

DENALI NATIONAL PARK AND PRESERVE

SUPERINTENDENT'S ANNUAL REPORT FOR FISCAL YEAR 2003

The mission statement for Denali National Park and Preserve is “to protect intact, the globally significant Denali ecosystems, including their cultural, aesthetic and wilderness values and ensure opportunities for inspiration, education, research, recreation and subsistence for this and future generations.” To that end the park’s management team developed long-term park priorities. The priorities that will guide staff efforts in the years to come are:

1. Provide those facilities necessary to effectively serve park visitors.
2. Develop human resources.
3. Create a model education program.
4. Develop and practice sound, sustainable financial management.
5. Develop and maintain effective working relationships to achieve the park mission.
6. Provide additional appropriate visitor and user opportunities.
7. Develop and implement a strategic research and resource protection program.

EXECUTIVE SUMMARY

Park staff worked very hard this year to provide facilities to better serve park visitors. A new Visitor Center complex and the Murie Science and Learning Center (MSLC) are under construction and on schedule. These buildings all have an interpretive component that required input in planning and design by all park staff. In addition to these planning and construction projects in the frontcountry, plans are currently under development for a new building to replace the Eielson Visitor Center at Mile 66 on the park road. The design and the interpretive component for this new building also require staff input.

In addition to these major construction projects, some smaller-scale development helped the park to more effectively serve the needs of visitors. A new laundry facility at the Riley Creek Mercantile, rehabilitation of the Teklanika Campground, and a study underway for possible visitor facilities along the Stampede Road corridor all contribute to visitor satisfaction.

During 2003 several things occurred that helped the park move forward in meeting its strategic goal of developing human resources. The park continued to work with the

University of Alaska system, Tuskegee University, and two schools in California, St. Mary's University and the Riverside County Transition Partnership Program, to help diversify the park workforce and recruit talented young people considering a career in the National Park Service.

This year a new Assistant Superintendent position was created and there was some reorganization in park staff and divisions. The new Assistant Superintendent oversees the Center for Resources, Science and Learning which includes the Resources Division, the Interpretation Division, as well as the new Murie Science and Learning Center. This new organizational model calls for a closer relationship between education and research. The Resources Division is undergoing a reorganization that will establish five branches covering all aspects of resource management and protection. Revitalization of the wildlife program is an important aspect of the reorganization. The park currently has research showing declines in several large mammal populations, particularly caribou and wolves. More research needs to be conducted on the predator-prey dynamics to understand these declines. Revising and developing a solid direction for the wildlife program will help the park make better wildlife management decisions. Although certain areas of the reorganization have yet to be resolved, the new organization will operate more efficiently to provide a better foundation for the evolving Center for Resources, Science, and Learning. The Interpretation Division moved from the Operations side of the organization, which was a significant change for the park.

Another significant aspect of developing human resources is the park-wide training program. This in-park training included supervisor training for both permanent and seasonal staff, communication skills, and a variety of TELNPS classes offered throughout the year. Offering training in the park makes it available to more staff and is more fiscally efficient than paying for employees to travel to training elsewhere.

The park began to create a model education program; four programs in particular should be highlighted. Denali Days is an outreach program in science education for elementary schools in the neighboring communities of Anderson, Cantwell, Healy, McGrath, Nenana, Nikolai, and Tanana. The project offers curriculum-based education programs that teach students about park resources.

The Denali Discovery Pack program provides an educational opportunity for families visiting Denali. The Discovery Pack is a backpack containing an activity guide, tools and materials to help visitors explore park resources. Tools in the pack include a hand lens, binoculars, field guides, thermometer, compass, art supplies, and a journal for the recording of findings and observations.

Denali Discovery Camp is a highly successful learning opportunity for local children. For one week, campers explore the wild nature of the park on daily outings that expose them to a variety of habitats within the subarctic ecosystem. The program combines intensive educational field experience with park science and the environment.

The fourth education program is new this year. The electronic field trip, "Mammals of Denali: Amazing Animals of Adaptation," designed for grades 4-7, includes an interactive multimedia web experience, a field trip journal worksheet, a live web chat session, and an email question and answer session. With the success of this eField Trip, Denali is planning a second one, "Climbing Denali: The Highest Challenge," for 2004.

In addition to seeking out and using other funding sources to accomplish its work, park staff recognizes the need to develop and practice sound financial management. Park staff is currently considering a more strategic approach to OFS and PMIS submissions, as well as reviewing key programs for efficiency and updating the business plan. Another element for effective financial management is a position management review and a new approach to review and approve projects funded from fee demo and franchise fee accounts.

Although the park identified the need to develop more partnerships, many successful partnerships developed to accomplish numerous projects and programs already exist. One of the most successful examples is the School to Work Program with the Denali Borough School District's Building Trades class in Healy. Students completed two 18' x 24' cabins for seasonal housing in C-Camp this year. Other important partnerships include those with the Denali Institute and the Denali Foundation, which provide educational opportunities for the local communities and the partnerships on planning efforts with the Denali and Matanuska-Susitna Boroughs.

The park is planning several projects that will provide new opportunities for visitors. The Draft Backcountry Management Plan addresses the major changes occurring in the backcountry, especially recreational uses that have increased significantly in the last 15 years, such as snowmachining, airplane landings, and mountaineering. The goals of the plan are to continue providing for a wide range of visitor opportunities in the backcountry while protecting the internationally significant resources of the park and preserve.

Planning is currently taking place for a new visitor destination on the south side of the park. The National Park Service is partnering with the Matanuska-Susitna Borough and the State of Alaska to potentially expand recreational opportunities in the area. Currently the only NPS visitor facility on the south side is the Talkeetna Ranger Station, which was primarily designed to provide services for the mountaineers attempting the park's peaks, although it often functions as a visitor center for travelers in Talkeetna.

Entrance area and road corridor development, in addition to the new Denali Visitor Center, Murie Science and Learning Center, and other facilities, includes the construction of several interpretive trails. These trails will provide visitors with additional opportunities to experience the park while they wait for a bus tour or train departure.

Many current research projects provide information to help managers make informed decisions for resource protection. Long Term Ecological Monitoring (LTEM) is an ongoing project in the park for all resources. Full integration of the LTEM program at Denali into the Central Alaska Network (CAKN) occurred this year. Denali joined

Yukon-Charley Rivers National Preserve and Wrangell-St. Elias National Park and Preserve in CAKN, allowing the three parks to share expertise in developing network protocols for inventory and monitoring. In addition to monitoring, research includes weather, air, and sound studies, wolves, bears, birds, plants, small mammals, and glaciology, as well as historic resources.

The park dealt with a new resource threat this year for the first time: resource damage as the result of off-road vehicle use. One instance involved an ATV, while the other was a 4WD pickup truck. Both situations resulted in significant damage to vegetation on park lands and both occurred during the subsistence hunting season. Legal charges are pending in the ATV incident and charges were filed against the driver of the truck for off- road travel and resource damage.

Another significant program for resource protection in the park is the Climb Clean Program on the mountain. This program is very successful reducing the human impacts. The 17,200-foot camp, once heavily contaminated with human waste and trash, is now clean. Volunteers and park rangers managed to eliminate the trash problem and through the utilization of the Clean Mountain Can, almost all human waste is carried off the mountain.

Hard work on the part of all park staff resulted in several awards. Three park publications received awards from the National Association of Interpretation:

- a first place award for “Denali, A Living Tapestry...A Wilderness Companion.” This booklet is included as part of the Tundra Wilderness Tour and the Natural History Tour.
- second place for “Sled Dogs of Denali”
- third place for the park’s “Alpenglow” newspaper

The park was recognized by the Environmental Protection Agency as a “Champion for Environmental Leadership and “Green” Government Innovation” for its alternative energy projects involving the use of hybrid generators at the Wonder Lake Ranger Station and Eielson Visitor Center. The park also received Green Star Awards related to waste reduction, pollution, energy conservation, recycling, and air quality and Environmental Achievement Awards from both the Department of the Interior and the National Park Service.

Denali’s volunteers did not go unnoticed in 2003. Phyllis and Harry Hassinger, campground hosts at Wonder Lake since 1990, received the Alaska Region Volunteer Award from Regional Director Rob Arnberger. The volunteers who work with the mountaineering rangers received the National “Take Pride in America” award for partnerships.

SUPERINTENDENT’S OFFICE

Staffing

The Superintendent’s Office reached its full complement of staff in 2003, with four staffing changes. In the most major change, Philip N. Hooge, Ph.D. was hired as the new

Assistant Superintendent for the Center for Resources, Science, and Learning. The newly created Center includes the Divisions of Natural Resources, Cultural Resources, Subsistence Management and Interpretation. Kris Fister was hired as the park's first full-time Public Affairs Officer, the chief of concessions vacancy was filled by Donna Sisson and Peter Armington arrived to fill the Chief Ranger vacancy.

This year Denali exceeded regional goals for seasonal diversity hires. The park continued to establish partner schools for recruiting and to develop relationships with the University of Alaska system, the village of Nenana, the Tanana Chiefs Conference, and other native organizations.

