Fire and Fuels Management 2003

National Park Service - Pacific West Region

Safety, Science, Stewardship

ANNUAL REPORT OF THE PACIFIC WEST REGION FIRE AND FUELS MANAGEMENT PROGRAM

Using Fire for Resource Benefits

Reducing Hazardous Fuels

Suppressing Unwanted Wildfire

Monitoring Fire's Effects

Studying Fire History

Assisting Communities with Wildland Fire Protection

Educating Neighbors and Visitors

Wildland Fire Use and Suppression

When lightning starts a wildland fire, the question arrises, “What is the appropriate management action?”

Can the fire be used for resource benefit or are there values at risk that require suppression of the fire?

On the Cover
TOP: Prescribed Fire in progress at Yosemite National Park, RIGHT: Fire Information at Yosemite. BOTTOM: Wildland Fire Use during the Kern Fire at Sequoia National Park.

This year, 75 lightning-caused fires were managed for Wildland Fire Use on NPS land in the Pacific West Region, burning over 15,000 acres...

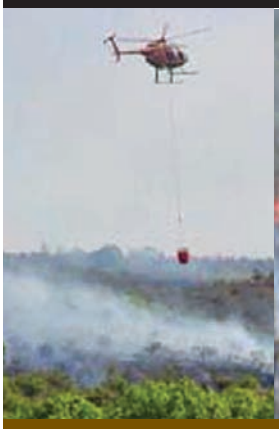
Wildland Fire Use efforts included 39 fires at Yosemite National Park, 27 at Sequoia and Kings Canyon National Parks, and 9 at North Cascades National Park Complex. By managing these natural events, fire was allowed to reduce fuel, diversify vegetation structure, and preserve an ecological process integral to these landscapes.

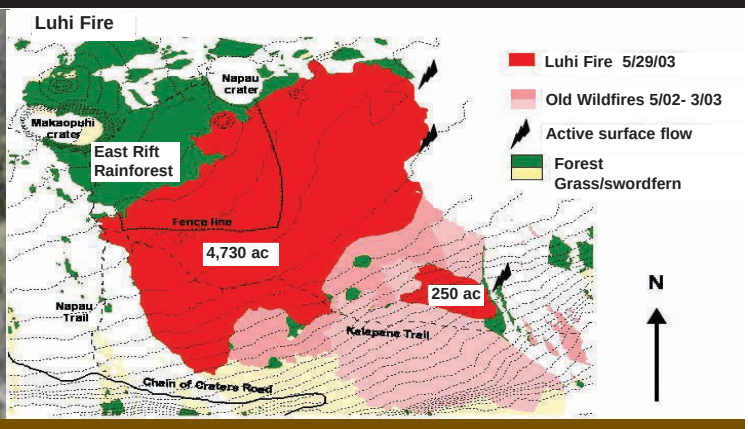
More than 100 wildland fires were suppressed in parks throughout the region. Many of these were human-caused and were quickly extinguished...

Wildfires in Hawaii, however, ignited by lava flows, involved complex resource mangement issues and required an incident managment team. The region’s firefighters also provided support to interagency suppression efforts this year in Montana and Southern California.

LEFT: Crews at Sequoia and Kings Canyon National Parks prepare a hoselay during a suppression action.

BELOW: During the Griff Fire at Olympic National Park, 5 rapid assessment plots were installed and successfully burned over. These will allow vegetation conditions before and after the fire to be compared.





Ignited by lava, and threatening a rare-species-rich rainforest community, the Luhi Fire at Hawaii Volcanoes National Park in May, 2003, and a series of similar fires the previous winter, presented the region’s most unusual fire suppression challenges. Working along side of active volcanoes, firefighters face the added hazard of sulfur dioxide exposure...

“If the fire breaks and runs, a uniquely Hawaiian ecosystem will be forevever lost -- the native rainforest will turn into a weed patch.” - Tim Tunison, HAVO Chief of Resource Management

Fuel Treatments

Using prescribed fire to reduce hazardous fuel and remove non-native species at PORE.

