



## Success Stories 2002

### Introduction

The year 2002 was a productive one in Fire Management for the National Park Service. Success stories from across the country typify the work taking place in support of the National Fire Plan, including Community Assistance, Hazardous Fuels Reduction, Rehabilitation, and more.

Park stories highlighted for the 2003 National Fire Plan meeting come from: Alaska, Arizona, California, Colorado, Florida, Georgia and the southeastern United States, Hawaii, New Jersey and Pennsylvania, New Mexico, Oregon, South Dakota, and Wyoming.

### Alaska Eastern Area Parks - Alaska

One focus of the National Fire Plan and the Alaska Interagency Fire Management Plan is effective interagency communication and coordination. In light of this focus, Alaska National Park Service fire staff reached across divisional and agency boundaries and highlighted working partnerships with Cultural Resources, Park Superintendents, the State Historic Preservation Officer and other fire management agencies.

Alaska Eastern Area Fire Management area includes Gates of the Arctic National Park and Preserve, Yukon-Charley Rivers National Preserve, and Wrangell-St. Elias National Park and Preserve. Combined, these parks include about 20 million acres. In order to set fire suppression priorities for the eastern area parks, protection for specific cultural resources needed to be determined within these immense areas.

An archeologist was hired to initiate a process to inventory and evaluate cultural resources in the eastern area parks. This complied with Section 106 of the National Historic Preservation Act (NHPA). The law requires the determination and documentation of cultural resources that will be impacted by wildfire and wildfire suppression activities. A seasonal historic architect was also hired to assist in the complete documentation of each of these sites. During the 2002 field season, the archeologist,



*Cache in Yukon-Charley Rivers National Preserve*

historic architect and a subject-to-furlough Eastern Area Fire Management employee completed field documentation for the smallest park unit, the two million acre Yukon-Charley Rivers National Preserve. The field season of 2003 will be spent at Wrangell-St. Elias National Park and

Preserve and 2004 at Gates of the Arctic National Park and Preserve. The project end date is March 15, 2005.

During the initial stages of this project, Superintendents of the above parks and the State Historic Preservation Officer signed a programmatic agreement that outlined how cultural resources will be inventoried, evaluated, and how a mitigation of the effects of fire will be accomplished. The Park Superintendents look forward to making fire protection decisions based on the information provided by the partnership between Eastern Area Fire Management and Cultural Resources. The end product will consist of park specific maps that illustrate properties to be protected and the level of protection deemed necessary. These maps will be delivered to the appropriate land management agency.

### Grand Canyon National Park - Arizona

Large-scale fuel management projects at Grand Canyon National Park continue to abate dense forest vegetation that resulted from nearly a century of fire exclusion. They are addressing one of the National Fire Plan's key elements, the reduction of hazardous levels of vegetative fuels.

Favorable weather, fuel moisture conditions, and winds from an approaching front created an excellent window



*Grand Canyon, cont.*

for fire managers to complete the Hance and Watson prescribed fires on the South Rim during the Fall of 2002. Crews from Zion National Park, Kaibab National Forest, and the Southwest Area Fire Use Training Academy assisted.

Hand ignition was used for the 406-acre Hance burn. Aerial ignition was used for the 2,973-acre Watson Burn, which was completed in one day. Smoke impacts in the inner canyon were minimal but poor visibility caused temporary delays along Desert View Drive. The park's Fire Effects crew has collected data from six monitoring plots within the burned area to determine if fuel and vegetation objectives were met.

In addition, the Bright Angel Project continued as crews burned 264 acres of slash piles on the park's North Rim. This project was designed to reduce potential impacts of wildland fire in the North Rim developed area.

Both the North and South Rim burns were highly visible and provided an excellent opportunity to educate the public about wildland fire. Visitors gained a better understanding of fire's vital role in the ponderosa pine ecosystem and its use as a tool to accomplish resource management objectives.

**Lassen Volcanic National Park - California**

In early November 2002, Lassen Volcanic National Park Fire Management personnel successfully completed the park's first major prescribed burn since 1999. The burn was located in a low-lying basin of mixed conifer timber in the northwest section of the park, northeast of Raker Peak.

Fire exclusion in this area of the park has contributed to high fuel loading and a change in the forest structure. The goals of the Hole Prescribed Fire were to reduce fuel loading, and restore fire's natural role in fire-dependent conifer stands.