Management Team

In order to provide park staff with strong leadership, the management team participated in Grid I and II management training and Situational Leadership training. The majority of front line supervisors, in addition to the management team, completed supervisory training, training in communication, and other mandatory training. This is a significant improvement over previous years.

The management team initiated a strategic planning process this year. The team, with input from park staff, developed the strategic goals for the park and the tasks and work plans needed to accomplish these goals.

Performance plans and evaluations for all permanent employees were conducted according to regional deadlines, thereby providing timely feedback to each employee on their performance.

Partnerships and Community Relations

Denali has very good working relationships with the communities surrounding the park on the both sides of the Alaska Range. Park staff worked to develop and strengthen relations with local communities, school districts, borough officials, cooperating associations, and special interest groups.

VIP Visits in 2003

Denali hosted several important dignitaries in the park in August, including Secretary of the Department of the Interior Gale Norton, National Park Service Director Fran Mainella and United States Senator Pete Domenici, R-NM and Chairman of the Senate Energy Committee. Director Mainella took the opportunity to present the park with a plaque from the Environmental Protection Agency's Region 10, which recognized the park as "Champions for Environmental Leadership and Green Government Innovation". She was able to meet with local community members over lunch at a local restaurant. Secretary Norton was able to meet with park partners and local community members at dinners hosted by the Alaska Natural History Association and the Doyon, Limited Native Corporation.

CONCESSIONS DIVISION

A new Type I transportation contract was awarded and signed on May 12, 2003. The contract went to Doyon/ARAMARK Joint Venture. This is the first time that an Alaska Native Corporation successfully competed for a major National Park Service contract. The National Park Service will receive 15.4% of gross revenue in franchise fees, an increase from the nearly 7% provided by the previous contract. The franchise fee money, of which 80% will remain in the park, will be used to address concession-related needs, environmental and energy efficiency, and to enhance visitor services. In addition to the Type I transportation contract, six Mountaineering Guide Type III contracts were awarded and eleven concessions permits were extended.

Training opportunities organized by the division included eight, 2 ½ hour bus driver training sessions that provided the opportunity for park staff to give drivers information on a wide variety of park topics. Concessions also facilitated a cross training session with the bus driver trainers and the NPS heavy equipment operators.

The Capital Improvement Plan (CIP) projects completed this year include the following:

- Utility connection and site work for the new visitor center and Murie Science and Learning Center.
- Removal of the discontinued hotel facilities. This included the relocation of the bus fuel tank and the removal of the gift shop structure.
- Relocation and addition of exterior decks on the employee dining facility.
- Design completed for the concessionaire employee/MSLC dining facility.
- The Mercantile ventilation concerns were adequately addressed.
- Completed the Riley Creek interpretive panels - currently in production.
- Designed and manufactured bear lockers for Riley Creek and Savage Campgrounds.

Concessionaire interpretive programs continue to be popular among park visitors. This year, oversight of the Alaska Native interpretive presentations at the Primrose and Savage Cabin living history programs improved with the implementation of a requirement to videotape the presentations for quality review.

The concessionaire submitted a well-documented and comprehensive Environmental Management Plan to the park concessions team. The document demonstrates the concessionaire's commitment to manage its environmental, health and safety concerns as an integral part of their business. For the first time the concessionaire took over the operation of the Riley Creek and Savage River campgrounds. The laundry facility at the Mercantile opened this season, a well-received and excellent visitor service.

CULTURAL RESOURCES AND SUBSISTENCE

Cultural Resources

Late this fiscal year the museum collection program was brought into the Division of Cultural Resources and Subsistence. The collection was moved to a larger facility that includes an environmentally controlled collection room and three additional rooms,

which provided office work space for museum staff and researchers. The improved facility and support will improve access to the collection and increase use.

Research and evaluation of Denali's historic sites continued under the National Register project. The vast majority of sites are related to mining and in-depth research is required to obtain accurate information. In addition, work continues on the park administrative history.

Cultural Resource staff spent a great deal of time developing interpretive panels for the 30-minute trail through the former Morino Campground. The panels provide information and historic photographs of the area, including the Morino Roadhouse and the Mt. McKinley Tourist and Transportation Company. Staff also gathered materials including photographs, museum collection items and information for the interpretive displays and videos in the new visitor center, Murie Science and Learning Center, and the new Eielson Visitor Center. Staff continued to build the working historic photograph collection and develop valuable relationships with individuals who have family ties to or special interest in park history.

Staff worked to update the List of Classified Structures (LCS) and do condition assessments on historic structures. Numerous site visits took place for LCS and for compliance and research purposes.

Subsistence

The Denali Subsistence Resource Commission held two meetings in 2003 to review proposed regulations for subsistence hunting and fishing and make recommendations relating to subsistence use and management. The Commission's recommendation for a three-year residency requirement in the Cantwell Residency Zone was denied by the Secretary of the Interior.

A second draft hunt plan is out for consultation, which requests that a predator-prey relationship study be conducted in Denali. This study would help to facilitate understanding of natural and healthy populations to provide guidance with respect to the harvest of wildlife. Information obtained by this study will also improve the wildlife program at Denali.

The Commission continues to be concerned about new roads for north access in Denali. To reaffirm the 1986 hunting plan recommendation opposing new roads in Denali, the Commission sent letters to the Secretary of the Interior, Alaska's Governor and Legislature, as well as, the Alaska Congressional Delegation and the Denali Borough Mayor.

Field research completed in 2003 included subsistence community use and harvest assessments and Traditional Ecological Knowledge Study regarding fisheries use for the Lake Minchumina and Nikolai areas. Surveys, mapping and interviews are being analyzed and final reports are being written.

The fall chum salmon stock assessment monitoring program for the Kantishna and Toklat Rivers continued for the fourth year. This is a joint monitoring project with the State of Alaska providing information on the distribution, abundance, and run timing of fall salmon utilizing mark-recapture techniques. Two live-capture-release fishwheels were operated on both the Kantishna and Toklat Rivers providing preliminary abundance estimates of 75,437 as of September 26, 2003. While still below historical run strength numbers, it is the best run strength since the monitoring project began.

Denali park staff continued to manage the federal subsistence registration hunt permits for moose and caribou in wildlife management unit 13E and for moose in Unit 16B. Staff issued forty-five moose permits and 160 caribou permits primarily to Cantwell area residents. Several hunts continue into the winter season so harvest data is not yet available.

INTERPRETATION DIVISION

Highlights in the Interpretation Division this year, in addition to the usual interpretive programs offered to park visitors, include several successful education programs: Denali Days, Denali Discovery Pack Program, Denali Discovery Camp, and the electronic field trip.

Denali Days is an outreach program in science education for elementary schools in the park's neighboring communities of Anderson, Cantwell, Healy, McGrath, Nenana, Nikolai, and Tanana. The project offers curriculum-based education programs that teach students about park resources.

The Denali Discovery Pack Program is an educational opportunity for families visiting Denali. The Discovery Pack is a backpack containing an activity guide, tools and materials to explore park resources and bring visitors closer to the small wonders of the natural world. Tools in the pack include a hand lens, binoculars, field guides, thermometer, compass, art supplies, and a journal for the children to record their findings and observations.

Denali Discovery Camp is another highly successful learning opportunity for local children. For one week the campers explore the wild nature of the park on daily outings that expose them to a variety of habitats within the subarctic ecosystem. The program combines intensive educational field experience with park science and the environment.

The fourth education program is new this year. The Electronic Field Trip, "Mammals of Denali: Amazing Animals of Adaptation," designed for grades 4-7, includes an interactive multimedia web experience, a field trip journal worksheet, a live web chat session, and an email question and answer session. With the success of this eField Trip, Denali is planning a second one, "Climbing Denali: The Highest Challenge," for 2004.

Interpretive planning with Aldrich-Pears Associates for the new Denali Visitor Center, Murie Science and Learning Center, and the new Eielson Visitor Center is well

underway. Development and review of interpretive material involved many park staff throughout the year and will continue into next fiscal year.

Several of Denali’s interpretive publications received national attention in 2003. The National Association of Interpretation awarded first place in the site publication category to “Denali, A Living Tapestry...A Wilderness Companion.” This booklet is included as part of the Tundra Wilderness Tour and the Natural History Tour. The proceeds from the sale of this book are used for the development and operation of the Murie Science and Learning Center. “Sled Dogs of Denali” by kennels manager Karen Fortier took second place in the book category, and the park’s “Alpenglow” newspaper received third place in the event and program schedule category.

The following statistics demonstrate the wide variety of support and assistance provided to the park by this year’s Volunteers in Parks (VIP).

