and water pollution, skyrocketing visitation, and rapid increases in motorized recreation. Park officials often lack adequate information on the status of and trends in conditions of critical resources. Only 10 percent of the National Park Service’s budget is earmarked for natural resources management, and only 6 percent is targeted for cultural resources management. In most years, only about 7 percent of permanent park employees work in jobs directly related to park resource preservation. One consequence of the funding challenges: two-thirds of historic structures across the National Park System are in serious need of repair and maintenance.

The National Parks Conservation Association initiated the State of the Parks® program in 2000 to assess the condition of natural and cultural resources in the parks, and determine how well equipped the National Park Service is to protect the parks—its stewardship capacity. The goal is to provide information that will help policy-makers, the public, and the National Park Service improve conditions in national parks, celebrate successes as models for other parks, and ensure a lasting legacy for future generations.

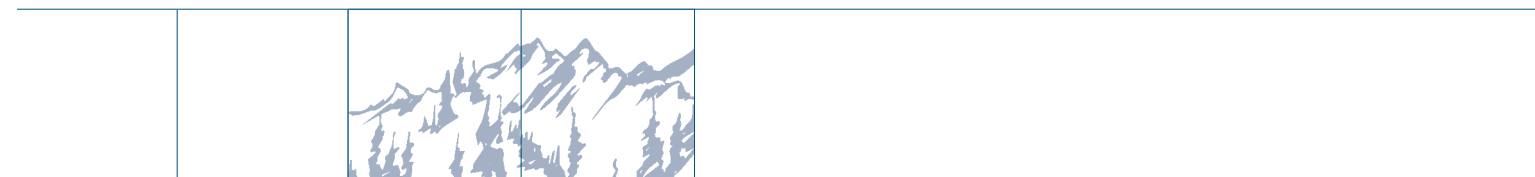
For more information about the program, details of the program’s assessment methodology and ratings, visit www.npca.org/stateoftheparks.

The National Parks Conservation Association, established in 1919, is America’s only private, nonprofit advocacy organization dedicated solely to protecting, preserving, and enhancing the U.S. National Park System for present and future generations. NPCA identifies resource needs and generates the support to implement solutions.

- * More than 300,000 members
- * 7 regional offices
- * 32,000 local activists



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REPORT HIGHLIGHTS



ROBERT VALARCHER

Kettle pond and Alaska range.

A SPECTACULAR PARK FACES CHALLENGES

Visible from 150 miles away on a clear day, Mount McKinley rises from the Alaska Range in Denali National Park and Preserve to astound the eye. Protected within the park's boundaries, the mountain dominates the landscape of this magnificent park. Denali is a premier refuge for native wildlife species in a natural setting rarely found in any protected area of the country. The six-million-acre park protects about 160 bird species and 38 mammal species, including wolves, moose, caribou, Dall sheep, and grizzly bears. Denali's remoteness, coupled with strict mandates to protect the park's wildlife habitat and large-scale functioning ecosystems, have helped this special place remain much as it has for millennia. Visitors are attracted and inspired by the massive scale of the

mountains, sweeping natural landscapes, and wildlife. Scientists value the number of large predators, such as grizzlies and wolves, as well as the number of prey species that move unhampered across the landscape.

Park staff manage Denali with a keen appreciation of its wilderness value, and strict management of motorized access is a key factor. Most visitors experience Denali through facilities at the park's periphery and through a single, tightly controlled road aboard the park's innovative shuttle system. Additional access, primarily allowed by the 1980 Alaska National Interest Lands Conservation Act (ANILCA) under definitions of traditional and subsistence use, is not actively managed and needs to be reviewed.

Although the park is best known for its wildlife and wilderness, Denali also contains a wealth of his-

toric and cultural treasures. From prehistoric archaeological sites to 19th century cabins and mining artifacts, the park tells a compelling story about centuries of human occupation and the search for gold. Even though Denali has been somewhat protected by its remoteness and size, the park faces substantial shortfalls in operational funding and in personnel that make it difficult to meet coming challenges. Although the park has built new visitor and Science and Research centers and congressional funding for the Natural Resource Challenge has helped augment natural resource programs, money is inadequate for operations and supporting staff in science, education, and outreach. The park also lacks money for a full-time archaeologist, a full-time curator or archivist, and interpretive positions to serve park visitors.

STATE OF THE PARKS® ASSESSMENT

In this report, the National Parks Conservation Association (NPCA) incorporates findings from its State of the Parks® assessment to describe the current condition of Denali's natural and cultural resources and many of the stewardship challenges ahead. In the evaluation chart, arrows indicate the likely changes to resource conditions over the next ten years.

The findings in this report do not solely reflect past and current agency management. Many factors that affect resource conditions are a result of both natural and human influences over long periods of time, in many cases before a park was established. Other factors include support from administrations, congressional funding, activities of other agencies and organizations, and external stressors such as air pollution and adjacent land uses.

RATINGS

Current overall conditions of Denali's known **natural resources** rated **94 out of a possible 100** based on 86 percent of the information requirements of our assessment methodology. The park's natural resources are in good condition and, at present, Denali is only minimally threatened by external pressures. However, concerns about sweeping changes in motorized access, along with degradation by airborne

DENALI AT A GLANCE

- Large, intact, functioning ecosystems prevail. The park and adjacent preserve total 6,028,924 acres.
- Great expanses of uninterrupted wildlife habitat support a full complement of native species.
- Pristine landscapes offer unparalleled opportunities for scientific research and wildlife viewing.
- Oldest archaeological site in Alaska found just outside Denali. This site and others within the park may hold the key to how and when the Americas were populated.
- Vast historic resources tell stories of Alaska's native populations as well as those of explorers, mountaineers, and prospectors caught up in the Kantishna Gold Rush.