The project was implemented Nov. 1-6, 2002 by over 70 individuals from Lassen Volcanic National Park, five other National Park units, Bureau of Land Management, USDA Forest Service, and the Bureau of Indian Affairs.

Much of the pre-burn preparation on the unit was completed during three previous seasons. This included four miles of fireline that involved the thinning of vegetation 100 feet in from the perimeter. Monitoring plots were established in the burn unit and will be evaluated in the future to measure the fire's effects and determine if pre-burn goals and objectives were met.



*Firefighter on the Hole Prescribed Fire.*

Once all the weather and vegetation conditions were within pre-determined prescription parameters, ignition of the unit began. Execution of this burn proved difficult as a significant portion of the ignition operations were

performed in the evening and into the night to reduce spotting potential. During the first two nights of initial burning, three ignition teams had blacklined the north, east and south boundary of the unit.

During the afternoon of the second day, a section along the eastern interior was ignited by helicopter utilizing a Plastic Sphere Dispenser (PSD) machine. The PSD operation was suspended early in the day because the fire was burning more intensely than desired and crews were concerned it might spot outside the lines. That evening, crews concentrated on deepening the blackline, completing it about 10:00 p.m. The more secure blackline allowed for unit completion the following day using the PSD machine.

Holding crews and engines were stationed at critical points along the boundaries to ensure the fire stayed within the unit. Fire Monitors were also stationed at various points near the burn to measure the fire's effects and to provide updated weather conditions.

This burn is one of a series of projects scheduled for the next several years along the park's northern boundary. The completion of these projects will enable fire staff to manage natural ignitions in the park's interior fire-dependent conifer stands for maximum resource benefits.

Fire information activities greatly contributed to the success of the Hole Prescribed Fire. Local businesses and park inholders having property adjacent to the unit were notified before, during, and after with phone calls and letters. Public outreach efforts included press releases from the Superintendent's office which were sent to local media, federal and local government officials, the park concessionaire and the National Parks Conservation Association.



### Redwood National and State Parks- California

At Redwood National and State Parks, prescribed fire is used to manage cultural and historical landscapes.

Redwood National and State Parks contain over 4,300 acres of naturally occurring prairie (grassland) balds and oak woodlands in an area known as the Bald Hills, that were maintained by American Indians prior to Euro-American settlement. Central to the guiding philosophy of the parks' Bald Hills Vegetation Management Plan (1992) and Fire Management Plan (1995), is the concept that natural and human-set fires, along with other naturally occurring phenomena, have led to the plant communities that are in the parks today. Human-set fires along the coast and in the interior Bald Hills kept these areas open for thousands of years, and ultimately drew American settlers who were looking for open farming and ranchlands.

Four American Indian cultures with ties to parklands, the Yurok, Tolowa, Chilula, and Hupa peoples, represent a diverse indigenous presence. They continue to maintain traditional arts, ceremonies, subsistence methods, and distinct languages. The archeological record, extending back several thousand years on parklands, includes sites listed on the National Register of Historic Places. These resources are particularly important because of their direct association with the contemporary American Indian community, which continues to rely on these resources for spiritual, cultural, physical, and economic sustenance. Park landscapes also represent more than 150 years of land use by non-Indian people, including exploration, mining, settlement, fishing, ranching, and logging. This includes the Lyons Ranches Rural Historic District in the Bald Hills, covering 100 years of sheep ranching over three generations in one family, and their ties to the Indian community.

In the Bald Hills and coastal prairies, these cultural landscapes come together, yet are threatened by the same thing – the removal of natural and human-set fire from the landscape. Periodic wildfire and fires set intentionally by local tribes once burned away encroaching *Douglas-fir*, *Sitka spruce* and other trees not well adapted to fire in the open prairies. Regular burning in oak woodlands helped eliminate competing trees from the understory, keeping *tanoak* groves, a major food source and staple, healthy and productive. Even early settlers and ranchers continued "broadcast" burning to keep prairies open for their herds, and to keep springs and creeks from drying due to choking brush, until it was outlawed in the early 1900s. As a result, these biologically and culturally rich landscapes are in danger of being lost to encroachment.

Since 1992, the Prescribed Fire Program at Redwood National and State Parks has successfully returned fire to the prairies and oak woodlands at the landscape level.