VIP Group	Number of VIPs	Hours Donated
SCA Interpretation	6	3360
SCA Kennels	1	360
SCA Backcountry	4	1920
SCA Trail Crew	54	8657
VIP Trail Crew	16	1207
Talkeetna Mountaineering & Patrols	36	6536
Artist in Residence	2	1096
Kennels Patrol	3	2734
Kennels Dog Care	62	1210
Vegetation Volunteers	60	1247
Planning	1	150
Campground Hosts	7	3026
Interpretation	2	71
School to Work Program	14	4816
Total	254	36390

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Visitor Statistics for 2003:

359,840 recreational visitors came to the Park, an increase over last year’s visitation.
 258,770 visitors traveled into the park on a bus of some type (shuttle, tour, Kantishna lodge)
 233,000 visitors passed through the Visitor Access Center
 87,000 visitors attended interpretive programs
 85,000 visitors passed through Eielson Visitor Center

LAW ENFORCEMENT AND EMERGENCY SERVICES DIVISION

Chief Ranger's Office

In May, Chief Ranger Nick Herring transferred to Big Bend National Park. Peter Armington, Chief Ranger at Isle Royale National Park, transferred to Denali as Herring's replacement. Park Pilot Stan Steck requested and received conversion to 6-month subject-to-furlough status in order to pursue other career opportunities. A major evaluation of the park aviation program is underway and is expected to result in major program changes early in 2004.

North District Ranger Tom Habecker moved into a management assistant position within the division, with responsibility for film and professional photography permits, road permits, and other special park uses.

Mountaineering Operations

Over 1900 mountaineers and skiers visited the park during the four-month mountaineering season. Significant training included a seven-day rigging for rescue class in March and a three-day medical training session prior to the climbing season. Nineteen mountaineering patrols and five hunting/ backcountry patrols took place during the operating season, ranging from seven to 30 days in length.

106 mountaineering guides worked in the park this season, guiding a total of 245 clients. Guided clients accounted for 21% of total climbers; guides and clients combined accounted for 30% of climbers. Guided groups had a 65% success rate versus a 59% success rate for all climbers. Eleven percent of all climbers registering with the park this season were women, up from 9% in 2002. These 125 female climbers achieved a 50.4% summit success rate (63 summits). Climbers from 45 different countries visited the park including 87 from the United Kingdom, 52 from Canada, 41 from France, and 34 from Spain. Other countries represented were Costa Rica, Lebanon, Saudi Arabia, Sri Lanka and Zimbabwe. The average age was 35. There were climbers from 46 states, including 133 from Washington, 100 from Alaska, and 91 from Colorado. The states represented by fewer climbers included Florida with 7, Louisiana with 2, and Alabama with one.

June 12 was a record setting summit day, when 115 people reached the top of Mt. McKinley, breaking the previous single day record of 80. Forty-two people reached the summit on June 22 and 40 on June 16. In May, the highest summit day was May 29, when 39 climbers reached the top.

South District Backcountry Use Statistics

<u>Area</u>	<u>Visitors</u>	<u>User Nights</u>	<u>Average Length of Stay</u>
Ruth Glacier	188	1634	8.6 nights
Upper Kahiltna	125	1122	9 nights
Little Switzerland	52	544	10.5 nights
Lower Kahiltna	40	213	5.3 nights

Mount Hunter	24	390	16.3 nights
Eldridge Glacier	16	134	8.4 nights
Kitchatnas	3	27	9 nights
Other	5	59	11.8
Totals	463	4170	9 nights

Notable and First Ascents

Noteworthy expeditions during the 2003 season covered a wide array of activities, from the first complete ski descent of Mount Hunter to long ice climbs in the Kitchatnas.

There were no winter summits on Mt. McKinley or Foraker this year; climbing activity on those peaks took place during customarily popular times – May and June.

On May 15, a group of four made the first contiguous ski-descent of Mount Hunter from the West Ridge to the newly named Ramen Couloir. From their advanced base camp on a spur glacier immediately south of the West Ridge, the four-person team climbed to the summit in 12.5 hours and made their ski descent in 4 hours.

From a base on the Kahiltna international airstrip, two climbers made a new ascent in May on an unnamed peak on the south border of the east fork of the Kahiltna glacier. The new route, “Going Monk,” on Point 13,790 was established on May 30. The 4,300 vertical foot route begins in the NW bowl/face and then continues the west ridge to the summit.

Technical ice climbing was added to the Kichatna Spires predominately rock climbing repertoire in May when a British team made the first ascent of the “Supa Dupa Couloir” on the east face of the Citadel. Completed over the course of 12 days, this wall route, on the East face of the Citadel, is rated A4.

Of note on Mt. McKinley this year were two new routes and a speedy ascent of the West Buttress. Between June 14-16, British climbers climbed a new line they dubbed “Great White Fright” on the Father-and-Sons wall, to the right of the existing routes. A day later, two other climbers added another variation to the West Buttress Direct. Their line, “Patience for Purity,” is left of all of the routes indicated on page 106 of High Alaska that begin above Motorcycle Hill. One of the fastest ascents of the West Buttress occurred this year when a climber departed base camp on June 17 at 2:15 a.m. and climbed the entire West Buttress Route in 14 hours and 22 minutes. (Total time of 23 hours and 55 minutes)

Three new routes on the Tokositna glacier were established from the seldom traveled northwest fork. Two climbers from the United Kingdom climbed two ice lines on the south face of Kahiltna Queen during the first week of May. One week later two climbers made a probable first ascent of a couloir on the north side of Point 11,520, directly south of Kahiltna Queen (a local name).

Search and Rescue (SAR)

The mountaineering season was reasonably quiet and uneventful by historic standards. Three successful high altitude rescues took place at 19,200 feet using the park's special use contract Lama helicopter. During the 2003 climbing season the South District staff were involved in eleven significant SARs. Two aircraft crashes occurred this season involving two air taxi companies. A McKinley Air taxi crashed, killing the pilot and three passengers, and a Talkeetna Air Taxi Cessna 185 crash landed on take off at the 5,600-foot level of the Mountain House airstrip in the Charles Sheldon Amphitheater. The pilot sustained minor injuries and the four passengers were examined and released from the Sunshine Clinic near Talkeetna.

Climb Clean Report

This year saw a significant breakthrough in human waste removal on Mt. McKinley. Almost every climber ascending to the heavily used high camp at 17,200' on the West Buttress removed their waste using Clean Mountain Cans (CMCs). Over 1,000 climbers from forty countries participated in this year's project. Of these, 148 carried their human waste all the way back to base camp at 7,200'. These 148 climbers received the coveted 2003 Denali Pro pin. The remaining climbers turned in their CMCs to the rangers at the 14,200-foot camp.

Since its inception in 2001, the program has grown to over 400 CMCs being used throughout the Alaska Range. The program has become so successful that at times park staff were unable to give CMCs to everyone that asked for one.

With the park's strict 'Climb Clean' policies and ranger presence at the 17,200-foot high camp, the human impact at this desolate location has significantly improved. Once heavily contaminated with human waste and garbage, the area is now clean thanks to the efforts of many volunteers and park rangers to eliminate the trash. Through the invention of the Clean Mountain Can, almost all human waste is carried off.

South District Community Outreach and Partnerships

Park staff coordinated a team representing the diverse interests of the Talkeetna community and Matanuska-Susitna (Mat-Su) Borough to attend a multi-day gateway community conference. Results from this conference inspired the team to work with the community on a plan for the riverfront section of the town that promoted resource conservation and a quality recreational/ visitor experience. Park staff assisted the team in acquiring grant funding to accomplish the initial phases of the plan.

In partnership with the Borough and "Y" Community Council, the South District staff sponsored and coordinated a Community Vision-to-Action Forum for the "Y" Council area and another for the Trapper Creek community that brought residents together for a weekend planning sessions. An important outcome from the event was the community's desire to start comprehensive planning for the area. Entering into a cooperative agreement with the National Park Service allowed the park to fund and participate in the comprehensive planning process.

South District staff participated in local emergency preparedness planning. They also received funding to sponsor and coordinate a multi-agency training session on community planning techniques. Agency planners participated from the Mat-Su Borough, State Department of Transportation, village of Eeyak, Resource Conservation and Development Council, and the National Park Service.

The South District staff is often involved in coordinating training sessions on facilitation, effective meeting techniques and civic engagement for south side community council board members. They lead community meetings in Talkeetna on the benefits of conservation and resource appreciation in relation to rural community economics and regularly attend community council and chamber of commerce meetings in all three of the south side communities.

With the assistance of NPS staff, the Talkeetna Historical Society received land from the Mat-Su Borough for construction of an interpretive walking trail.

North District and Frontcountry

Kennels

Kennels staff completed a kennels link on the park website, a welcome and attractive addition. Educational outreach at the kennels included more involvement with local schools and staff participated in the Winterfest and Earth Day activities.

A new interpretive panel completed for the entrance to the kennels area answers frequently asked visitor questions. Formal training and establishment of an audit program to monitor and measure results for presenters of the dog sled demonstration improved the quality of the popular sled dog demonstrations. The demonstrations continue to draw more visitors than any other park interpretive program.