KEY CHALLENGES

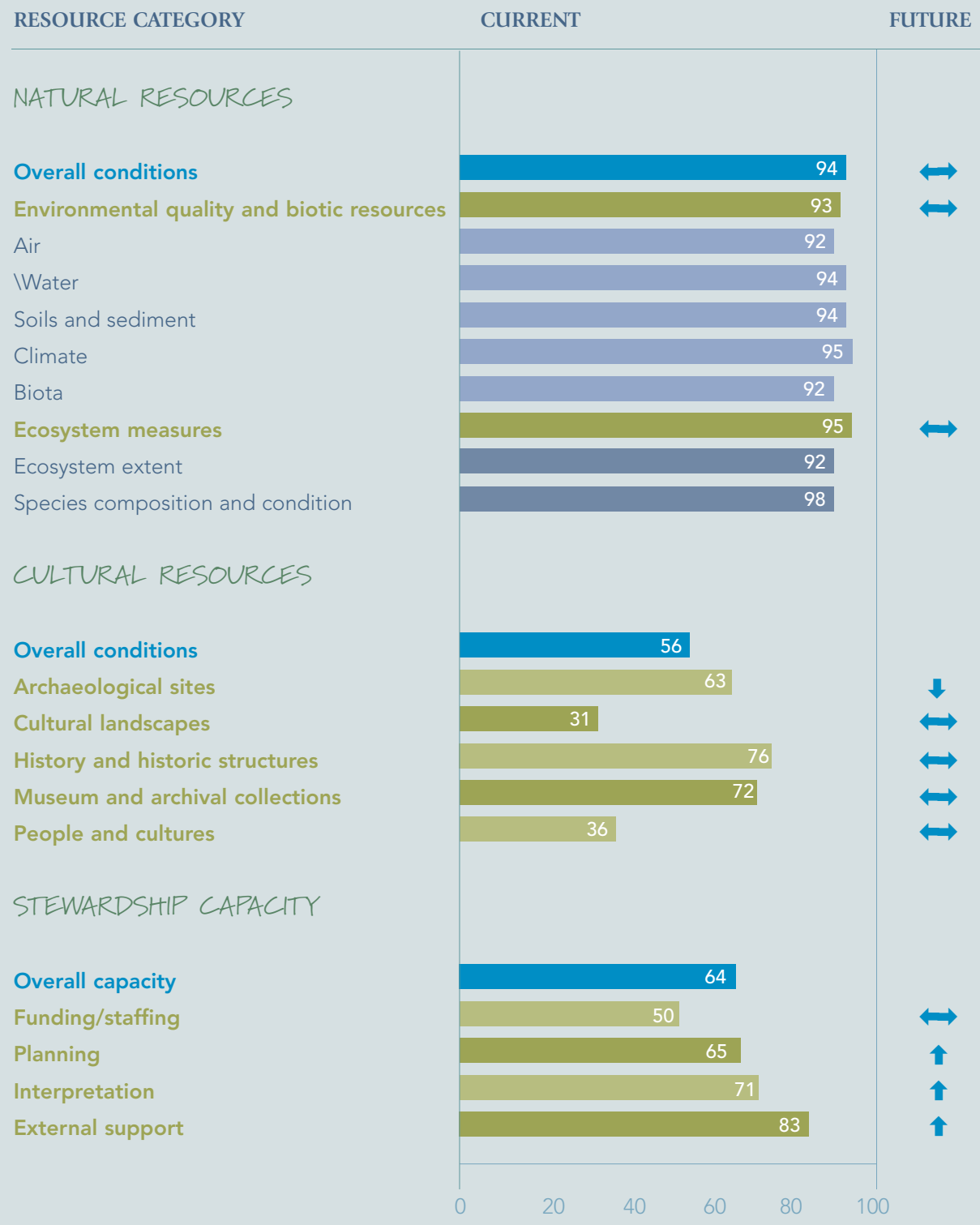
- Proposals for new motorized north access routes that will fragment ecosystems and wildlife habitat.
- Unauthorized, increased use of snowmobiles, which pollute air and water, disrupt natural quiet, and disturb wildlife.
- The current budget is only half of what is needed to protect Denali's outstanding natural and cultural resources.
- The story of how humans have survived and lived in what is now Denali remains largely untold.
- No full-time archaeologist to oversee important research or curator to manage Denali's richly diverse museum collection.
- Appropriate definition of the access provisions of 1980 legislation, especially the definition of traditional activities, need to be adopted and applied to the entire park and preserve.



Boating on Wonder lake.

JIM SHIVES

Note: When interpreting the Natural Resources ratings it should be recognized that our assessment methodology includes evaluation of more than 120 discrete elements for which information is not always available. Information adequacy reflects the extent to which data requirements for our assessment methodology are met and provides a basis for interpreting the ratings. Information adequacy for the assessment categories of Environmental and Biotic Measures, Ecosystems Measures, and Overall were very good for Denali at 91 percent, 82 percent, and 86 percent, respectively.



contaminants may soon alter that assessment. Tourism is a key industry in Alaska, and Denali is one of the major destinations. Increased tourism has intensified calls for additional accommodations and services. Congress authorized planning of a major new road or railroad at the park's north side, a feature that, if constructed, would fragment wildlife habitat and degrade wilderness-quality parklands. Additional proposals to increase air traffic and snowmobile use are also problematic. Around the park's borders, land is being developed for more visitor accommodations, while more sightseeing overflights disrupt the park's tranquility both for visitors and for wildlife.

Testing at the park has indicated air pollution from local, regional, and long-distance sources is the suspected cause of increased concentrations of pollutants, such as aluminum, black carbon, sulfates, and ozone. Persistent organic pollutants such as DDT have been detected in sediment at Wonder Lake. Air pollution is expected to increase in the future, affecting visibility and wildlife.

Overall conditions of the park's known **cultural resources** rated 56 out of a possible 100. Traditional management practices and the park's enabling legislation emphasize maintaining Denali's wildness, and as a result the cultural resource program receives only a fraction of the park's base budget. Denali's archaeological sites are of particular concern. These likely contain significant clues to the earliest inhabitants of the Americas, yet the park lacks a full-time archaeologist. The park also needs a full-time curator or archivist to oversee processing of the park's enormous backlog of museum and archival items, among other duties.

Denali's overall **stewardship capacity**—the Park Service's ability to protect park resources—rated 64 out of a possible 100. The score reflects low congressional funding for staffing, planning, and interpretation, although the park received a high score for its partnerships and external public support. The park sorely needs money for critical staff positions—as well as natural resource studies, inventories, and evaluations of Denali's important cultural resources—to better protect the park.



Large, intact functioning ecosystems prevail in Denali, unusual even for national parks.

KEY RECOMMENDATIONS

To help ensure that the goal of resource protection is achieved, NPCA recommends the following key actions:

Natural resources

- Ensure that recreational snowmobiling is not allowed in the park and where it is allowed under the Alaska Lands Act, establish an appropriate and active management regime to limit the effects on park resources.
- Do not construct a new road or railroad into the park on the north side.
- Develop and implement a "strategic science plan" that identifies major natural resource issues and guides both research and applied science into the future.
- Secure long-term funding to continue and enhance ongoing studies of top carnivores, including the wolf, grizzly bear, golden eagle, gyrfalcon, and their prey. Complete large mammal management plans, especially for the wolf and grizzly bear.