Removing fire prone eucalyptus to protect homes near GOGA. Non-native eucalyptus removal is also being done at other parks in California and Hawaii.

Mechanical treatment (cut, buck and scatter) at LAME to reduce encroachment of pinyon-juniper. Project in collaboration with JFS/USGS.

Thinning at NOCA to create a shaded fuel break near developed areas. Future fires in this area will be easier to control.

The Fuels Program aims to reduce hazardous fuels and restore vegetation to a safer, healthier, more historic condition. This is done with prescribed fire as well as with mechanical, chemical, and biological treatments. Much of this work is done in the wildland-urban interface where park lands and developed areas meet. The goal is to prevent loss, both economic and ecological. Fuel treatments address several kinds of problems...

Values at Risk - Increased development near wildlands creates more potential for wildland fire to damage property. By reducing fuel near structures and communities, this threat is mitigated. **Encroachment** - Lack of fire has caused changes in vegetation which can make fire more difficult to control, and can lead to other kinds of ecological loss. Many fuel treatments involve the removal of pinyon pine, juniper, Douglas fir and other shade tolerant conifers. **Non-native Fuels** - Numerous non-native species have altered vegetation types which can cause fire to spread more rapidly or create unhealthy competition for the native pioneer species that colonize recently burned areas. **Missing Fire Cycles** - Many areas need pre-treatment before fire can be reintroduced.

BROADCAST BURNING. TREE REMOVAL. THINNING. PILE BURNING. BRUSH CUTTING.CHIPPING. HAND CUTTING.HERBICIDES. GOATS.

Fire Education, Prevention, and Information

This year, Fire Education Specialists from the Pacific West Region participated in Camp Smokey, a special interagency event at the California State Fair. SCA Fire Education interns and highschool students from “Generation Green” in Fresno also staffed the event. During 18 days of the Fair, families learn about fire safety and minimum impact recreation.

It is challenging to integrate fire ecology and fire prevention messages. Traditional park interpretation is aimed at resource protection whereas fire education is also concerned with the protection of human life and private property. Prevention of negative impacts means both the resource and the public...

The Fire Education, Prevention, and Information Program continues to build understanding through communication about fire and fuels management activities. A partnership with the Student Conservation Association has allowed thousands of people to be contacted through community events, home defensible space evaluations, and fire education programs. New Fire Managment web pages are now online for SEKI, GOGA, PORE and YOSE. New publications and exhbits have been developed including JOTR’s innovative mobile exhibit in an historic fire engine. Information Officer support was provided for numerous fire events including suppression efforts in Montana and Southern California, Wildland fire Use at NOCA, SEKI, OLYM and YOSE, and other incidents including space shuttle debris collection.

Park Highlights

Sequoia and Kings Canyon NPs

* 2,955 acres treated in 3 prescribed burns
* 269 acres mechanically treated for fuel reduction, producing 2,300 debris piles for burning
* 48 lightning-caused fires, 21 managed with suppression, 27 managed for wildland fire use
*1,142 aviation hours
* 27 fire effects plots installed or re-read, including 6 plots in thinning projects
* fieldwork initiated on a nationwide Composite Burn Index fire severity study
* fire ecology presentations at 5 professional meetings
* significant research in *Fire and Fire Surrogate* and *Cheatgrass projects as part of* Joint Fire Science Initiative
* 778 fire education opportunities reaching 43,498 people including 2 firesafe workshops, 2 Fire Management Plan public meetings, 2 cover stories in print, 1 television news story and the new "Current Fire Information" webpage
* 1 SCA Fire Education intern completed defensible space evaluations for 24 local homes and 130 park housing structures
* Arrowhead Hotshots worked 19 interagency suppression fires totalling 29,456 work hours and 3 wildland fire use fires for 3,128 work hours