Kennel staff worked with several film crews, including German PBS, National Geographic, and the Travel Channel, to document winter kennels operations. Kennels staff assisted in the removal of over 6,000 pounds of materials by dog team from the Lower Windy Creek cabin following rehabilitation work by the Historical Restoration crew. A new winter freight sled was built and two young command leaders trained.

Backcountry Operations

Staff developed a new minimum requirements/minimum tool compliance process and incorporated it into the project clearance request database program. A two-day wilderness management workshop was attended by 45 staff members, and one session introduced and trained staff in the new minimum requirement/minimum tool evaluation process. A two-day training session was also provided to the trails crew. In an effort to renew interest in the use of traditional tools, backcountry staff held a two-day training session for the trails crew. The use of traditional tools will improve wilderness character by reducing motorized equipment use.

Efforts over the last four years to modernize and improve the management of the backcountry desk and patrol operation are making headway. The park now has basic backcountry information on the park website, a new brochure, a new video, and a new computerized permit program. Patrols are bringing back useful information on resource conditions and permit compliance.

Staff coordinated the efforts necessary to make adequate snowcover determinations for the snowmobile season and helped the concessions division set up a process to gather visitor use information from the glacier landing operations. Staff helped develop an aircraft landing site inventory, an inventory of ATV trails in the Cantwell area, a campsite inventory, a key worded photo database, and a backcountry aircraft noise inventory.

Resource Protection

Two incidents of resource damage occurred this year as the result of off-road vehicle use. These incidents are significant, as at no other time has resource damage taken place during the hunting season. The incidents happened during the fall subsistence hunt in the Bull River area in the new park additions and in Kantishna. Three subsistence hunters used ATVs in the Bull River area causing resource damage to more than four miles in the park additions. Park staff are working with the Regional Office and the Solicitor's Office to determine if using ATVs for subsistence purposes in the park additions is lawful. Whether or not the ATV use is legal, charges are pending with the U.S. Attorneys Office concerning resource damage.

The second incident of resource damage took place in Kantishna. A subsistence hunter drove a pickup truck off the Moose Creek Road to retrieve a moose carcass in a soft, sensitive area, causing considerable damage. Charges in this case included off-road travel and destruction of park resources.

Fire

Fire brigade conducted training sessions in basic pump operations, hose lays, hydrant operations and an introduction to basic auto extrication techniques. For the first time the fire brigade and the wildland fire crew held a joint exercise to integrate with the urban-wildland fire interface. All park structure fire extinguishers were inventoried and updated.

Film and Photography Permits

The division continued to manage the commercial film and professional photography programs in the park. The park collected over \$16,000 in fees from twenty commercial filming permits and another \$10,000 was collected for permits issued to professional photographers. Significant changes made to the professional photographers program improved the park's management of this program. The migration of the application process and program information onto the park website was very successful and saved a great deal of time and money.

Fee Program

The park entrance fee remained at \$5.00 per individual and \$10.00 per family in 2003. Campground use fees range from \$9.00/site/night for a tent campsite to \$18.00/site/night for RVs. All federal passport passes are available (Golden Age, Eagle, Access, National Parks Pass) for purchase as well as the Park Annual pass.

MAINTENANCE DIVISION

Roads

Park Road Crews kept the aufeis plowed off the park road to milepost 7. This proved to be very cost effective and reduced spring road opening efforts considerably. As a side benefit, visitors had a safe, flat surface to ski on through areas traditionally covered with steep aufeis. Extremely low snowfall made for an easy spring road opening, and crews were able to provide access to Kantishna by May 1, significantly earlier than in past years.

Two Federal Lands Highway Program (FLHP) projects occurred in the park this season. The first, at the Savage East parking area, consisted of correcting the frost heave problems in the road surface, constructing a vehicle turn-around at the north end of the parking area, and building a walkway down to the beach and picnic area. The second project at Tatler Creek involved the construction of a gabion retaining wall along the outside edge of the road. This work re-established the road width in this area.

In June, park crews worked with state highway crews in a joint project to harden the Friday Creek crossing. Concrete planks placed in the creek improved the crossing, allowing buses to access the Kantishna airstrip and Fannie Quigley cabin site. Two new turnouts at 73 mile and 84 mile will provide visitors with better viewing opportunities on this section of the road.

Extraction of gravel from the North Face Corner quarry continued most of the summer. Relocation of the Kantishna Road alignment through the quarry is finished and efforts to reclaim the quarry have begun. Revegetation of the site should be completed in FY04.

Contractors installed 1,600 linear feet of sheet pile on the Toklat crusher pad. The sheet pile installation brought the crusher pad into compliance. Crews extracted approximately 22,000 cubic yards of gravel from the Toklat River.

Park crews continued brushing efforts along the park road this season, completing approximately 20 lane miles. In addition, brushing efforts on Government Hill provided visitors with much better viewing opportunities.

Calcium chloride treatment resumed on approximately 10 miles of the park road between the Savage River and Teklanika River. The dust palliative treatment continues to be very effective in abating the dust problems.

Buildings

Crews completed the rehabilitation of the John House, which is now used for offices for the Ranger Division. A fire suppression system will be installed in FY04. Park crews also completed the restoration of the Lower Toklat and Moose Creek patrol cabins and cache.

New projects begun this year include construction of a six-person dormitory and a duplex at the Toklat Road Camp. These projects will be completed in FY04. The rehabilitation of the C-Camp Recreation Hall foundation began in late September. This work will continue through the winter with hopes of having the facility operational for the summer of 2004.

Removal of roadside trashcans from the paved section of the road reduced overall trash collection costs this year. Although some staff expressed concern that this action would result in an increase in litter, this was not the case.

Crews improved living conditions and safety at Friday Creek by painting the exterior of three cabins at Friday Creek Camp, replacing all appliance gas hose lines with metal supply lines and installing new refrigerators and heaters.

Utilities

A contractor completed the connection of the C-Camp water system to the Headquarters water system. This effort included the installation of 1,100 feet of arctic water line, a 50,000 gallon water tank, and a new hydro-pneumatic pump system in the auto shop.

The primary electrical distribution system in the headquarters area began to fail in December. By June nearly 30% of the distribution system failed due to degradation of the wiring insulation. Emergency funding from the Parks Pass and Repair Rehab programs paid for repairs and upgrades. A contractor installed new primary wiring by September 30, fully restoring the system. In the summer of FY04 installation of new transformers and switches will complete the replacement of the system.

Work crews installed underground propane tanks and heaters at the roadside cabins, Toklat Road Camp, and in C-Camp. This effort will significantly reduce the hazards associated with fuel spills. By converting from electric to propane heat, the electric loads at Toklat were significantly reduced. This allowed the downsizing of the generators from 135 kw to 50 kw.

School to Work

Students in the Building Trades Class at Tri-Valley School completed two 18'x 24' cabins during the school year. Park crews transported and placed the cabins in C-Camp in early June. This program continues to be very successful for the park and the school.

Materials are ordered for two additional 18'x 26' cabins and students made significant progress in the initial construction of floors and walls for the 2004 effort. These cabins will replace the housing that is being lost due to the rehabilitation of the C-Camp Rec Hall. Crews started construction of an access road and building pads at the north end of

C-Camp. These pads are for the placement of the 2004 cabins currently being constructed by the students.

West District Solid Waste / Recycling

Purchase of six recycling bins provided the means to collect and store cardboard at Wonder Lake, Eielson, and Toklat. West-end facility recycling also included aluminum, dry cell batteries, copper/brass, and fluorescent lamps.

Fire Suppression and Detection Systems

Crews installed two fire suppression systems, one at the Butler Building and another at the new Toklat Dorm. All piping was completed and control panels with associated wiring will be tested and certified in 2004.

Campgrounds

Teklanika Campground was rehabilitated. Improvements included replacing 53 firerings, re-graveling vehicle pads, repairing and repainting 30 tables, and replacing bumper logs. Crews also replaced five toilets at the Wonder Lake Campground comfort stations.

Energy

Crews installed a total of thirteen propane heaters, four propane hot water heaters and four propane dryers, more than 2,500 linear feet of buried gas pipe and five - 1,000 gallon underground storage tanks. This effort, with the removal of seven above-ground fuel oil tanks and associated piping will reduce electrical load, spill potential, and emissions.

The installation and operation of the solar water system at Wonder Lake is a success. The system pumped 15,000 gallons of water over the course of thirty-one days with no generator use.

Line Item Projects

Criterion and Davis contractors began construction of the Murie Science and Learning Center, Denali Visitor Center, and associated visitor services area. However, there was not enough funding available to fully fund the Visitor Center. By dropping the exhibits package and some site work the park was able to award the contract. Program adjustments will be made and additional funding sought.

Design of the New Eielson Visitor Center is ongoing. The park is waiting to hear if the project will remain funded in FY05, or if it will slip back due to competing needs in the LIC program.

PLANNING DIVISION

Planning Division projects during 2003 included continued work on the Backcountry Management Plan and General Management Plan Amendment, initiating South Denali

implementation planning, a transportation plan for the park entrance area and gateway communities, and a cooperative study with the State of Alaska on facilities along the Stampede Road corridor. The Planning Division also includes compliance program management for the park.