SWEEEPING
CHANGES IN
MOTORIZED
ACCESS...WOULD
FRAGMENT
WILDLIFE HABITAT
AND DEGRADE
WILDERNESS
QUALITY PARK-
LANDS

Cultural resources

- Congress should fund a permanent archaeologist position to advance proactive research and site protection, and to provide the expertise needed to ensure required archaeological compliance, which the regional NPS office no longer has the ability to provide.
- Congress should fund a permanent full-time curator or archivist position to address the cataloging backlog of museum collection items and archives and to manage day-to-day protection activities.
- New congressional mandates should be accompanied by sufficient funding so that scheduled planning priorities are not displaced.
- Congress must address funding shortfalls in interpretive staff, particularly to support additional positions in publications and exhibits, photo archives, the library, and community outreach. These positions are important to support the new visitor center and Science and Learning Center.

Stewardship capacity

- Congress should fully fund the park's requested budget increase—particularly for park science and cultural resource programs—for FY2004 and beyond.

CONGRESS SHOULD FUND A PERMANENT
ARCHAEOLOGIST POSITION TO ADVANCE
PROACTIVE RESEARCH AND SITE PROTECTION



Sled dog demonstrations and naturalist programs (right) have always been popular visitor activities. Today, interpretive programs have been reduced because of funding shortages.



R. BELCIOUS



DENALI: MORE THAN A MOUNTAIN

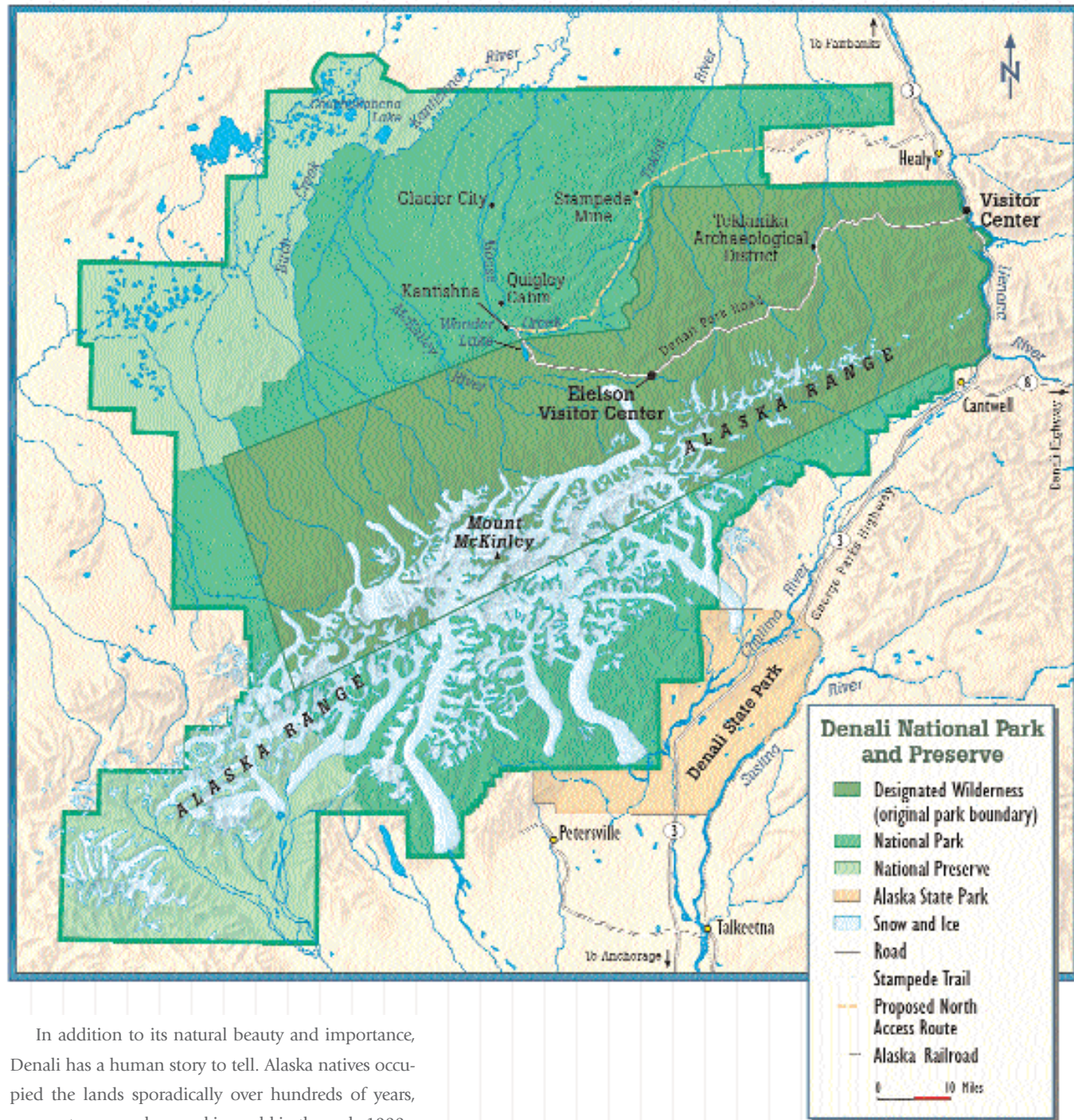
Alaska is appreciated around the world for its undeniable beauty. It's a place where one awe-inspiring landscape gives way to another. Even in Alaska, Denali National Park and Preserve is a standout. Mount McKinley, towering higher than any other peak in North America, is a major draw for the more than 300,000 people who visit Denali every year. But as the Park Service proudly states, this amazing mixture of subarctic ecosystems, spectacular glaciers, and extensive habitat for wildlife species is "more than a mountain."

This is a land of contrasts: from lowland elevations no more than 500 feet above sea level to the 20,320-foot summit of Mount McKinley, from wide-open tundra to icy blue glaciers, and short summer months of nearly perpetual daylight to long, dark, cold winters. Visitors marvel at panoramic views of the Alaska Range, which divides the park. On the north side, rivers flow as part of the Yukon-Kuskokwim watershed to the Bering Sea, and on the south side, cold waters from the mountains reach Cook Inlet and the Gulf of Alaska through the Susitna River system.