Mount Rainier NP

*391 acres burned for resource benefit
* 2 lightning storms produced 6 wildland fires
* 5 human-caused fires in undesignated camping sites were quickly suppressed
* over 2,000 fire education contacts
* 4 incident management teams managed fires at the park
* 136 hours safely flown
* 58 fire assignments out of park
* fire management plan and EA completed, undergoing public review

Great Basin NP

* 30 acres mechanical treatment in shaded fuel break project restoring sage grassland effected by Pinyon/Juniper encroachment
* Baker Creek Prescribed Fire cancelled due to weather conditions
* 1 lightning-caused fire suppressed in park
* 5 mutual aid suppression fires surrounding park
* assisted BLM with everal initial attack responses near Ely, NV
* 1 SCA Fire Education Intern contacted 839 people, in 10 campfire programs, 4 family programs, 4 talks, 7 special events, and 6 school programs
* continued work on Granite Fire BAER Project to determine water quality effects on the South Fork of Big Wash watershed in Bonneville cutthroat trout habitat

Whiskeytown NRA

* 319 acres fuel reduction, thinning
* 1,205 acres treated with prescribed fire, broadcast burning
* 170 acres of vegetation treated by pile burning
* 138 arces treated by thinning in shaded fuel break projects
* engine crew responded to 170 incidents incuding suppression fires inHawaii Volcanoes National Park, Yellowstone National Park and Southern California
* Fire Use Module was committed 172 unit support days including 53 on prescribed fire and 69 on wildland fire use.
*field assessments for 3 burn severity maps completed
* 25 rapid assessment monitoring plots established
* research conducted on impacts of fuel treatments
* fire history study on higher elevation forests completed
*3,500 public contacts through fire education programs
* 31 shifts completed as a Type 2 Information Officer

Lava Beds NM

* 40 acres of pile burning and 100 acres of thinning and brushing to protect bald eagle roosting habitat
* 1409 acres burned to reduce hazardous fuels
* 50 acres research burns (Joint Fire Science) conducted to study seasonal fire effects on sagebrush ecosystems
* fire ecology report completed, focusing on fire regimes, vegetation history and juniper encroachment

Lake Mead NRA

* pre-burn preparation for 1,900 acres of old growth ponderosa pine
* 2,021 acres completed in 3 prescribed fire projects
* 100 acres mechanically treated
* 20 acres, WUI mechanical treatments at GRBA
* assisted Arizona Strip with 1 prescribed burn
* suppressed 8 wildland fires in park
* responded to 10 additional local fires
* provided resources more than 45 additional incidents

Joshua Tree NP

* Responded and assisted with 7 major incidents including Hawaii, Black Mountain #2 Fire, Angeles National Forest, San Bernadino National Forest, Chimney Peak, Yucca Valley, and Old Fire
* New firefighter hired through the Apprentice Program
* Converted a 1970 International Fire Engine into a mobile, educational exhibit

The devastating Old Fire started in the San Bernadino National Forest and was challenging due to the 80 to 100 mph winds.

Fire Ecology

Left: Water quality is being monitored in the Big Wash watershed at Great Basin National Park as a result of the Granite Fire. Increaesed run off and erosion after a fire removes surface vegetation and is often accompanied by increased nutrients from ash.

Right: Occasional passive torching occurred on the Pine Valley Springs prescribed burn at Lake Mead NRA. This was a desired effect to achieve stand density reduction, one of the burn's primary objectives.

The Fire Ecology Program integrates multiple scientific and operational disciplines to inform fire management actions. University partnerships and the Joint Fire Science Initiative expand the program's capacity...