*Views of Long Ridge - During historic times and present (after prescribed burning).*

Currently, there are 28 prairie and oak woodland burn units in the parks totaling about 4,300 acres. The prescribed fire season extends from mid-August to mid-November. During this time, the Vegetation Branch of the Resource Management and Science Division usually targets up to a thousand acres or more for burning, with the intention of burning all of the units on a three to five year rotation. This time frame best approximates human-set fires by both American Indians and early settlers in the region, and

accomplishes several park management objectives. These objectives include: control and elimination of exotic plant species; eliminating encroaching *Douglas-fir* in prairies and oak woodlands; restoring native plant species diversity; and maintaining or improving native plant to exotic plant species ratios. In addition, a fire effects monitoring crew is used to assess the effectiveness of prescribed burning in meeting stated objectives.

In the 2002 prescribed fire season, park staff originally planned to burn 738 acres in nine units. Due to an unusually dry spring, summer, and fall, only five units totaling 330 acres were burned. Leonel Arguello, Vegetation Branch Chief of the Resource Management and Science Division, said "Flames carried into areas that have never seen fire since the inception of the program" and, several units "burned exceedingly well to the edges of the fireline. Overall, given the many hurdles we faced, I believe we had a very successful burn season." A stated long-term goal of the program is to "use fire as a process to restore the prairie, oak woodland, and coniferous forest to the state that existed just prior to Euro-American contact and influence." While achieving this goal may be difficult, Redwood National and State Parks has had great success at restoring fire to help manage and maintain the prairies and oak woodlands in a state similar to that which existed just prior to contact and influence. Using prescribed fire in this way, Redwood National and State Parks is preserving cultural landscapes and viewsheds, while maintaining healthy, biologically diverse ecosystems.



### **Sequoia and Kings Canyon National Parks - California**

For over three decades Sequoia and Kings Canyon National Parks (SEKI) have reduced hazardous fuels through the use of prescribed fire and mechanical reduction projects. In the early years of this program, locations for projects were chosen based on local knowledge and experience. While this was adequate for many years, the complexity of today's fire management work has outgrown this method.

Beginning in 1996, the parks began using Geographic Information Systems (GIS) to analyze fire information such as historic fires, vegetation, fuels, topography, location of infrastructure, etc. Using GIS data, SEKI fire managers developed models for analyzing complex issues such as hazard, risk, and value (both social and ecological).

Managers

use these analyses as decision tools for identifying the most appropriate fuel treatment areas. For instance, what area has a need for restoration, with high social value (perhaps near a community) but is an acceptable location in terms of firefighter safety (steepness, etc.)? Based on chosen parameters, GIS specialists display information graphically to help managers make better decisions for the resources and personnel.

Beginning in 1999, SEKI and local partner agencies began adopting a landscape approach for identifying and prioritizing hazardous fuels projects. With increasing emphasis on interagency partnerships, SEKI and other local fire agencies needed a common planning method, especially in areas that were close to different agency boundaries. The interagency partners established the Southern Sierra Geographic Information Cooperative (SSGIC). All participating agencies jointly developed and adopted the same hazard, risk, and value analysis models. As a result, land managers for over 4.7 million acres in the southern Sierra are using common data, analysis models, and mapping delivery systems. Using this unified planning approach, SEKI and the other fire agencies recently identified 91,000 acres of hazardous fuels that will be collaboratively treated by local agencies.

This new interagency approach to hazardous fuels planning will result in cost savings and more effective treatment of hazardous areas. The SSGIC partners include: Sequoia National Forest, Sequoia and Kings Canyon National Parks, Bureau of Land Management Bakersfield office, Bureau of Indian Affairs Tule Reservation, private lands managed by the California Department of Forestry and Fire Protection, and Kern County. For more information about this project, visit <http://ssgic.cr.usgs.gov>. Information regarding Sequoia and Kings Canyon Fire Management may be found at <http://www.nps.gov/seki/fire/indxfire.htm>.

### **Rocky Mountain National Park & Florissant Fossil Beds National Monument - Colorado**

Fire managers teamed up with the Rocky Mountain Youth Corps (RMYC) to help reduce wildfire danger at both Rocky Mountain National Park and Florissant Fossil Beds National Monument. The crew worked during summer 2002, completing fuel reduction projects in the wildland urban interface along park boundaries.