Located in south-central Alaska about 240 miles by road north of Anchorage, Denali (an Athabaskan term meaning "the high one") is one of the largest and most intact natural areas in the United States. Devoted primarily to the protection of ecosystems and wildlife habitat, the park has a rich diversity of plant and animal life, including top predators such as grizzly bears, wolves, and wolverines that coexist with Dall sheep, caribou, and moose. Denali has been designated a Globally Important Bird Area by the American Bird Conservancy because it provides habitat for significant concentrations of both resident and migrating birds, and its rivers host healthy Arctic grayling.

The park was first established as Mount McKinley National Park in 1917 to protect the area's spectacular array of wildlife. In 1976, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) declared Mount McKinley National Park an International Biosphere Reserve, partly in recognition of its high species richness. In 1980, Congress designated the original two-million-acre park as wilderness, giving it added protection, and included four million acres of surrounding lands in the renamed Denali National Park and Preserve. Denali is the fourth largest park in the National Park System, nearly three times the size of Yellowstone National Park.

THE PARK WAS FIRST ESTABLISHED AS MOUNT
MCKINLEY NATIONAL PARK IN 1917 TO
PROTECT THE AREA'S SPECTACULAR ARRAY OF
WILDLIFE. IN 1976, MOUNT MCKINLEY NATIONAL PARK
WAS NAMED AN INTERNATIONAL BIOSPHERE RESERVE,
IN PART, TO RECOGNIZE ITS HIGH SPECIES RICHNESS.



In addition to its natural beauty and importance, Denali has a human story to tell. Alaska natives occupied the lands sporadically over hundreds of years, prospectors came here seeking gold in the early 1900s, and hunting expeditions came seeking trophy animals. In fact, the desire to protect the area's extraordinary wildlife from overhunting was one of the driving forces behind establishing the park. Gold mining continued in the park at Kantishna until the mid 1980s. Although many claims have since been bought and

reclaimed by the Park Service, tailing piles, roads, and cabin ruins remain as evidence of this once-prominent activity. Denali contains many other historic and cultural reminders of the past, and park management continues to honor traditional native subsistence hunting and fishing rights.



THE DENALI ASSESSMENT



NATURAL RESOURCES— UNINTERRUPTED EXPANSES OF WILDLIFE HABITAT

The assessment rated the overall condition of **natural resources** at Denali National Park and Preserve a **94**. This score is based on a relatively high (86 percent) adequacy of natural resources data. These ratings reflect evaluation of more than 120 discrete elements associated with environmental quality, biotic health, and ecosystem integrity. Environmental quality and biotic health measures address the influences of air, water, soils, and climate-change conditions, as well as human-related influences, on plants and animals. Ecosystem measures address the extent, species composition, and interrelationships of organisms and the physical environment for indicator or representative terrestrial and freshwater communities. The excellent rating for Denali illustrates that, to date, the park has experienced relatively few of the damaging effects from invasive and introduced non-native species, air and

water pollution, visitation, and other problems common to many other national parks. At Denali, large-scale, intact, functioning ecosystems and great expanses of uninterrupted wildlife habitat prevail.

The park boasts rich native biodiversity with a full complement of native species. Park staff effectively contain the few non-native species, found mostly near the park entrance, through an aggressive eradication and control program.

Natural interactions among predators and prey, especially large mammals, have caught the attention of scientists and wildlife managers. Researchers use Denali's tundra as a reference, or control area, for research into predator-prey relationships. They also use the park's extensive white spruce forest as a reference point to study global climate change. The tundra contains diverse native vegetation and healthy wildlife populations. Spruce stands, the dominant vegetation at the park entrance, form the backdrop for the first on-the-ground experience of most visitors to Denali.

White spruce forests also provide critical cover and vertical structure in a landscape scoured by Arctic

Protecting wild animals, especially Dall sheep, from market hunters was the primary goal when the park was established in 1917.

HIGH PROTECTION STANDARDS

In addition to general management policies for the National Park System as a whole, Denali is held to standards set by The Wilderness Act of 1964 and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA). Through ANILCA, Congress designated one-third of Denali—the original two million acres of the park—as wilderness. The Wilderness Act mandates that all wilderness be "administered for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness." In fashioning ANILCA, Congress also declared that the Secretary of the Interior should "manage National Park System units in Alaska to assure the optimum functioning of entire ecological systems in undisturbed natural habitats...the preeminent natural values of the park system shall be protected in perpetuity, and shall not be jeopardized by human use. These are very special lands, and this standard must be set very high." (*Congressional Record*, House H10549, November 12, 1980)

winds and snow. These forests contain the greatest densities and greatest number of resident bird species in Alaska. The trees shelter herbs and shrubs that provide the foundation for snowshoe hare and northern red-backed vole habitat. These animals are important prey for larger ones in the park, but they also fill other ecological roles. Snowshoe hares affect plant characteristics in areas where they forage heavily, which may have an impact on plant succession. Northern red-backed voles eat virtually anything that grows on the forest floor, including fruits, mushrooms, and underground fungi. Through their wastes, the voles help spread seeds and spores throughout the boreal forest.

Freshwater rivers and streams at Denali are centers of productivity for the Arctic grayling, many species of salmon, and other fish across the broad subarctic terrains on both sides of the Alaska Range mountains. The headwaters of most of Denali's streams and rivers start inside the park, so effects from human activities upstream are rarely a factor. These naturally functioning and generally pristine waterways link terrestrial and aquatic systems for wildlife across the landscape. They are also useful as baselines in research centering on stream and watershed functions.

AT DENALI, LARGE-SCALE, INTACT, AND FUNCTIONING ECOSYSTEMS AND GREAT EXPANSES OF UNINTERRUPTED WILDLIFE HABITAT PREVAIL. IT IS NOT LIKELY THAT ANY COMPARABLE TUNDRA IN NORTH AMERICA, THAT IS AS ACCESSIBLE AS DENALI, IS IN A MORE PRISTINE CONDITION THAN THIS WILD TERRESTRIAL COMMUNITY.

Denali has excellent air quality and is designated as a Class I airshed under the Clean Air Act, thus requiring the highest level of protection.

Legislation establishing Denali National Park and Preserve requires that the naturally functioning ecosystems in the park and its wildlife habitats, "the preeminent natural values" of the park, "be protected in perpetuity" (see box). This should bode well for the excellent condition of the park's native biodiversity and terrestrial and freshwater communities and systems, but a number of threats complicate maintenance of the park's pristine natural resources.