Backcountry Management Planning

The Draft Backcountry Management Plan and General Management Plan Amendment was distributed for public review in spring 2003, with the public comment period ending on May 30, 2003. The draft plan addresses the major changes occurring in the backcountry, especially recreational uses that have increased significantly in the last 15 years, such as snowmachining, airplane landings, and climbing. Plan goals are to continue providing for a range of visitor opportunities in the backcountry while protecting the internationally significant resources of the park and preserve. The intent is to manage growth so that in the long term a greater number of users can experience the park with reduced resource impacts.

The park received more than 9,500 comments on the draft plan including comments from the State of Alaska. The State's most significant concerns are the potential use of management zoning to "broadly close or restrict public access" and that such closures or restrictions must be consistent with ANILCA Section 1110(a).

In response to the State of Alaska comments, the National Park Service began revisions to the plan with the following objectives:

1. To not close or restrict public access in violation of ANILCA Section 1110(a).
2. To regulate activity, but not access, consistent with ANILCA.
3. To not regulate activity unless it is the only method to achieve the plan goals for desired conditions in the backcountry of Denali.

South Side Implementation Planning

Initial work was completed during 2003 in preparation for an expected congressional appropriation for planning and developing a new visitor destination on the south side of Denali National Park and Preserve. Park staff facilitated site investigations for the three involved agencies: the State of Alaska, the Matanuska-Susitna Borough, and the National Park Service. These agencies developed and approved a cooperative agreement and designated a steering committee and project team.

Transportation Planning

The National Park Service Transportation Assistance Group (TAG) made a site visit to Denali during June 18-21 to evaluate the need, scope, and funding level for the Community Transportation Plan. The TAG Team met with park staff, park concessionaire, Alaska Railroad, Healy Chamber of Commerce, Denali Borough, and various local businesses and interested individuals from Cantwell to Healy. At its conclusion, the TAG Team recommended approval of \$160,000 in FY 2004 Alternative

Transportation Program (ATP) funds to prepare a community-based multimodal transportation study for the Denali region.

Cooperative Study with State of Alaska for Facilities along Stampede Road Corridor

Funds provided in fiscal year 2000 for the design of a visitor center at Glacier Bay National Park (\$372,000) were reprogrammed in 2001 for “a cooperative study with the State of Alaska to explore options for the location of campgrounds, trails, and other visitor facilities along the Stampede Road alignment.”

In FY 2003, a cooperative agreement was finalized between the National Park Service and Alaska Department of Natural Resources. The Visitor Facilities Study will be completed in FY04.

Park staff continued to cooperate with the Denali Borough and the Alaska Department of Transportation on their North Access Reconnaissance Study. The National Park Service and the Denali Borough signed a memorandum of agreement in FY03 to accomplish a mutually beneficial air photo project within the study area.

Compliance Program Management

Compliance program staff completed Environmental Assessments and Findings of No Significant Impact on the following projects: the park’s 10-year Gravel Acquisition Program, a Hazardous Fuel Reduction Program for both the built-up areas and around the backcountry cabins, a new repeater site on Double Mountain in the Denali Wilderness, and a spring trail for skiing and dog mushing near the park headquarters. Projects tracked at the categorical exclusion level of the National Environmental Policy Act compliance, included projects dealing with cabin restoration; trailer replacement; new bicycle paths; two new scenic pullouts; rehabilitation of two miles of park road; new housing at C-Camp; contaminant inventories; a university field camp; wolf, moose and small mammal studies; geologic investigations; and aversive conditioning experiments.

As required by regulations and the 1995 Programmatic Agreement with the State Historic Preservation Officer (SHPO) staff prepared assessments and consultation with the SHPO following Section 106 of the National Historic Preservation Act. Compliance surveys conducted during 2003 included the railroad realignment, road pullouts, and proposed trails. Cultural resource staff prepared a Determination of Eligibility for the National Register of Historic Places for the CCC Camp site and the C-Camp recreation hall. The SHPO determined the CCC Camp site to be ineligible but found the C-Camp recreation hall to be eligible.

Several Section 404 permits for the Clean Water Act were prepared as required by regulations.

RESOURCE DIVISION

Long Term Ecological Monitoring Program

In 2003 the Long Term Ecological Monitoring Program (LTEM) at Denali moved through the last stages of full integration into the Central Alaska Network (CAKN), joining Yukon-Charley Rivers National Preserve and Wrangell-St. Elias National Park and Preserve. Integration into the CAKN network will allow Denali to share expertise in inventory and monitoring and will help the entire network develop protocols. In CAKN long term monitoring technical committees, made up of representatives from all three parks, develop recommendations and protocols overseen by the management committee (superintendents from each park). Completion of three reports: a history of the Denali LTEM Program, 1992-2003; mini-grid sampling report; and data synthesis and analysis of each monitoring component for the last 10 years fulfilled Denali's role as a national LTEM Prototype Park.

The Toklat Basin study identifies the natural and physical features that define the Toklat basin ecosystem, and develop an information base that integrates data about resource attributes so it can be used effectively by NPS. 2003 was the second year of this three-year study. The study has five main components: reconnaissance of biological resources, development of computer models predicting where species of large vertebrates occur, inventories of selected species including anadromous fish and furbearers, mapping the surficial geology, and characterization of the soundscape.

Botany

The construction work in the park's frontcountry during 2003 translates into the need for revegetation of sites disturbed by the construction work. The primary projects for revegetation in 2003 included projects at the new Savage River turnaround and the old entrance to Riley Creek Campground, trail revegetation, and several locations in the headquarters area. Staff processed and prepared large amounts of wild-collected native seed for storage and maintained intact "tundra mats" to be used for revegetation at a later date

Exotic plant eradication was the primary focus of vegetation management work during 2003. This included the annual dandelion eradication project in June as well as concerted efforts to reduce the numbers of *Melilotus albus* and *Crepis tectorum* in the vicinity of the sewage lagoon. Crews of volunteers destroyed more than 210 pounds of dandelions along over 30 miles of the road corridor in 2003.

In 2003, staff prepared a draft comprehensive summary report of the vascular plant inventory of the park. The report presents and discusses the results of four years of vascular plant inventory work in the park (1998-2001). This two volume document, entitled "Evaluation of a Study for Detecting Ecological Change in Denali National Park and Preserve at Multiple Scales", represents a significant contribution to the knowledge of the composition and distribution of the park's vascular plant flora. The document considers all of the available floristic information for the park, and includes a history of collections and discussion of the floristics.

Vegetation monitoring activities for 2003 included the completion of a report and new website describing the “mini-grid” sampling design project for landscape-scale monitoring in the park. This 300-page document presents the rationale, design, and results of a pilot study aimed at developing a landscape scale monitoring program for the park

Monitoring the effects of the use of dust palliatives on the park road on soil, water, and vegetation continued in 2003. This year staff selected which attributes should be measured and a plan developed for sampling.

Fire Management

The Western Alaska Area Fire Management Team oversees fire management for Denali, Lake Clark, Bering Land Bridge, Cape Krusenstern, Kobuk Vally, and Noatak. In Denali 80% of the burnable vegetation lies within limited fire suppression zones, allowing fire to play its natural role in the ecosystem. Monitoring includes observing a fire from aircraft, digitally photographing and mapping its progress, and keeping an updated narrative of the fire’s status and behavior. Current and forecasted weather over the fire area is also monitored to ensure that the fire will continue to burn only where allowed. Protecting isolated structures that lie in the fire’s path is generally accomplished by setting up a water pump and sprinkler system on or around the structure as most structures tend to be located adjacent to water sources.

History has shown the devastating effects when wildland fire combines with a buildup of vegetation around structures. Hazardous fuels around structures in the developed and backcountry areas of Denali National Park and Preserve will be reduced to create a defensible space around the structures. Creating this defensible space includes clearing all flammable vegetation within 30’, and thinning the vegetation that lies within 30’ – 100’ of the structure. In preparation for this project, plot work was initiated in 2003 to monitor fuels to determine fuel load so the scope of work for the contract will accurately reflect the amount of vegetation to be removed.

To more efficiently and safely monitor the severity and associated effects of wildland fire on the vegetation within the park and preserve, an exciting new technology that utilizes satellite imagery is being developed. If it proves to be accurate, precise, and reliable, this technology will substantially increase firefighter safety by reducing the amount of time spent in aircraft flying over fires to collect data about fire severity.

Wildlife-Bears

Denali National Park and Preserve resource staff continued to educate people with the basic message: “Keep wildlife wild - do not approach or feed wildlife.” In 2003, staff distributed more of the “Do not feed the animals” buttons, bookmarks, brochures, and signs, around the park, and placed signs on trash cans, picnic tables, and toilet stall doors. The message also became part of every interpretive program. All employees at the park take every opportunity to discourage the feeding and subsequent habituation of wildlife. This program serves as a model for other parks.