RMYC is a private non-profit organization based out of Steamboat Springs, Colorado. Their mission is to link community, education and environment through service. The program provides young adults with services to help

them develop job skills, work ethic, environmental awareness and healthy lifestyles.



*Brush piles from fuel reduction project.*

Park staff facing a difficult challenge to find local contractors, were quick to seize the opportunity to forge a partnership with RMYC. Park fire crews provided chainsaw training,

field experience and program oversight. Crew leaders were further instructed on project specifications and required only minimal supervision from park staff. "Once we had them headed in the right direction, they operated very independently and took great pride in completing this tedious and strenuous assignment," said Scott Beacham, Fuels Technician and program coordinator.

During the 15-week work period, the crews assisted in treating approximately 125 acres. The 20 person crews built almost 6,000 slash piles and hauled out 50 cords of wood for firewood sales. RMYC members camped out during the entire project.

According to park Fire Management Officer, Jesse Duhnkrack, "This is a definite win-win program. The Youth Corps members receive some valuable job skill training and the park is able to make accelerated progress on fuel reduction treatments in the wildland urban interface. Contracting has become such an important issue in the fuels management arena and we will definitely be looking forward to partnering with this group again next year."



**Big Cypress National Preserve - Florida**

The Big Cypress fire program had a record year for prescribed fire, treating over 71,000 acres for hazard fuel reduction during fiscal year 2002.

A total of 20 burns were conducted during the period from April through September using aerial and hand ignition methods. The areas burned included prairies and palmetto brush fields. Most of the brush fields were the understory beneath slash pines.

The burn treatments accomplished the desired fuel reduction and also maintained the fire dependent ecosystem. Most of the acreage treated this year was burned during the growing season which produced excellent fire effects, including reduction of hardwood brush species encroaching on prairies and overabundant in pinelands. Several red cockaded woodpecker colony sites were protected and enhanced by the reduction of hardwoods in the understory. Habitat for the Florida

panther was maintained and forage for panther prey species was improved by the burn treatments.



*Prescribed fire at Big Cypress National Preserve.*

The success of the program at Big Cypress can be attributed to a number of factors. Some of these relate to the physical characteristics of the Preserve, including location, topography,

vegetation, weather, and barriers to fire spread. The Preserve is located on the South Florida peninsula. Air quality presents much less of a problem than it does for areas within a basin. For many months each summer and fall, large portions of the Preserve are flooded, while the pinelands are a few inches above the water level and can be burned with little or no opportunity for escape. Cypress stands cross the area in many places providing natural barriers to fire spread and excellent boundaries for burning during much of the year. The local pines and cypress are well adapted to fire and withstand scorch levels near 100 percent. Fire will burn in the local fuels under a wider range of weather variables than might support a viable burn in other areas of the country.

Of equal importance are human factors, including relationships between the fire management staff and Preserve management, relationships with local cooperators, and attitudes of the public toward prescribed fire activities. A high level of trust and confidence has

been developed and maintained between the fire management staff and the Superintendent's office based on good communication and a track record of burning success. Long time Preserve users and inholders are some of the strongest supporters of prescribed fire.

Finally the fire management staff has developed a wide prescription window to allow burn bosses a range of opportunities to conduct burns while meeting management objectives. Historically, burns have been conducted in the Preserve during every month of the year. Winter burns take advantage of north winds from frontal passages to keep smoke off highways, when prescribed fires are being conducted on the south side of these roads. As noted earlier, growing season burns (spring-early summer) have some additional desirable fire effects.

The fire return interval for the 728,000 acre Preserve, in pinelands and prairies, is in the three to five year range. The fuels removed this year will largely be replaced and in need of treatment in a few years.

**Southeast Regional Office - Georgia and Southeastern United States**



*Firing along a powerline at Kings Mountain National Military Park.*

During fiscal year 2002, the southeast region of the National Park Service accomplished a large portion of the target acreage for the agency. While most of the acreage was produced in south Florida, much was also accomplished at the smaller units that make up the majority of the region. These small units either lack the total number of staff to conduct any type of fire

management activity, or have not conducted enough burns to justify the staff that such activities require. The Fire Use Modules accomplished the hazard fuel reduction at numerous parks within the region, bringing skilled prescribed fire practitioners to the smaller units. Some of the projects they were involved in were first-time prescribed fire projects at units where fire has long been excluded due to changing land use practices. The Modules wrote burn plans, prepared burn units, secured and coordinated the resources required to execute the burns, and implemented the projects. This level of involvement far exceeds the original intent of the Fire Use Module program, but is instrumental in returning fire to many of the NPS units in the Southeast Region.