Motorized Access. The vast majority of park visitors gain access to Denali along the 90-mile park road that was constructed in the early 1930s and bisects the park's core. In 1972, the park began a shuttle bus system along the road to provide access while limiting

the effects of uncontrolled traffic on wildlife. In 1986, the park set a limit, allowing 10,512 vehicles on the road during the summer season. This system, which serves as a model for other parks, is credited with preserving wildlife movement patterns and the outstanding wildlife-viewing opportunities that exist today.

Several new access initiatives, from within and outside the Park Service, threaten Denali's resources and values. The biggest concern centers around the proposal for an additional 90-mile road or a railroad from the north side of the park into the Kantishna region. Kantishna is the end of the existing park road, and another road that leads to the same destination—and one that would undoubtedly disrupt wildlife—makes little sense. Recent studies revealed it would cost at least \$100 million to build a road and more than \$200 million to build a railroad.

The increase of snowmobiles and flightseeing tours in the park also are concerns, affecting the park's natural soundscape—considered as much of a resource as air or water. Snowmobiles are allowed in the 1980 additions to the park for specific traditional activities and subsistence purposes. But each year, the number of snowmobiles grows, and park staff have little knowledge about whether they enter the park legitimately in pursuit of traditional activities. Traditional activities, as defined for the historic core area of Denali in 2000, do not include recreational snowmobiling.

Commercial air tours also warrant special attention. Flightseeing has more than quadrupled in the past 15 years, and noise from aircraft is the number one complaint from backpackers. The growing number of air tours may soon earn Denali a place behind Grand Canyon and Hawaii Volcanoes national parks as the third most affected by overflights. In 2000, Congress exempted Alaska from legislation that imposed some limitations on tourist overflights at national parks, giving Denali's staff little ability to intercede. One aspect of air tours that the Park Service can and should regulate is the landing of planes on the park's glaciers, which is occurring more frequently. Natural soundscapes (such as the howl of a wolf, the song of a white-crowned sparrow, or the babble of a stream) are considered a resource, and the National Park Service is



JIM SHIVES; ED O'CONNOR



For many visitors, wildlife viewing is the highlight of the visit to Denali. In 2000, more than 80 percent of visitors who took a bus trip saw bear, caribou, and Dall sheep.

required to mitigate human-caused intrusions. Motorized use in the park, especially increasing air tours and snowmobiles, seriously threaten the ability of visitors to experience natural sound. Further, the effects of such noise on animal behavior and movements in the wild, while not well understood, are likely not benign.

Air and water pollution. Air quality monitoring is an important part of understanding and protecting Denali's natural resources. The park's monitoring program has allowed park staff to detect isolated events of lower visibility that are not attributable to the natural haze caused by wind-blown soils and lightning-caused fires. Testing has indicated air pollution from local, regional, and long-distance sources. Concentrations of pollutants such as aluminum, black carbon, sulfates, and ozone have gradually increased or occurred in spikes, while persistent organic pollutants such as DDT have been detected in sediment at Wonder Lake. Scientists believe that these pollutants arrive at Denali

THE MOOSE IS CONSIDERED A "KEYSTONE" SPECIES IN NORTH AMERICAN BOREAL FOREST ECOSYSTEMS, AND ONE OF THE BEST PLACES TO STUDY THESE ANIMALS AND THEIR PREDATORS IS DENALI'S DESIGNATED WILDERNESS.

via airborne transport. Airborne pollutants may also have a negative effect on the park's waters through direct deposition and as they percolate through soils to lakes, streams, and rivers. However, evidence indicates that stream water quality is very good, and pollutants in Denali's waters are minimal. Spawning salmon may inadvertently transport pollutants into the park. After feeding on salmon carcasses containing pollutants from the oceans, Arctic grayling in an interior Alaska headwater lake showed persistent organic pollutant levels four times higher than graylings in nearby isolat-

ed lakes. Pollutants from abandoned mining sites also may have a negative effect on water quality. Semi-volatile organic compounds detected in Colorado and Costello creeks in the southeastern portion of Denali might be associated with coal deposits in the area, but additional research is needed to determine whether snowmobile use is a contributing factor.

Subsistence and recreational harvests. Subsistence hunting, fishing, and trapping by rural residents occur in the lands added to the park in 1980 as well as the preserve under provisions of ANILCA. Recreational

RECOMMENDED ACTIONS

The primary challenge facing park staff is to maintain the wildness of Denali. To help ensure success, NPCA recommends the following:

- Do not construct the proposed new road or railroad on the north side of the park.
- Apply the definition of traditional activities, currently used for the park's historic core, to the entire park.
- Establish an appropriate regulatory and active management regime to limit the effects of snowmobiles on park resources and values where they are allowed under the Alaska National Interest Lands Conservation Act.
- Follow through on the NPS recommendation to create an independent Overflight Working Group with conservation representation to address regulation of air traffic and landings.
- Determine the appropriate location and number for glacier landings by air tour operators and establish a limit.
- Develop and implement a strategic science plan that identifies major natural resource issues and guides both research and applied science into the future. The newly funded senior scientist position at the park should allow for plan development.
- Secure long-term funding to continue and enhance ongoing studies of top carnivores, including the wolf, grizzly bear, golden eagle, gyrfalcon, and their prey. Complete large mammal management plans, especially for the wolf and grizzly bear.
- Work with the Alaska State Department of Fish and Game to improve record-keeping of subsistence and recreational wildlife harvesting, and to ensure that trapping and use policies are consistent with Denali's.
- Continue monitoring airborne contaminants and working with state agencies and the operators of local coal-fired power plants to ensure that emissions levels are as low as possible to protect Denali's Class I airshed.
- Continue to sustain the yearly limit of 10,512 vehicles on the park's road.



JIM SHIVES

hunting and fishing are allowed in the preserve, and permits are issued through the state. There are some discrepancies in the wildlife management goals of the park and state programs. Park policy focuses on maintenance of natural and healthy wildlife populations, while the state emphasizes the development of discrete wildlife characteristics such as full-curl Dall sheep rams. Current subsistence and recreational harvest levels may not have a significant effect on Denali's plants and animals. An incomplete understanding of natural population fluctuations, combined with inadequate harvest information, makes it difficult to determine the actual effects and to manage for natural,

CULTURAL RESOURCES— THE HIDDEN SIDE OF DENALI

Denali scored an overall **56** on a scale of 0 to 100 for **cultural resource conditions**, including archaeological sites, cultural landscapes, history and historic structures, museum and archival collections, and peoples and cultures (ethnography). The scores for cultural resources are based on the results of indicator questions that reflect the National Park Service's own Cultural Resource Management Guideline and other policies.

