

A Strategy for Accelerated Watershed/Vegetation Restoration on the Arapaho and Roosevelt National Forests and Pawnee National Grassland

Appendix A

Front Range Fuels Treatment Partnership

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A Strategy to Reduce Wildland Fire Risks through Sustained Fuels Treatment along the Colorado Front Range



Rocky Mountain Region
Arapaho & Roosevelt NFs
Pike and San Isabel NFs
Rocky Mountain Research Station



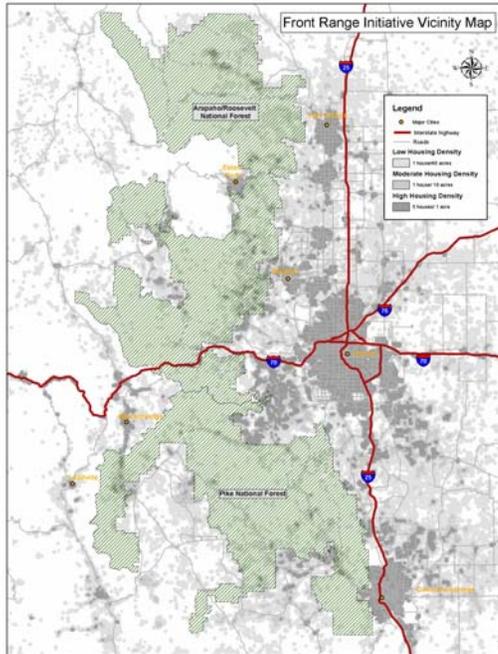
Bureau of Land Management



National Park Service
Rocky Mountain NP
Florissant Fossil Beds NM



Colorado State Forest Service
Local Counties and Communities



Colorado's Front Range, with housing density

Introduction

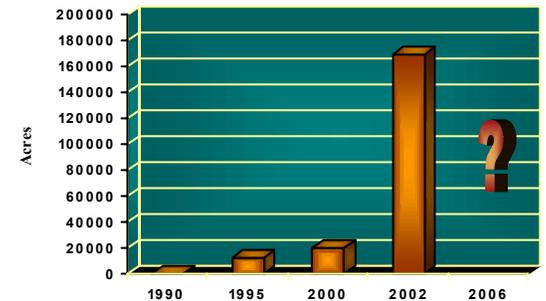
The Front Range of Colorado includes an explosive mix of homes situated within forest areas. These zones of the Wildland Urban Intermix (WUI) place people, homes, numerous communities and natural resource values at significant risk from catastrophic wildfire.

Community and ecosystem sustainability is threatened by increasing frequency and size of catastrophic wildfires. Over 735,000 persons live within the intermix area along the Front Range. There are over 30,000 homes located within the boundaries of the Arapaho and Roosevelt National Forests (ARP) alone. Several million residents and farmers of the Front Range depend upon National Forests for the majority of their water.

Increased community sustainability and safety provided through the Front Range Fuels Treatment Partnership Implementation Strategy (FRFTP) will benefit local landowners, local governments, the State of Colorado and the Nation as a whole.



Cedar Park, Bobcat Gulch wildfire, Roosevelt National Forest- photo by: K. Close



Acreage burned by wildfires, Colorado Front Range, 1990 to 2006

The Strategy

Strategic treatment of hazardous fuels can reduce the risks to communities by reducing wildfire intensity through restoring fire to a more natural role in the surrounding landscape, thereby increasing firefighter safety and effectiveness by potentially reducing the intensity of wildfires. The PSICC, the ARP, the Colorado State Forest Service (CSFS) and the Rocky Mountain Research Station (RMRS) jointly developed the FRFTP. The National Park Service (NPS) and Bureau of Land Management (BLM) have now joined the FRFTP.

The goal of the strategy is to enhance community sustainability and restore fire-adapted ecosystems through identification, prioritization and rapid implementation of hazardous fuels treatment projects in the Front Range of Colorado. The strategy is long-term and will allow us to move forward successfully over a ten-year period.

The strategy emphasizes treating areas with integrated values at risk (homes, watersheds, threatened or endangered species) to enhance community and ecosystem sustainability.

The FRFTP implements the 10-Year Comprehensive Strategy and Implementation Plan for Goal 2 (reduce hazardous fuels) and Goal 4 (community assistance) thereby increasing our ability to reduce risks to:

- public and firefighter safety,
- housing in the wildland urban interface,
- watersheds providing municipal and agricultural water,
- ecosystem function, and
- threatened and endangered species.

The FRFTP builds upon previous fuels treatment successes such as the Upper South Platte, Cheesman Reservoir, Polhemus Burn, Trout Creek Timber Sale projects and Winiger Ridge. Several of these projects were key in reducing erratic fire behavior during the Hayman Fire. The Partnership also provides an on the ground model of how to implement the collaborative framework outlined in the 10-Year Comprehensive Strategy Implementation Plan.

A key to the success of this strategy will be extensive participation from local

governments and public involvement and collaboration in identifying and supporting specific treatment areas and types of treatments. The strategy provides a unique opportunity to combine Good Neighbor and Wyden Amendment authorities for fuels treatment work across boundaries. It will create a partnership between management and research to utilize adaptive management practices in fuels treatment.