## **Kalaupapa National Historical Park - Hawaii**

Kalaupapa NHP is located at sea level on the North shore of Molokai, Hawaii. The 8,700-acre peninsula is isolated from the rest of the island by a 2,000-foot cliff along the park's southern boundary. Kalaupapa Settlement is home to 45 Hansen's Disease (leprosy) patients, many of whom are elderly. The Kalaupapa Settlement has 195 historic structures and is surrounded by brush on three sides. The fuel load on the peninsula has increased dramatically in recent years with the removal of cattle. Typical winds are from the northeast at 20-25 mph gusting up to 35 mph. With the current buildup of fuels and traditional northeast winds, any wildland fire would pose a significant threat to the settlement.

The only fire protection is with the Kalaupapa Fire Brigade, which consists of one 750 gallon structural engine. Due to its isolated location, any additional resources would have to be flown by air from the other islands.

For years, funds have been used for constructing and maintaining a fuel break for approximately one mile along the eastern edge of the settlement. It was decided a combination of fuel break and sprinkler system would greatly enhance the suppression capability to protect the community. A sprinkler system was installed along the one mile long fuel break on the eastern side of the community. Any park personnel can activate the system by turning a valve in the event of a wildland fire approaching the community.

Due to limited resources and the isolated location, the sprinkler system has provided a greatly needed addition to providing wildland fire protection to the Kalaupapa Settlement and its residents. This success was achieved through Wildland Urban Interface funds and having a contractor install the system.

## **Delaware Water Gap National Recreation Area - New Jersey & Pennsylvania**

Delaware Water Gap National Recreation Area encompasses lands in both northwestern New Jersey and northeastern Pennsylvania. Over the course of the past 25-30 years, the area both within and adjacent to the National Recreation Area has experienced a dramatic increase in both visitation and population. This increase in visitation and population has resulted in the construction of numerous private dwellings, campgrounds, residential developments, and resort-type developments being built and/or expanded both within and immediately adjacent to the National Recreation Area. These structures are all part of a major urban interface situation that exists throughout the area. Due to the high life safety and real property concerns that they represent, these urban interface areas are and will continue to be a major factor in wildland fire management operations.

The Volunteer Fire Departments that serve this area rely heavily on water tenders or above-ground hydrant systems for their water supplies. During major wildland fire control operations, maintaining a high-volume water supply is critical to the success of the overall operation.

Delaware Water Gap National Recreation Area, in cooperation with the New Jersey Forest Fire Service and the Pennsylvania Bureau of Forestry, purchased eleven high-volume (500 gpm) portable pumps for donation to eleven local volunteer fire departments. These pumps will be used to refill water tenders or engines and to supply water for above-ground hydrant systems. This endeavor was made possible through a rural fire assistance (RFA) grant that was part of the National Park Service's 2002 RFA program.

## **El Morro National Monument - New Mexico**

In 2002, the 1,279-acre El Morro National Monument, located in west central New Mexico, received special project funding to complete a 50-acre Wildland Urban Interface (WUI) project. The project involved thinning pinyon and juniper stands and removing heavy dead and down fuel to reduce the likelihood of wildland fires crossing into or out of the monument. Cut fuels were scattered outside of the treatment boundary and will be allowed to decay, while the larger fuel, which could be used for home heating, was placed in an area for access by local residents.

In the spring of 2002, the monument applied for a Public Land Corps grant of \$18,000.00 to fund the Southwest Youth Corps (SYC) to perform all or part of the work. The Southwest Youth Corps, a non-profit organization based in Durango, Colorado, is modeled after the Civilian Conservation Corps of the 1930s. The goal of SYC programs is to engage young men and women, ages 16-25, as resources in the stewardship of public land throughout the Four Corners area while introducing them to careers in public land management, furthering their education and developing pertinent life skills.