Within the region, there are currently 7 fire ecologists supporting 23 parks, plus 3 regional staff members, and 5 fire effects crews. A sixth fire effects crew, based at Zion National Park, also serves parks in the Pacific West Region. The fire ecologists are key members of Fire Management Plan ID Teams, providing an ecological framework to formulate objectives and justify alternatives. The Fire Ecology Program also coordinates BAER (Burned Area Emergency Rehabilitation) activities and trains Resource Advisors in support of wildland fire suppression. The majority of the program focuses on 3 main areas:

Long-term monitoring

Treatments are monitored to detect change and determine whether resource management obejctives are being met. This includes FMH and CBI plots. FMH (Fire Monitoring Handbook) plots are used to measure the effects of prescribed burns. CBI (Composite Burn Index) plots measure the burn severity of wildland fires.

Research

Fire science questions that are not adequately addressed through monitoring, are pursued through more rigorous investigation. Currently there are 16 major, ongoing research projects throughout the region. Topics include: Fire History at WHIS; Cheatgrass and Fire Effects at LABE and SEKI; Fire and Restoration at SAMO; Forest Structure Goals at SEKI and YOSE; Native American Burning Regimes at YOSE.

Inventory

The systematic collection of spatial data through fuels and vegetation mapping is necessary for informed decision-making. Mapping in four Cascade parks will be initiated in FY04.

An enormous amount of data is being collected. In addition to fire effects plots in management-ignited prescribed burn units, the Fire Ecology Program has begun to establish plots to monitor alternative fuel treatments (such as thinning) and rapid assessment plots to monitor the effects of wildland fire...

Implementation of FEAT will begin in FY04, and will shape the future of the NPS Fire Ecology Program...

FEAT, Fire Ecology Assessment Tools, is a software program being designed under contract for the NPS to manage the vast and varied data collected within the Fire Ecology Program. FEAT will have statistical analysis capabilities, a critical feature which has been missing until now.

FEAT will strengthen our ability to interpret fire effects data, improve burn prescriptions, and guide resource management decisions to achieve desired results.

Two parks in the Pacific West Region will be prototypes for FEAT.

Park Highlights

Lassen Volcanic NP

* 36 acres mechanical thin, Flumetank Prep
* 55 acres mechanical thin, Stonehenge Prep
* 53 acres mechanical thin, Nobles Emigrant
* 20 acres mechanical thin
* 193 acres lop and scatter, Warner Valley
* 20 acres mechanical thin, Mineral HQ
* 560 acres prescribed burn, Hole
* 3 burn plans completed
* 1 powerpoint program developed
* 1 SCA Fire Education Intern conducted Junior Firefighter programs and defensible space home evaluations
* Fire Information plan completed
* 6 special fire education events
* 2 fire management exhibits developed
* 3 Fire Information Officer off-park assignments

San Juan Islands NHS

* 20 acres thinning and piling
* 25 acres burned in the first broadcast burn ever conducted at the park
* Fire monitoring plots established in new burn unit

Hawaii Volcanoes NP

* 1,000 acres chemically treated in Fountain Grass Project
* 8 acres, mechanically treated in fuel breaks
* 13 acres mechanically treated, Kipahulu Development
* 5 acres biological treatment, Golf Course Vegetation
* 7 wildfires suppressed in park
* 13 additional wildland fire incidents

Olympic NP

* 25 acres hazardous fuel reduction
* 16 wildland fires, 823 acres (7 human-caused, 9 lightning-caused)
* a 4-person SCA Fire Education Team conducting community outreach made hundreds of contacts
* 5 rapid assessment plots were installed along the east flank of the Griff Fire and were successfully burned

John Day Fossil Beds NM

* Rock Creek Prescribed Burn Plan completed for 1470 acres in partnership with BLM and a private landowner. The project will include 535 acres of pre-burn mechanical treatment; burning is scheduled for 2004.
* Planning also completed for Foree Burn
* Fire Mangement Plan update and revisions completed, undergoing review

Golden Gate NRA

* 24 acres eucalyptus removal
* 3 emergency access / egress routes cleared
* 1 fuel reduction project removed cypress and broom, restoring a windbreak to its historic condition
* 2 RFA grants to two separate volunteer fire departments
* 1 SCA Fire Education intern provided community outreach and GIS support associated with fuels reduction projects and fire management plan
* 2 public public meetings, fire management plan