Approximately 20 grizzly bears with radio collars continue to be monitored on the north side of the Alaska Range, focusing on the area between the Muldrow Glacier and the Herron River. Females are tracked to determine production and survival of cubs.

In 2003 staff completed the three-year population estimate studies for both black and grizzly bears on the south side of the range. A final report will not be available for some time but preliminary results indicate the density of grizzly bears to be approximately 27 bears/ 1000 km². Density for black bears is about 80 bears/ 1000 km².

Denali's Bear Management Plan (BMP) addresses bear problems and bear-human conflicts. A dramatic reduction in the number of bear problems, as well as other wildlife, was the result of educating staff and visitors about bears and providing bear-resistant storage for food and trash. The success of the BMP is largely dependent on the cooperation of all park employees.

There were 233 bear-human interactions recorded by wildlife staff, 212 in the backcountry and 21 in the frontcountry, none resulting in injury.

The road wildlife study relies on bus drivers who volunteer to help monitor wildlife along the park road. Drivers record the numbers of bears, moose, sheep, caribou, and wolves they see on their westbound trips. These numbers are summarized and compared to previous years. Differences in numbers noted from year-to-year are within the range expected due to natural variation.

Wildlife-Wolves

The study of Denali's wolves continued in 2003. In 1986 a large-scale wolf research project, was initiated by David Mech and others to gain more accurate information on wolf populations. This project provided basic information necessary for effective wolf management. While the intensive research program concluded in 1993, research and monitoring efforts continued.

The current study consists of maintaining 2-3 radio-collared wolves in each known pack inhabiting the park north of the Alaska Range. Radio-collared wolves are located every 2 weeks (with 5-6 additional sightings during late September-early October to determine fall pack sizes and to count pups) and 5-6 sightings during mid-March to determine late winter pack sizes.

In October 2002, approximately 121 wolves in 20 packs inhabited the north side of the park. In March 2003, the park's wolf population numbered about 110 wolves (preliminary estimate) in 18 packs. By comparison, in March 2002 there were ~97 wolves in 20 packs and in March 2001, there were ~105 wolves. On average, pups account for about 36% of the fall population estimate.

Wildlife-Small Mammal Inventory

By far, the three most common species collected are northern red-backed voles, tundra voles, and the cinereus shrews (236, 131, and 205 individuals collected respectively, or

more than 70% of the 821 specimens). In order to capture the rare species, researchers often need to capture many of the common species as well.

At this time all 25 species of small mammals expected to occur in Denali National Park and Preserve have been documented (observed in the park and preserve and specimens collected). The goal of the Central Alaska Network inventory of parks is to document as high a percentage of expected species as possible, which is now 100% for Denali.

Wildlife-Birds

Wildlife biologists are conducting short-term and long-term studies focusing on different ecological aspects of bird life in Denali National Park and Preserve. Several projects are aimed at protecting avian resources (birds, bird habitat, and prey sources) in and outside of the park. Other projects provide information for national monitoring programs.

Assessing the spatial and temporal variation in passerines (songbirds) is a project to investigate changes in songbird populations at Denali in both space and time. In addition, biologists collect information on the presence of all species of birds observed during their point count surveys and associated fieldwork.

Bird biologists describe bird communities (what species of birds and species groups are located together in what habitats) by counting birds by sight and sound at sampling points within sites across the park. These sites are co-located with the vegetation monitoring studies so park biologists can make inferences about the abundance and distribution of songbirds in relation to habitat and other environmental attributes. This project is conducted in partnership with the Alaska Bird Observatory.

The North American Breeding Bird Survey (BBS) is a large-scale survey of North American birds. Denali has two of the approximately 3,700 active BBS routes across the continental U.S. and Canada (about 2,900 are surveyed annually). The BBS has accumulated over 30 years of data on the abundance, distribution, and population trends of more than 400 species.

The Denali Institute Migration Station (DIMS) is located near Moose Creek and is operated from early August to early September. Passerine birds are captured in a fine net strung between posts, banded within minutes of capture, measured, and released.

A comprehensive study of the ecology of golden eagles and gyrfalcons in Denali was started in 1988. Data on occupancy of nesting areas and reproductive success are collected annually at 56 to 80 golden eagle nesting areas and 12 to 26 gyrfalcon nesting areas using aerial and foot surveys. Results of this study have yielded new insights into the natural history of golden eagles in North America, the response of these predators to changes in their food supply and weather conditions, and the variation in reproductive success and productivity among nesting areas over a series of years.

A cooperative study to identify nesting territories and monitor reproductive success of golden eagles adjacent to the park in the Wood River/Dry Creek area was initiated with

the Alaska Department of Fish and Game in 2001 and continued in 2003. Reproductive success of golden eagles in the Wood River area was very low in 2002.

Results from the park's genetic study on golden eagles conducted in conjunction with the USGS-Alaska Science Center Wildlife Genetics Laboratory show that individual eagles can be identified using DNA collected in their shed feathers. This is a non-invasive, cost-effective method for obtaining data to assess the population trends of breeding eagles. Biologists continued to collect shed feathers from nesting territories to determine if fidelity to nesting areas can be assessed by using this method. Feather collections for this research are conducted under the auspices of a U.S. Fish and Wildlife Service Eagle Scientific Collecting Permit and a State of Alaska Scientific Permit. After the DNA material is removed from the feather shafts, all feathers are transferred to the National Eagle Repository in Colorado.

Golden eagles are tracked using satellite radio telemetry to test a series of hypotheses regarding annual movements of juvenile and subadult golden eagles from the park. Data about the migration corridors and ranges in winter and summer for Denali's juvenile eagles are essential for protecting these areas in the rapidly changing western landscape.

Denali scientists are developing a landscape-scale model to determine how topography, habitat, and prey availability affect nesting golden eagles in the park. Cooperators from the U.S. Geological Survey, Forest and Rangeland Ecosystem Science Center, and the Department of Fisheries and Wildlife, Oregon State University are also working on this project.

Preliminary results indicate that high production nesting territories contain more alpine and upland areas than low production nesting areas. Additionally, forested and lowland regions are typically absent from high production nesting territories.

Wildlife-Amphibians

The wood frog is the only amphibian that occurs (or is expected to occur) in Denali National Park and Preserve. Information on the presence and habitat associations of the wood frog is being collected concurrently with many of the ongoing bird and vegetation projects. While these data are anecdotal, they provide a starting point for more detailed wood frog studies.

Wildlife-Freshwater Fish

In 2003, a search for fish species began at Denali as part of the Central Alaska Network's inventory of park resources. The goal is to document at least 90% of the freshwater fish species expected to occur in lakes and streams in each of the three national parks.

Physical Sciences

Ice elevations and flow rates of the Muldrow Glacier have been monitored since 1992. The Muldrow last surged in 1956-57, extending its terminus some 2.5 miles (four kilometers). Surges may occur at 50-year intervals; thus, another surge is anticipated within a few years of 2007. Monitoring efforts continued in 2003 in order to describe the

quiescent (period between surges) glacier so that the data can be compared to information collected during and after the next surge.

Installation of long term glacier monitoring sites in 1991 on the Traleika and Kahiltna Glaciers allowed staff to monitor long-term mass balance changes and flow of these two glaciers. These glaciers were selected to compare glaciers on the north (Traleika) and south (Kahlitna) sides of the Alaska Range (drier and wetter climates, respectively). The measuring sites for both glaciers are located at approximately 6000' (1830 m). The Kahiltna Glacier flows ~660 feet (200 meters) per year, while the Traleika Glacier moves ~165 feet (50 m) per year. The Traleika Glacier lost approximately 13 feet (4 m) of water-equivalent (if the change in ice/snow were water) in 11 years of monitoring (a negative mass balance), while the Kahiltna has gained ~7 feet (2 m) of water-equivalent. Interestingly, the Traleika Glacier, though experiencing negative mass balance, is thickening consistently, illustrating the complexity of glacier flow. The glacier surface at our measurement site rose approximately 82 feet (25 m) in the past 11 years.

During 2003, staff obtained estimates of glacier thickness of the Traleika, Muldrow and Kahiltna Glaciers through radar soundings. These 2003 measurements will indicate the dynamics of glaciers by documenting any changes in ice thickness. Radar measurements in 2002 indicated that the East Fork of the Toklat Glacier is 660 feet (200 meters) thick; and the Muldrow Glacier is 1640 feet thick (500 meters) and 50 feet (15 meters) thicker near McGonnagall Pass. Base camp (on the Southeast Fork of the Kahiltna Glacier) sits on ~985 feet (300 meters) of glacial ice.

Weather and Climate

Park staff worked with the International Arctic Research Center (IARC) to plan the transmission of data from a weather station on Mt. McKinley. The IARC, in cooperation with the Japanese Alpine Club, installed a new weather station at 19,200' on June 18, 2002. An expedition of eight climbers from the Japan Alpine Club, including one person from University of Alaska Fairbanks, climbed the mountain and installed the station 1,120 feet from the summit.