Since its founding in 1998, SYC has continued to develop special programs and partnerships. In 2001, they launched a pilot program called the Fire and Fuel Reduction (FFR) crew. The purpose of the program is to hire and train young individuals in the techniques of pre-fire site preparation and fire fighting. The lead role of the crew is in Hazard Fuel Reduction. Towards that end, the crew went through two week-long classes. The first was "Wildland Power Saws" which taught the crew to appreciate and safely operate chainsaws. The second class S-130/190, or "Basic Wildland Firefighter," was dedicated to teaching the crew about fire behavior and techniques for containing wildfires. These classes were accompanied by certain certification tests. Each crewmember earned a Red Card (fireline certification) and a Green Card (chainsaw certification).



*El Morro, cont.*

The 10-person FFR crew spent three weeks at the monument during the summer of 2002. They stayed in the monument's campground, and on some days could walk to work! In addition to work projects, SYC's residential conservation program includes daily camp chores, structured education in the evening, and recreational trips and/or training opportunities. The crew completed the project on schedule and in addition to constructing fuel breaks to protect the monument's cultural resources, they produced about 10 cords of firewood for local residents.

Because of the innovative approach of monument management staff in securing a grant to fund the WUI project, the monument was able to complete the project considerably under budget. The remainder was returned to the Intermountain Region to fund other projects at parks and monuments which would have not have been performed due to lack of funding.

### **Crater Lake National Park - Oregon**

Determining when to burn to achieve desired outcomes is key to any successful prescribed fire management program. The rationale for selecting burn parameters must be science-based in order to predict desired outcomes. Managers today know that treatments which promote firesafe forests including: removing certain types of fuels (surface, ladder, and crown), and maintaining specific ecological characteristics (such as widely-spaced fire-resistant trees) are desirable. But knowing the "what" is different then knowing the "when".

In 1976, after more than 80 years of aggressive fire suppression, a prescribed fire program was initiated at Crater Lake National Park to restore approximately 42,500 acres of mixed-conifer forests. The objectives were to favor retention of large ponderosa pine over shade-tolerant species and to create conditions that enhance ponderosa pine regeneration. Studies were undertaken in conjunction with the prescribed burning program to examine the effects of the management-ignited fires. Unexpected mortality of large ponderosa pine occurred during the ten-year program of prescribed fires that treated more than 650 acres.

It was determined that the prescribed fires had burned too hot and too much duff was removed, thus weakening trees and increasing the probability of attack by bark beetles. Recommendations were made to conduct multiple hazard-reduction burns at lower fire intensities, rather than a single burn, and for burns to be done earlier in the spring when duff moisture was higher. There was limited information available to park managers on the effects of carrying out these recommendations, however, and prescribed burning was discontinued after 1987. The recommendations were never tested until this past year.



*Ponderosa pines that show evidence of having been used as trail markers are protected by old fire shelters prior to burning.*

Resource and fire staff are collaborating with scientists from the University of Washington to determine the best time to reduce hazardous fuels and restore the fire-adapted mixed-conifer forests at Crater Lake. The collaborative project involves collecting research data from

a series of management-ignited fires conducted on NPS property.

The project area consists of 200 acres divided into 24 treatment units (8 spring, 8 fall, and 8 unburned control units) in the southern portion of the park. This typical mixed-conifer forest has a ponderosa pine overstory with a multi-layered white fir understory and occasional presence of other tree species (e.g. sugar pine, lodgepole pine, Shasta red fir).

Unit layout and line construction occurred in 2001, along with pre-burn data collection. The "spring" prescribed fires were completed during mid-June 2002 and the "fall" prescribed fires were completed in October 2002. All of the burns were accomplished by NPS with interagency support from the USDA Forest Service, Bureau of Land Management, and the Fish and Wildlife Service. Post-burn data collection and analysis will continue through 2004, with initial results expected in 2003.

In addition to obtaining the answer to "when is the best time to apply prescribed fire to the mixed-conifer forests at Crater Lake National Park," there are several other achievements of this collaborative effort:

- A demonstration site has been established to evaluate various fuels treatment practices and their effects and to interpret these results to park visitors.
- The total number of acres at risk to severe wildfire has been reduced by 194 acres.
- Initial research results along with local environmental conditions are being factored into hazardous fuels treatment planning.
- A program of fire research within the park has been revived after a 20 year pause.

Working together, managers and scientists are developing and using the best available science to reduce hazardous fuels and restore fire-adapted ecosystems in order to create firesafe forests at Crater Lake National Park. This collaboration was enhanced by funds distributed under the direction of the Joint Fire Sciences Program.