The rating for this section reflects the difficulties of securing adequate funding and staffing for cultural resource programs in a park where the enabling legislation emphasizes protection of wild natural resources. Nonetheless, Denali contains an abundance of cultural resources, some of world-class value. Just outside Denali's boundaries, researchers have discovered one of the oldest archaeological sites in Alaska. Without a doubt, more sites from this period will be found within the park and may prove useful to science in documenting how and when the Americas were initially populated.

Archaeological investigation in Denali is grueling and sometimes dangerous, but even under adverse conditions, park staff have managed to survey 300,000 acres of the park's rugged terrain. Staff have

healthy animal populations. Increased park access by motorized vehicles could lead to diminished populations of some animals. Park managers closed hunting of the main Denali caribou herd when that population dropped to 1,000 animals.

Alaska gathers wildlife harvest data for state game management units that cross Denali's boundary, thereby confounding estimates of actual harvest levels in the park. Reliable information about harvest levels and the status of harvested populations is clearly needed to achieve the park's goal of natural and healthy wildlife populations over the long-term.

also completed the baseline Archaeological Overview and Assessment, which serves to guide the overall program and a three-year work plan for a comprehensive survey of the park.

Despite the global scientific importance of anticipated archaeological discoveries, Denali lacks sufficient staff positions and funding to make significant progress. The park does not have a permanent archaeologist position, and funding is woefully inadequate to carry out needed research and protection. Only one out of 180 identified archaeological sites, Teklanika Archaeological District, is listed in the National Register of Historic Places. In addition, Denali's law enforcement staff have little time to monitor the known sites and guard against vandalism.

Historic structures at Denali are generally in fair to good condition, according to the Park Service's List of Classified Structures. This list is the primary database containing information on all prehistoric and historic structures that meet criteria for the National Register of Historic Places. It helps park staff comply with regulations that require a comprehensive survey of historic structures, re-evaluations of historic structures over time, and the evaluation and nomination of historic sites to the National Register.

Denali's cultural resources staff coordinate with the fire management team to complete condition

WHERE HISTORY AND NATURAL RESOURCES MEET

Cultural landscapes are where history and natural resources meet. National Park Service policies require staff at each park to inventory and protect cultural landscapes.

At Denali, the cultural landscape program is relatively new and incomplete. The park suffers from insufficient funding for the basic ingredients of a full program, including landscape identification, evaluation, and preservation.

Identification and protection of cultural landscapes in this wild and largely undisturbed park are not without controversy. The Denali Road Corridor, in particular, has sparked debate. First built between 1922 and 1938, the road was upgraded over the years and then reconstructed in the late 1950s. Some believe it should be removed to emphasize the park's essential wild character. Others say the road is now an integral part of park history and an important cultural landscape. To improve the park's cultural landscape program, NPCA recommends that staff develop an internal strategy to guide the work of regional Park Service staff at Denali, seek staff and public consensus on cultural landscape management, and include cultural impacts on the natural landscape in natural resource studies.



VERDE WATSON

DENALI HAS A RICH HUMAN HISTORY

Denali has a rich collection of archaeological objects and associated field records, biological voucher specimens and objects related to Athabascan Indians that tell the story of human occupation, exploration, and industry. The collection also includes records from the Murie exploratory expeditions. Roughly 66 percent of these items are on the backlog list, including 88 percent of the archives that have not been officially recorded as part of the collection, processed, and cataloged.

Only a few of the park's collection items—copies of historic photographs, objects related to mountaineering at Talkeetna, and dog sleds and harnesses—are used in park interpretation programs.

The park has no full-time museum curator or archivist, although about 300,000 archival records need to be processed so they can be used. This task is far beyond what can be expected of the current part-time curatorial position. The park needs a permanent museum curator with archival training. In addition, staff should engage the services of expert contractors to help reduce the 88 percent backlog of archival items.

Denali's staff have met 83 percent of the criteria on the Park Service's Checklist for the Preservation and Protection of Museum Collections. Staff expect that percentage to increase to 97 percent after a new storage facility is constructed in 2003. In addition, Denali's Museum Management Plan is in place, and staff are considering an update of the Scope of Collections Statement.

assessments and compile up-to-date information on historic structures in the backcountry. They also supply historical information, documentation, and photographs to the park's maintenance staff, who assist in historic preservation.

Park staff also have made progress in interpreting the history of the park, including recent work to install display panels at Quigley Cabin and initiate guided tours by lodge owners in the area. With backing from park staff, Denali's concessionaire conducts a living history presentation at one of the cabins along the park road.

Other factors indicate that conditions are not likely to improve much over the coming years. Park staff inspect and monitor only 20 historic structures a year because of limited staffing and funding. Just two of Denali's historic districts—the Teklanika Archaeological District and Mount McKinley National Park Headquarters District—and 13 historic cabins used by park rangers and traditional peoples are listed in the National Register of Historic Places. Six other sites, including Kantishna Mining District, Glacier City, and Stampede Mine (closed for decades, it was once the second largest producer of antimony, a mineral used in flame retardants, in the United States), were determined eligible for the National Register, but the required evaluations await funding. In 2002, only two-thirds of the money requested to determine eligibility was allocated to the park.

Peoples and cultures (ethnography) programs evaluate places and natural and cultural resources that are valued in different ways by various groups affiliated with a park. At Denali, this evaluation is in its infancy.

Although Denali is a wild, natural park, Native peoples, explorers, and miners all have lived or worked in the park at one time or another. Understanding and relaying these stories is an important piece in understanding the park as a whole. Currently, peoples and cultures are not well integrated into other programs. Natural resource studies seldom take into account human interactions with the park's environment, few interpretive projects address



Early park rangers used sled dogs to patrol the park.

Denali's six million acres provide a true wilderness experience for hikers.



CHARLIE OTT

NATIVE PEOPLES, EXPLORERS, AND MINERS ALL HAVE LIVED OR WORKED IN THE PARK AT ONE TIME OR ANOTHER. UNDERSTANDING AND RELAYING THESE STORIES IS AN IMPORTANT PIECE IN UNDERSTANDING THE PARK AS A WHOLE

peoples and cultures, and publications at the visitor center lack important basic information covering these issues.

Park staff are working to improve incorporation of peoples and cultures in public education through new pamphlets that speak to the park's cultural history and with online information. At the urging of park staff, bus tours run by Denali's concessionaire now include Native people who discuss cultural ties.