Santa Monica Mountains NRA

* 271 acres of mechanial fuel treatment in the wildland-urban interface
* 25 acres burned at Malibu Creek under contract
* 100 acre Cheeseboro burned postponed
* 15 fires, 923 acres burned
* new fire effects plots established in Cheeseboro burn unit
* field data collection for vegetation map completed
*SCA crew was hosted by park, focusing on FireWise community education
* fire management brochure was updated
* Fire Management Plan and EIS completed, undergoing review

Redwoods NP

* 470 acres prescribed burning
* 20 acres pile burning for fuel reduction
* 18 wildland fires ranging from 0.1 acre to 315 acres, including 2 Type III incidents

The Redwoods Complex included 13 fires and approximately 60 acres. The Xowannutuk Fire was 315 acres.

For more information on fire and fuels management in Pacific West parks, please visit individual park websites, or visit NPS FIRENet at www.nps.gov/fire ...

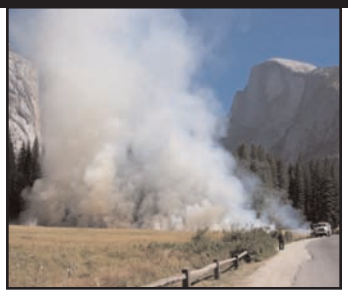
Lake Roosevelt NRA

* 148 acres lop and scatter
* 30 acres machine piled
* 16 acres chipped
* 30 acres pile burned
* 30 acres understory burned, (first time this type of burn)
* progress made in streamlining NEPA process through meetings between park and local tribes
* 4,092 person hours in off-park fire assignments
* 21 support actions
* 4 fires suppressed on park (3 originating on park)

Park Highlights

Point Reyes NS

* 315 acres were treated in 8 prescribed burns
* 6 burn plans were written
* 245 acres of Scotch and French broom were treated with mowing and hand removal
* 100 acres were treated mechanically to remove fuel around structures
* 15 acres, were treated with thinning and brushing along Bayview Trail
* 200 eucalyptus trees were removed to protect the Bear Valley Visitor Center
* $485,000 was provided to community-based fuel treatment projects
* RFA grants were provided to 3 rural fire departments for equipment and training
* newspaper Special Section on Defensible Space reached 36,000 subscribers and was mailed to 4,000 residents
* a community newsletter for prescribed fire notification was mailed to 4,500 residents, which led to a radio show on fire
* 2 SCA Fire Education Interns completed 65 home defensible space evalutaions
* thousands of fire education contacts were made at 9 fire safety / fire prevention week events, and 2 fire ecology workshops
* regional prescribed fire publication was produced, involving interdisciplinary staff from across the region
* Fire Management Plan EIS completed, undergoing review



Yosemite NP

* 1,058 acres treated mechanically under 3 contracts for $700,000 which produced 20,000 piles of small diameter fuel
* 1,495 acres treated in 19 prescribed fires
* 8,799 acres treated in 39 Wildland Fire Use fires
* 2.,915 acres burned after a wildland fire use fire was converted to a suppression fire

"Smoke concerns from the Kibbie and Tuolumne WFU's led to a town meeting in Sonora attended by legislators and citizens. The meeting was successful at building public understanding and improving joint planning efforts."