In January 2003, the new station stopped sending weather data. In the 2003 climbing season, a team installed some new equipment designed to withstand the extreme conditions found on Mt. McKinley, including winds in excess of 150 mph (241 km/hr). The instrument will take extreme-altitude measurements of temperature, wind direction, and speed, and transmit the information via satellite to the University of Alaska Fairbanks. The weather station will make real-time, near-summit weather information available to the hundreds of climbers who attempt the summit each year, as well as to park rangers, who must plan and perform search-and-rescue operations in the vicinity of the South Summit. Researchers find the data useful for their studies of the high elevation environment. The National Weather Service, which has in the past issued a specific climbing forecast for Mt. McKinley from its Fairbanks forecast office, utilizes the data to monitor and forecast weather at high altitude.

Denali has nearly 80 years of weather information collected at park headquarters. Beginning in 1922, Alaska Railroad personnel collected weather information in their

camp near Riley Creek. In 1924, the National Park Service took over operation of the weather station. In 1925, the station moved from the old headquarters site near the confluence of Hines and Riley Creek to its current location near the kennels. This station is one of over 12,000 in the National Weather Service's Cooperative Weather Observation Program. Long-term weather (climate) datasets provide valuable information for detecting and predicting changes or trends in both temperature and precipitation. Since this data is collected by calendar year, the data is not available for 2003. (it's 2004 now!)

Climate monitoring continued at established locations around the park. This data is especially useful for weather forecasting related to fires, and detecting trends by long-term monitoring.

In 2002, staff installed new climate stations at the Stampede Mine airstrip and the Dunkle Mine airstrip, bringing the total number of climate stations distributed throughout the park to 14. Most of these stations record air temperature, relative humidity, wind speed and direction, solar radiation, precipitation, and soil temperatures. From these stations, resource staff gained a park-wide perspective on the physical factors affecting Denali's ecosystems, while providing timely information on snow and weather conditions to park managers, the National Weather Service (NWS), the Natural Resources Conservation Service (NRCS), researchers, and the public.

The seven road corridor stations record temperature and relative humidity. These stations are located at the Primrose pullout, Igloo Forest (mile 32), Polychrome Rest Area, Toklat Ranger Station, Eielson Visitor Center, and near Grassy Pass at mile 71. Resource staff coordinated with the Federal Highway Administration and the park's Maintenance Division to record snow depths and temperatures along the park road corridor. The objective of this new system is to bring together various groups with common data needs to provide for an integrated data collection network.

Ultraviolet

Thinning of the ozone layer, which acts as a protective shield, causes an increase in the amount of ultraviolet (UV) radiation reaching the earth's surface. Detection of seasonal fluctuations in the thickness of the ozone layer around the globe are most severe at higher latitudes. The effects of increased UV-B are not well known, but are linked to negative impacts on humans, plants, aquatic ecosystems and amphibians. In 1997a spectrophotometer was installed at the park as part of the Park Research and Intensive Monitoring of Ecosystems Network (PRIMENet). This instrument is designed to measure different wavelengths of light. Components of the spectrophotometer track the sun and monitor the variation in solar irradiance throughout the day. The instrument installed at Denali focuses on the ultraviolet spectra, specifically UV-B radiation in the 300-320 nanometer range of light. Because of the influence of sun angle, clouds, and air pollution, the seasonal variation in UV-B detected at the surface is large. Therefore, it will take many years of monitoring to detect trends in the incidence of UV-B. The preliminary data collected in the park established what these seasonal variations in UV incidence are, and

provided the baseline information needed to monitor long-term changes in the levels of damaging UV-B that reach the earth's surface.

Air Quality

Denali National Park and Preserve has been conducting air quality monitoring at a site near park headquarters since 1980. In 2001, installation of a second permanent station at Trapper Creek allowed staff to measure regional air quality under conditions that approximate park air quality on the south side of the Alaska Range. The following atmospheric parameters are measured at one or both locations: ground-level (tropospheric) ozone, sulfur and nitrogen oxides, fine particles and aerosols, wet deposition, and associated meteorological parameters.

Results show that, while Denali has some of the cleanest air measured in the United States, industrial and agricultural contaminants from other continents make their way to the park each year in a strongly seasonal pattern. On average, the peak concentrations of international contaminants occur in the late winter and spring, and naturally-occurring wildfire smoke is the primary contributor to air quality degradation in the summer. It is reasonable to expect that as the human population grows in source areas such as Europe and Asia, unless international control mechanisms are put in place, pollution will increase over time in Denali and other Alaska parks.

Persistent Organic Pollutants (POPs) and other toxic airborne contaminants are a growing concern throughout the arctic and subarctic. In March 2003, sampling for a 5-year, multi-park airborne contaminant assessment project began in Denali. Snow samples collected at Wonder and McLeod Lakes will be analyzed for an array of toxic airborne contaminants, including PCBs and DDT. Additional snow sampling will take place on the south side of the Alaska Range this spring, followed by two more years of sampling a variety of ecosystem indicators, including fish, lichens, willow bark, lake water, lake sediments, and subsistence foods.

Snow

Snow surveys are done on a monthly basis from November–April at thirteen locations throughout Denali National Park and Preserve as part of a cooperative agreement with the Natural Resources Conservation Service (NRCS).

The six snow courses on the north side of the Alaska Range (Minchumina, Kantishna, Purkeypile Mine, Stampede airstrip, and two at different elevations in the Rock Creek watershed near headquarters) are accessible by fixed-wing aircraft or by skis/snowshoes. At these snow courses, depth and density are averaged from five measurements on the ground.

On the south side of the Alaska Range there are seven aerial markers (Yentna, Chelatna Lake, Nugget Bench, Dutch Hills, Ramsdyke Creek, Tokositna Valley, and Eldridge Glacier). The information on depth is collected from the aerial markers by flying past the location and counting the exposed horizontal cross bars on the marker. Researchers learn about ecosystem relationships by correlating snowpack information with resource

information such as wildlife population densities, birth survival rates, herd movements, vegetation succession, and surface water supply.

The snow depths on the north side were less than normal for the entire 2002-2003 season. There was no snow on the ground at most of the north sites for the first survey on December 1, and no snow at any of the sites for the May 1 survey. The average snow depth for the north side was 5.1 inches. On the south side of the Alaska Range, snow depths were 2-3 feet less than normal (average from 1971-2000) early in the season, but by April 1 the snow depths averaged only 9 inches below normal. The average snow depth for south side sites was 29.9 inches. The average snow depth for the 2001-2002 season on the north side was 15.7 inches (compared to 30-year average of 18.8 inches). On the south side of the Alaska Range, the average snow depth was 49.8 inches (compared to 30-year average of 56.6 inches).

A number of projects continued from previous winters that measure the effects of snowmobiles on various resources at Denali National Park and Preserve. One project focuses on the physical aspects of the snowpack that may allow adequate support of snowmobile travel without causing adverse impacts to vegetation and soils. This project provides depth and density information to park managers who are faced with the decision to open or close areas of the park and preserve to traditional snowmobile use based on the current snow conditions.

Snowmobile activity patterns and routes are monitored by the park using aerial and ground surveys, Global Positioning System (GPS) units and Geographical Information Systems (GIS) to produce maps that show where winter visitors use snowmobiles the most on parklands. Little use along the Stampede corridor and on the south side of the Alaska Range occurred during the last two winters because of the poor snow conditions.

A hydrocarbon contaminants study, conducted to determine if snowmobile emissions are impacting and polluting the snow and aquatic ecosystems, occurred in 2003. Results indicate no snowmobile contaminants in the limited sampling area, but did detect pesticide residue, likely from airborne transmission.

Soundscape

A soundscape research program is underway at Denali National Park and Preserve. Inventory and monitoring of natural and human-generated sounds are conducted at numerous locations around the park. These locations include the park road corridor, near Cantwell south of Broad Pass, the Ruth Amphitheater, base camp on the Kahiltna Glacier, the Pika Glacier, and at the toe of the Tokositna Glacier. The amount and types of natural and human-made sounds as well as the decibel levels of these sounds are being documented in the park's three acoustical zones and several management areas. Sound metrics (minimum, maximum, average, etc.) are being calculated from the decibel data. Audibility data provide sound source identification and calculations such as percent time audible. Wind is the most widespread natural sound in all areas and aircraft overflights are the most common human-made sound.

Soils

Researchers from the Natural Resource Conservation Service spent six years (1997-2002) digging soil pits and collecting field data on soils and vegetation to produce a draft soils map for Denali National Park and Preserve. In 2003, researchers analyzed data from the previous 6 years and prepared final reports and maps.

In 2003, surficial geology mapping in the Toklat Basin focused on glacial extents and permafrost delineations. Resource personnel used field investigations, along with interpretations of air photos and satellite images, to attempt to identify the extents of past glaciations (Early and Late Wisconsinan primarily). Using the Denali soils map, staff also identified different types of permafrost. These investigations are part of the larger project that is a proactive approach to protecting the Toklat basin by documenting its special features.