In 1999, the staff completed the Ethnographic Overview and Assessment in cooperation with the Subsistence Division of the Alaska Department of Fish and Game and residents of five communities identified as traditional users who contributed village histories. If funding becomes available, the document

should be used to develop a much-needed Ethnographic Resource Inventory to consolidate information from various projects. That information would include oral interviews, which are not yet transcribed and indexed, and traditional knowledge of resource use over time that, when merged with science, should improve decision-making for the park's natural and cultural resources. Community Use Profiles, first compiled about 15 years ago and now being updated, also will add to overall knowledge of resource use in the park.

These projects focus primarily on important Native ties to the park. Staff have not incorporated other groups, including miners who still hold a number of claims in the park, although no mines are operating.

RECOMMENDED ACTIONS

To improve management and protection of Denali's cultural resources, NPCA recommends the following actions:

- Congress should fund a permanent archaeologist to advance proactive research and site protection and provide the expertise needed to ensure required archaeological compliance that the regional Park Service office can no longer supply.
- Congress should fund a permanent full-time curator or archivist to address the cataloging backlog of museum collection items and archives and to manage day-to-day protection activities.
- Congress should fund an Ethnographic Resource Inventory for the park.
- Deploy a system to manage archaeological records.
- Initiate systematic inspection and monitoring of historic structures.
- Create a plan to guide a survey of archaeological resources across the park and evaluate them for inclusion in the National Register of Historic Places.
- Complete cultural landscape inventories for at least half of the identified cultural landscapes.
- Integrate the park's history, peoples, and cultures more fully into public education exhibits, programming, and park literature.
- Develop partnerships with owners of inholdings, local Native groups, and park neighbors who wish to collaborate on interpretation of significant cultural sites.
- Initiate a study of miners and their use of the land.

Visitors listen to an early naturalist program in 1956.



STEWARDSHIP CAPACITY— CHALLENGES AND POTENTIAL

The third and final step in the resource assessment process examines stewardship capacity—how well positioned the Park Service is to protect Denali's natural and cultural resources. Four categories were examined: funding and staffing, park plans, interpretation, and external support.

Overall, the park's **stewardship capacity rated 64**. The rating was calculated by averaging the four component scores of stewardship capacity, then weighting funding and staffing at 40 percent of the overall score to reflect its importance.

As noted throughout this report, Denali suffers from severe funding and staffing shortfalls in critical areas. The park's Fiscal Year 2003 base operating budget was half of what is needed. The six-million-acre park receives \$11 million. Park funding has been squeezed on two fronts. When adjusted for inflation, the park budget declined 7 percent from 1983 to 1999, and because of new unfunded mandates by Congress and the administration, the park has a base funding shortfall of \$11 million. This money is needed to cover the costs of critical research and visitor services such as continuation of a long-term study on wolf population dynamics, operation of the new winter visitor facility, implementation of the museum management plan, and replacement of aging equipment for maintenance of the park's facilities and road.

In 2002, the park employed 102 permanent and 190 seasonal employees, far short of staffing levels needed to fulfill all of the park's mandates and fewer than the number needed to meet visitor demands for services. In addition, the park has a housing shortage, an important issue in attracting talent to the park.

Rising visitation will strain the park's budget even more. A look at the amount of money spent per visitor over the past 20 years helps clarify this point. In 2002, the park spent an average of \$32.60 appropriated dollars per visitor on services such as education and safety. This represents a significant decline from 1983 when the park spent \$73.38 per visitor. With further reductions, visitors will have fewer opportuni-



Many park visitors arrive by train.

ties to interact with a park ranger.

At Denali, park staff emphasize planning as a necessary component of resource stewardship. Currently, the park has three full-time staff and three temporary staff devoted to this task. An additional full-time position has been vacant for more than a year because of funding shortfalls.

The key document in park planning is the General Management Plan (GMP), and Park Service policy recommends that this plan be revised every ten to 15 years. Denali's GMP was completed in 1986 and amended in 1997 to include the Frontcountry Plan and South Side Plan. The land protection portion of the plan still needs to be updated to address changes in land use and ownership surrounding the park, especially in the Kantishna region.

The GMP's Backcountry Management Plan will be completed by 2004. Since the vast majority of Denali is backcountry, the new plan will focus on key park issues such as snowmobile access, airplane landings, noise mitigation, commercial activities, hiking, camping, and climbing.

Designation of additional wilderness could have a great impact on the plan. The Park Service found that 3.7 million acres of parkland were suitable for wilderness, but after more than 15 years the Department of Interior has never sent a subsequent

THE SIX-
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INTERPRETATION PROGRAMS IN NEED OF SUPPORT

At Denali, staff have established an active interpretive program to enhance public understanding of the park's natural resources. Of the park's approximately 311,000 visitors in 2002, nearly half—126,860—participated in the park's formal programs, and 17,343 participated in informal programs. The park distributed more than 8,000 booklets for the Junior Ranger program (geared for ages five to 13). Park staff emphasize outreach to local children and have developed "Denali Days," a curriculum used by local schools that includes a classroom visit by park staff, a class visit to the park, and activities surrounding these events. Summer day camps are also offered to local youths.

Steps are under way to improve interpretive services. In 2004, the park's new Science and Learning Center will open to provide much-needed facilities for researchers and opportunities to disseminate the results of research to the public. In 2005, a new visitor center will open next to the train station near the main entrance, allowing interpretive staff to reach tour bus visitors who currently have no contact with a park ranger. In addition, interpretive rangers will work closely with natural resource staff to educate the public about issues facing the park, but more needs to be done, especially in regard to the park's cultural resources.

Fiscal constraints have forced the park to reduce the interpretive workforce; two of the 24 seasonal interpretive positions were cut in 2003. As a result, about 60,000 fewer visitors will be served directly by park staff; year-round field interpreters will not be available to deliver programs in the "shoulder" seasons; and the library hours will be reduced, limiting access to both interpreters and researchers.

NPCA recommends that Congress address operational funding shortfalls for the interpretation program, particularly to support additional positions in publications and exhibits, curatorial services, photo archives, the library, and community outreach. In addition, park staff should work to integrate history, peoples, and cultures more fully into interpretive programs and explore increased use of electronic information exchanges to provide timely, accurate, science-based information to park staff, other scientists, visitors to the park, and the public.



D. COHEN



Denali's shuttle buses allow visitors the chance to see wildlife with minimal impact to the land.