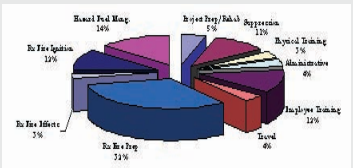
Crater Lake NP

* Co-hosted a fuels crew with LAVO serving Northern California and Southern Oregon parks
* 215 acres of thinning (PH-2)
* 201 acres burned (PH-1)
* 20 acres accomplished on the 270 acre Mazama Village Hazar Fuel Reducion Project (work ceased due to snow)
* Fire Management Plan FONSI approved, draft FMP near completion
* 12 wildland fires were suppressed in the park, of which 11 were natural starts and 1 was human-caused; one of these reached 10 acres in size, the rest were supporessed at less than 1 acre
* supported suppression efforts in CA, WA and OR

Portland State University used the PH-1 burn as a study site for a project entitled, "The role of dwarf mistletoe in broom development, fire susceptibiltiy and fire behavior in mature ponderosa pine."

Post fire data was collected on the PH-3 2002 burn which will be incorporated into a Joint Fire Science project entitled, "Seasonal Effects of Prescribed Fire at Crater Lake."

Crater Lake - Lassen Fuels Crew Time Log for 2003 Season



32% Rx Fire Prep
14% Hazard Fuel Mgt
12% Rx Fire Ignition
12% Empolyee Training
11% Suppresssion
5% Project Prep / Rehab
4% Administrative
4% Travel
3% Rx Fire Effects
3% Physical Training

Channel Islands NP

* 99 acres mechanical treatment
*25 acres of vegetation debris was burned in 12 piles
* 2 vegetation / fuels surveys completed
* work began on fuel reduction in historic olive groves
* completed Interim Park Prevention Plan
* 4 human-caused fires extinguished
* personnel dispatched to 6 incidents

North Cascades NP Complex

* 3,542 acres burned for resource benefit in 9 wildland fire use fires
* 5.9 acres burned under suppression strategies in 17 fires
* 300 acres mechanical thinning, WUI
* 118 acres prescribed fire, WUI
* Skagit Waterhshed Risk Assessment completed
* plant inventory on 5,000 acres for Stehekin Contours project
* crews and single resources dispatched to 50 incidents
* fire effects crew read 42 plots (18 at NOCA, 9 at SAJU, 15 at JODA)

National Park Service
U.S. Department of the Interior

Pacific West Region
1111 Jackson Street, Suite 700
Oakland, CA 94607

The National Park Service cares for special places saved by the American people so that all may experience our heritage.

EXPERIENCE YOUR AMERICA

During the summer, Edy Williams-Rhodes, newly appointed Chief of Fire and Aviation, visited the Pacific West Region. She toured wilderness fire management projects at Yosemite and wildland-urban interface projects at Golden Gate NRA.

The Pacific West Region hosts one Interagency Hot Shot Crew, the Arrowheads, based at SEKI for the past 23 seasons. This year, the Arrowheads were assigned to 23 fires located in Gila NF, Yosemite NP, Inyo NF, Okanogan NF, Los Padres NF, Sequoia NF, Stanislaus NF, Modoc NF, Flathead NF, Lolo NF, Sequoia NP, Ventura County and San Bernadino NF. Their time was devoted 71% to suppression, 7% to wildland fire use, and <1% to prescribed fire.

The Fire Use Module at WHIS also serves an interagency function. Of 69 days supporting Wildland Fire Use, 22 days were spent supporting NPS units and 47 days were spent supporting USFS units.

Second International Wildland Fire Ecology and Fire Management Congress & Fifth Symposium on Fire and Forest Meteorology

November 16-20, 2003
Orlando, Florida

Presentations were made on work at SEKI, YOSE, WHIS, PORE, and GOGA.

SOME EXAMPLES:

Positive Effects of Prescribed Fire on Understory Vegetation in Mixed-Conifer Forests of the Southern Sierra Nevada, CA

Wildland Fire Risk Hazard Analysis

Fire Intensity in Natural and Manipulated Fuels During Spring Burning in Mixed Shrub Woodlands

Development and Use of a Rapid Assessment Plot to Monitor Thinning and Wildland Fire Use

A Coupled Model Approach for Assessing Fire Hazard at Point Reyes National Seashore: FLAMMAP and GIS

Second Entry Prescribed Fires in Ponderosa Pine and Bear Clover Forests