In 1993, survey stations established to monitor the rate of movement of the surface area of a mass movement (landslide) at milepost 45 on the park road continue to be monitored. This movement is a classic rotational slump with a headwall scarp, subsiding basins, pressure ridges and fractures, and flow features. The apex of the headwall scarp is within 35 horizontal feet of the park road, and park management and Federal Highways personnel are concerned about the threat that this movement poses to the road. Annual monitoring of the horizontal and vertical movement of the landslide using approximately 50 stations will continue so staff can watch for sustained or increased rates of movement.

Seismic

Researchers at the Geophysical Institute at the University of Alaska Fairbanks maintain seismic monitoring stations within the park at Wickersham Dome, Thorofare Mountain, and Mt. Healy. Installation of a new site on Double Mountain and upgrades to the other stations to allow for digital, multi-signal transmission occurred in 2003.

Reclamation

The mandate of the National Park Service and the Mining in the Parks Act of 1976 requires reclamation by a mining operator to “restore natural conditions and processes” and to “return the area to a condition equivalent to its pristine beauty.” Historically, mining and access activities in Denali National Park and Preserve resulted in major surface disturbance and environmental damage, with minimal or no reclamation done to restore disturbed areas to their natural state. The result is approximately 1500 acres of barren gravel tailings in riparian zones from placer and lode mines, 75 miles of trails and roads, and miles of disrupted stream channels and floodplains.

In the 2003 field season, resource staff conducted topographic surveys, measure stream position and flow condition, and inventoried plants at Glenn Creek in order to develop a plan to accomplish the restoration work. Depending on the results of the fieldwork, restoration work will either take one or two field seasons following 2003.

Research Administration

As of May 1, 2003, 693 study numbers were assigned to scientific and scholarly studies that are in progress, in review for 2003, or have taken place in the park over the years. Each year there are approximately 100 studies completed or ongoing. These projects are conducted by Denali staff, park cooperators, or by other investigators. Appropriate research gathers information while making minimal impacts to park resources.

SAFETY AND SUSTAINABILITY

Safety/Training

As a training resource, staff prepared a training checklist in order to assist supervisors in training employees in subjects relating to safety. An employee training documentation form will help track safety-related training.

Staff updated and used the park's Bloodborne Pathogens (BBP) program in training for the Mountaineering Rangers.

Denali adopted the Draft Respiratory Protection Program provided by WASO and trained permanent staff using the program.

In July 2003 OSHA inspected Denali and issued a number of citations, including 13 Serious, 4 Repeat, and 2 Other citations. The park's response to the inspection included abatement of all deficiencies by the due date. All park supervisors are required to take the OSHA 600 course.

The number of accidents and the cost associated with motor vehicle accidents for the park declined from about \$175,000 in 2002 to an estimated \$4,500 in 2003. Lost time claims declined from 5 to 2 and continuation of pay hours declined from 262 to 95 in 2003.

Sustainability

This year Denali received several environmental awards. The Environmental Protection Agency recognized the park as a Champion of Environmental Leadership and "Green" Government Innovation for its alternative energy projects using hybrid generators at the Wonder Lake Ranger Station and Eielson Visitor Center. In addition, the park received Green Star Awards related to waste reduction, pollution, energy conservation, recycling, and air quality. Secretary of the Interior Gale Norton presented Denali with the Department of the Interior's Environmental Achievement Award in the Team Category for all the individual ways park staff in all divisions contribute toward environmental conservation.

Completion of the new recycling shed, "The Over and Over," and a partnership with Doyon/ARAMARK Joint Venture dramatically increased the volume of recycled material compared to previous years. The park recycled about 16,000 pounds in 2002 and in 2003 over 67,000 pounds was recycled.

A Greening Workshop is in the planning stages with the local community to be held in 2004.

ADMINISTRATION DIVISION

Training

Many park staff took advantage of several training sessions held in the park, both at headquarters and in Talkeetna, in 2003. Those classes included Managing People I & II (two sessions each) and seasonal supervisor training. Myers-Briggs Communication Skills Training included Basic Class & Beyond the Basics Class, Team Class, and two Basic and two Advanced Classes for seasonals. In addition to these classes and trainings a Wilderness Training session was held and a variety of TELNPS classes were provided throughout the year.

FY2003 Finance Overview

Fund Source	Totals
ONPS Park Base Allocation to Park	\$ 10,305,300
Park Base Funds Obligated	10,310,500
Non-Base Project Funds Allocated (1)	6,563,100
Non-Base Project Funds Obligated	6,325,900
Total Park Recreational Fees Collected	1,026,500
Total 80% Fee Demo Funds Available to Obligate	490,400
Total 80% Fee Demo Funds Obligated (2)	468,100
Total 80 % FY2003 Fee Demo Carryover	-
Total 20% Fee Demo Funds Allocated	285,400
Total 20% Fee Demo Funds Obligated	236,400
Total Concession Franchise Fees Allocated	751,000
Total Concession Franchise Fees Obligated	232,500
Total FY2003 Concession Franchise Fee Carryover	375,800
Total 30% Parks Pass Fee Allocated	7,400
Total 30% Parks Pass Fee Obligated	
Total Donations Collected	65,400
Total Donations Obligated	101,500
Total FY2003 Donations Carryover	6,100
Total Quarters Obligated	208,800
Total FY2003 Quarters Carryover	43,800
Total Special Use Permit Funds Collected (3)	640,100
Total Special Use Permit Funds Obligated	540,500

TOTAL, All funds allocated to park	\$ 19,108,100
TOTAL, All funds obligated	\$ 18,424,200

- (1) DENA FY2003 Greenbook: \$10,295,300. Allocated to park is after misc. WASO and ARO assessments
(2) Project Funding included Challeng Cost Share; Cyclic and Cultural Cyclic Maintenance; Hazardous Waste Program, Volunteers in Parks, Cultural Resources Preservation Program, Water Resources Program, Planning Funds, Fire Management Funds,
(3) Special Use Fees include Mountain Use Fees charged to climbers to support mountaineering education and sanitation and Professional

Staffing and Budget

WORKFORCE STATISTICS

Description	Totals
Permanent Positions	
Local Hire	25
Non-Local Hire	67
Total, Perm Positions	92

Seasonal Positions	
Local Hire	104
Non-Local Hire	88
Total, Seasonal Positions	192

Diverse Seasonals	21
Non-Diverse Seasonals	171

Grand Total, All Positions	284
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ORGANIZATIONAL CHANGES

POSITION UPGRADES

Position Title	New Grade	Incumbent
Dispatcher	GS 6	Fielding
Facilities Mgt Spec	GS 12	Scholten
Supv Forest Tech	GS 7	Weddle
Anthropologist	GS 9	Bryant
Maintenance Worker	WG 5	Owen
Supv Forest Tech	GS 7	Kruetzer

New Positions

Position Title	Grade	Incumbent
Assist. Superintendent	GS14	Hooge
Engineer	GS 12	Scholten
Park Ranger	GS 11	James

Internal Reorganizations

Position Title/Incumbent	Transferred From	Transferred To
Engineer/Durrenberger	Supt	Maint

Chief of Interp/Stransky	Asst Supt, Ops	Asst Supt, Natural Reso/Learning
Chief of Subsistence/Twitchell	Asst Supt, Ops	Asst Supt, Natural Reso/Learning
PIO/Fister	Interpretation	Supt
Safety Officer/Cobbold	Rangers	Supt
Park Ranger	Rangers	Interp*
Office Ass't/Brown	Rangers	Resources*

* both transfers were at the request of the employees and filled a current vacant position

VACANCIES CREATED		
Position Title	Office	Vice
Human Resource Specialist	Administration	McDanel
Human Resource Assistant	Administration	Allen
Administrative Tech	Administration	Pollock
Supv IT Specialist	Administration	Reagan
Administrative Tech	Interpretation	Fielding
Receptionist	Interpretation	Compton
Administrative Tech	Resources	Brown
Staff Assistant	Interpretation	Philbrick
Budget Assistant	Interpretation	Herring
Supt Secy	Supt	Williams
Administrative Tech	Resources	Moreno
Forestry Tech	Resources	Cataldo
Concessions Mgt Spec	Concessions	Hardigg
Admin Ass't	Rangers	K Brown
Custodian	Maintenance	Lewis
Custodian	Maintenance	Mosier
Biological Tech	Resources	Vorisek
Chief Ranger	Rangers	Herring
Maintenance Worker	Maintenance	Mulligan
Maintenance Worker	Maintenance	Westphal
Wildlife Bio	Resources	Wilson

Vacancies Filled (Only those prior to 9/30/03)		
Position Title	Office	Vice
Human Resource Specialist	Administration	Allen
Human Resource Assistant Specialist	Administration	Pollock
Administrative Tech	Administration	Compton
Administrative Tech	Rangers	Fielding
Supt Secy	Supt	Friesen, K
PIO	Supt	Fister
Forestry Tech	Resources	Reynar
Conc Mgt Spec	Concessions	Sisson
Chief Ranger	Rangers	Armington