2.25-million-acre wilderness recommendation to Congress.

Staff completed the Resource Management Plan, also a critical document, in 1998. Additional specific resource plans are in the works for wildfires, wolves, water resources, interpretation, subsistence issues, and ecological inventory and monitoring.

Denali's planning staff face a significant challenge in responding to unfunded congressional mandates that bypass the park's planning priorities. For example, the Kantishna Master Plan, a high priority for the park, has been delayed so that park staff can complete the congressionally mandated study to examine options for visitor facilities along a proposed 90-mile north access road or railroad. The master plan for Kantishna would take into account the many private inholdings that could be developed for commercial purposes with access roads built across parkland. The plan is crucial because of the large-scale changes that could take place in this area.

Nearly every park in the system relies on the contributions of volunteers and park partners, and Denali is no exception. Volunteers contributed 31,539 hours of service in fiscal year 2002, more than at any other national park in Alaska and an increase of 8,000 hours since 1999. They helped re-seed vegetation in impacted areas, reduced exotic plant infesta-

JIM SHIVES

tions, maintained trails, patrolled Mount McKinley, and interpreted the park's resources.

A number of conservation groups provide input to park plans and defend resource values at Denali. Among them are six local groups, including the Denali Citizens Council and Northern Alaska Environmental Center, and nine national groups, including NPCA, The Wilderness Society, and the Alaska Coalition.

One element of external support is the assistance that a park receives from members of its congressional delegation, measured indirectly by their voting records or directly through resource protection projects that a member has supported. The Alaska congressional delegation has not championed stewardship and resource science at national parks in general, although Alaska's Sen. Ted Stevens (R) has directed federal dollars to construction projects in Denali, including a new mountaineering contact station in Talkeetna, the new visitor center and other facilities planned for the park entrance, and removal of an old hotel. Given the challenges identified in this assessment, the Alaska delegation needs to do a better job of securing increased base operating funds and money for resource protection.



RICK MCINTYRE

PARTNERSHIPS AT WORK

The following groups work with park staff through organized partnerships to make significant contributions to resource protection at Denali:

The Alaska Natural History Association contributes about \$150,000 to the park for educational services through book sales in the park's three bookstores. The Denali Institute, a branch of the association, will help manage the new Denali Science and Learning Center and has earmarked \$100,000 annually for this effort. The Institute also offers educational programs to university students, teachers, and the public. Denali Foundation was created in 1989 to promote research and education in the park. Its classes reach more than 5,000 participants every summer.

American Alpine Club and the Access Fund helped establish and fund the "Clean Mountain Can" program, developing cylinders for the more than 1,200 adventurers who climb Mount McKinley every year to carry out waste.

RECOMMENDED ACTIONS

To overcome funding and staffing shortfalls, improve planning efforts, and strengthen external support for the park, NPCA recommends the following:

- The administration should recommend, and Congress should fully fund, the park's requested budget amount, particularly for science and cultural resources, for Fiscal Year 2004 and beyond. This money is needed to sustain the park's high-quality science program, hire a full-time permanent archaeologist, implement the park's backcountry management plan, reduce the archival collection's catalog backlog, and fully operate new visitor facilities and the Science and Learning Center.
- Park staff should continue to complete plans in progress, particularly the backcountry management, interpretive, and Kantishna plans.
- Staff should cooperate with the Mat-Su Borough, state of Alaska, and others to implement the approved Southside Development Concept Plan for a new visitor center and other visitor facilities on the park's south side.

APPENDIX: STATE OF THE PARKS®



ASSESSMENT PROCESS

To determine the condition of known natural and cultural resources at Denali and other national parks, the National Parks Conservation Association developed a resource assessment and ratings process. It examines current resource conditions, evaluates the park staff's capacity to fully care for the resources, and forecasts likely conditions over the next ten years.

Researchers gather available information from a variety of sources in a number of critical categories. The Natural Resources rating reflects assessment of more than 120 discrete metrics associated with environmental quality, biotic health, and ecosystem integrity. Environmental quality and biotic health metrics (EBS) address air, water, soils, and climatic change conditions as well as their influences and human-related influences on plants and animals. Ecosystems Measures (ESM) address the extent, species composition, and interrelationships of organisms with each other and the physical environment for indicator, representative, or all terrestrial and freshwater communities. Each of the metrics is assigned a score of 1-3 based on the interpretation of extent, severity, and duration of influences. The total element scores for each category are divided by the total score possible and the percentage calculated becomes the rating. Element category scores are then rolled-up to produce the EBS, ESM, and Overall scores. In addition to producing a 0-100 scale score for each element category and roll-up categories of Environmental and Biotic Measures, Ecosystems Measures, and Overall, the assessment ratings also provide a basis for interpreting the adequacy of information upon which the element category or roll-up scores are based. This information adequacy is also reported on a 0 – 100 percent scale and reflects the extent to which data requirements for the assessment are met. The scores for cultural resources are determined based on the results of indicator questions that reflect the National Park Service's own Cultural Resource

Management Guidelines and other Park Service resource management policies.

Indicators of stress and threats to resources are applied across each natural and cultural resource category to determine what their impacts will likely be over the next ten years. A checklist is used to derive a score based on the percentage of positive responses to questions posed about threats to existing resources. This enables a risk analysis to indicate whether resource conditions are likely to decline, remain the same, or improve. The impacts of threats to the park are also used to evaluate how resource conditions may change as a result of threats that are outside the control of park staff.

Stewardship capacity refers to the Park Service's ability to protect park resources. Information is collected and circulated to park staff and peer reviewers for analysis. An overall average based on a 100-point scale is used to determine the ratings based on numerous benchmarks. An overall score is obtained by weighting the funding and staffing component at 40 percent, recognizing its critical importance, and the remaining three elements at 20 percent each.

For this report, researchers collected data and prepared a paper that summarized the results. The draft underwent peer review and was also reviewed by staff at Denali National Park and Preserve.

NPCA's State of the Parks program represents the first time that such assessments have been undertaken for units of the National Park System. Comments on the program's methods are welcome.

ACKNOWLEDGMENT

NPCA thanks the staff at Denali National Park who reviewed the accuracy of information used in this report. We also thank peer reviewers for their valuable comments and suggestions.

A special note of appreciation goes to those whose generous grants and donations made the report possible: Ben and Ruth Hammett, Lowell and Tay Thomas, Tracy and Gene Sykes, and anonymous donors.

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 Printed on recycled paper



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