**John Day Fossil Beds National Monument - Oregon**

John Day Fossil Beds National Monument (JODA), with the assistance of multiple partners, staff from other NPS units, and favorable weather, completed two prescribed fires for hazardous fuels reduction in September 2002.

The acreage treated included not only National Park Service lands, but also lands managed by the Bureau of Land Management (BLM) and adjacent private lands. The Sand Mountain Prescribed Fire took place in a large portion of the Painted Hills Unit of the park. This was a



*The Sand Mountain Prescribed Fire reduced juniper encroachment and sagebrush densities.*

true partnership, as BLM completed the majority of the planning with input and special considerations covered by NPS staff. When the day of the burn arrived, NPS staff from John Day Fossil Beds as well as the Buffalo National River Fire Use Module assisted with blacklining and holding the fire. Two days later the

aerial ignition of the interior of the burn unit was completed by a BLM helicopter. The acreage treated on NPS lands was 1,780 acres, and 3,520 acres on BLM lands.

The Middle Mountain Prescribed Fire occurred in the Sheep Rock Unit of the monument and on the adjoining private and BLM lands. Safe and manageable perimeter lines were in place through the use of a remote access road, a ranch road, the John Day River, an agricultural field, and a highway. JODA staff completed the planning for this burn and the Buffalo National River Fire Use Module worked for a week prior to the burn reducing fuel amounts in critical areas around the perimeter. Over six miles of blacklining occurred during the early part of the burn, including protecting two private residences, a NPS trailhead, and public use area. A BLM helicopter completed the aerial ignition with the assistance of NPS personnel. 1,120 acres of National Park Service land and 2,260 acres of Bureau of Land Management lands were treated during the Middle Mountain Prescribed Burn for a total of 3,380 acres.

Overall, the reduction of 8,680 acres of hazardous fuels on both National Park Service and Bureau of Land Management Lands benefitted both agency partners. Another objective achieved by the prescribed fires was the reduction in juniper encroachment and sagebrush densities allowing other native species to benefit in the area.

**Badlands National Park - South Dakota**

Prescribed fire has been used at Badlands NP to reduce a number of exotic grasses and forbs. Two burn units, containing eight monitoring plots, were treated with late summer or fall prescribed fire in 1999. Vegetation of the burn units is dominated by western wheatgrass and contains smaller amounts of grama grasses, needlegrasses, sedges, and scurfpeas.

Non-native species include yellow sweetclover, Japanese brome, and cheatgrass. Prescribed fire objectives were to decrease non-native grass species and increase native grass species. There were no changes in native species following the prescribed fire, but non-native grasses were reduced for two years while non-native forbs were reduced for one year.

The overall trends of vegetation changes are encouraging. Prescribed fire appears to be causing decreases in exotic species, while maintaining the growth of native species. With additional applications of prescribed fire, continued monitoring of these plots over time, and the treatment and monitoring of new areas, a clearer picture of how prescribed fire is helping reduce exotic vegetation should emerge. Combined with other methods of pest control and sowing of native plant species, park resource management will be able to use adaptive management to restore the prairies of the Northern Great Plains.

**Devils Tower National Monument - Wyoming**

Prescribed fire has been used at Devils Tower to reduce non-native Kentucky bluegrass. Two prescribed fire treatments have been applied to two adjacent burn units. One burn unit with a single monitoring plot was burned in the fall of 1999 and in the spring of 2002. A second unit with two monitoring plots was burned in the spring of 1999 and in the spring of 2000.

Results from these three plots are promising. After two prescribed fires, cover of native species increased more than 83% and cover of non-native species decreased 62%. Specifically, following the second prescribed fire, Kentucky bluegrass cover was 66% below pre-burn levels. Native sedges responded very favorably to prescribed fire and increased by more than 650%. The native western wheatgrass appears to be exhibiting an increasing trend.

*The National Park Service Fire Management Program Center (FMPC), located at the National Interagency Fire Center in Boise, Idaho provides national leadership, direction, coordination, and support for NPS fire, aviation, and incident management.*

*FMPC would like to thank all those who contributed to this publication.*

*Additional National Park Service stories from 2002 are located at: <http://www.nps.gov/fire/success/2002>.*