Hayman Fire, June, 2002, Pike National Forest

Recent Fire History

Catastrophic wildfires have been increasing in size and frequency in the nation as a whole since the late 1980s. Nationally, wildfires during the 2000 fire season were the largest and most costly in history. The 2002 fire season has been even more costly in terms of persons evacuated, homes burned and economic impacts to the economies of the Western states. Impacts to the Front Range of Colorado from catastrophic wildfires in 2002 were some of the most devastating in the United States.

Colorado's 2002 fire season set numerous records in terms of evacuations, damage to homes, watersheds and wildlife habitat, and negative impacts on local economies. Wildfires burned at high intensities causing extreme difficulties with suppression efforts due to explosive wildfire behavior.

Fire Behavior

- The largest wildfire in Colorado history- the Hayman wildfire, Pike National Forest, burned 137,526 acres with 133 homes and 466 other structures lost.

- The Hayman wildfire burned over 19.5 linear miles in one day covering almost 62,000 acres causing the evacuation of over 5,000 persons.
- Nine other large and damaging wildfires occurred within the Front Range forests this past season.

Evacuations

- Officials came within three hours of ordering the evacuation of 40,000 people because of the extreme fire behavior associated with the Hayman wildfire.



Bobcat wildfire, Roosevelt National Forest- photo by: D. McGraw

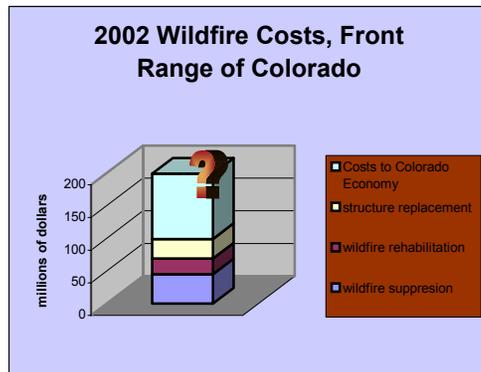
- Approximately 12,000 persons were evacuated during the 2002 fire season, some for several weeks resulting in significant hardships and substantial economic loss.

Costs

- The cost to the economy of Colorado was substantial. Many persons cancelled vacation plans to Colorado, adversely affecting towns that were not even threatened directly by wildfires. For example, visitation at the Arapaho National Recreation Area dropped 30 percent this summer, and the Big Elk wildfire on the ARP sharply reduced visitation to Estes Park, gateway to Rocky Mountain National Park for two weeks in mid-summer.
- Wildfire suppression costs in the Front Range are estimated at \$50 million. This cost was in large part related to the number of homes at risk and the substantial use of aircraft to attack these wildfires. In addition, almost \$24 million is being spent on Burned Area Emergency

Rehabilitation, including \$4 million on Denver Water properties in the critical South Platte watershed, which supplies the city of Denver with 80% of its drinking water.

- Even relatively small wildfires resulted in high costs. For example, though the Black Mountain wildfire was only 200 acres in size it resulted in the evacuation of an estimated 1600 persons and suppression costs of \$1.4 million.



Watershed Effects

- Watersheds along the Front Range supply drinking water to several million persons and irrigation water to farmers.

- Major ash and sediment flows resulting from the Hayman wildfire have impacted water quality and storage capacity at Cheesman Reservoir, which is a primary water storage facility for Denver. Increased sedimentation of over 1,000,000 cubic yards may occur. Substantially increased maintenance costs are expected to continue for years. Free carbon in ash will adversely affect water treatment plants by binding with chlorine.



Sedimentation in West Creek, South Platte watershed, Pike National Forest

- Replacement of lost storage capacity with new capacity would be very costly and controversial.

Smoke Effects

- Smoke from the 2002 wildfires significantly degraded the air quality in the area surrounding the wildfire and throughout metropolitan Denver and other Front Range cities.

Resource Effects

- Forest vegetation could be lost for up to a century without tree planting. Old growth killed by the wildfires will take 400 to 500 years to return.



Hayman Wildfire, Pike National Forest, photo by: M. Kaufmann

- Wildfires adversely affected at least five federally threatened and endangered species.

Foundations for Success

Fuel reduction treatments have been successful in reducing wildfire intensity. A recent study by the RMRS evaluated the Hi Meadow wildfire in the Upper South Platte watershed. This study concluded that fuel treatments are quite effective in reducing crown fires in short return interval systems. On June 9, the Hayman wildfire ran northeasterly on a broad front with extreme erratic fire behavior and split at Cheesman Reservoir. The eastern head ran northeasterly toward two recently burned areas, the Schoonover wildfire that occurred 3 weeks prior to the Hayman wildfire and the 8,300-acre Polhemus prescribed burn accomplished in 2001. The eastern head of the Hayman wildfire did not progress beyond the area of these two burns, while the western head of the wildfire burned approximately 4 miles further during the same burning period. It appears likely that the eastern head of the Hayman wildfire would have burned further to the northeast if it had not encountered these two previously burned areas. In addition, fuelbreaks at Cheesman Reservoir saved 15 structures valued at \$400,000.



Hayman wildfire, Pike National Forest-crown fire approaching Trout Creek Timber Sale treatment area



Same area as first photo, fire drops out of crowns as it burns into treatment area.

Ongoing Collaborative Successes

Stewardship Projects

- Upper South Platte Watershed Restoration Project
- Winiger Ridge Project

Ecosystem Research

- Ponderosa Pine at Cheesman Reservoir

National Fire Plan

- Staffing
- Planning and Implementation
- Preparedness

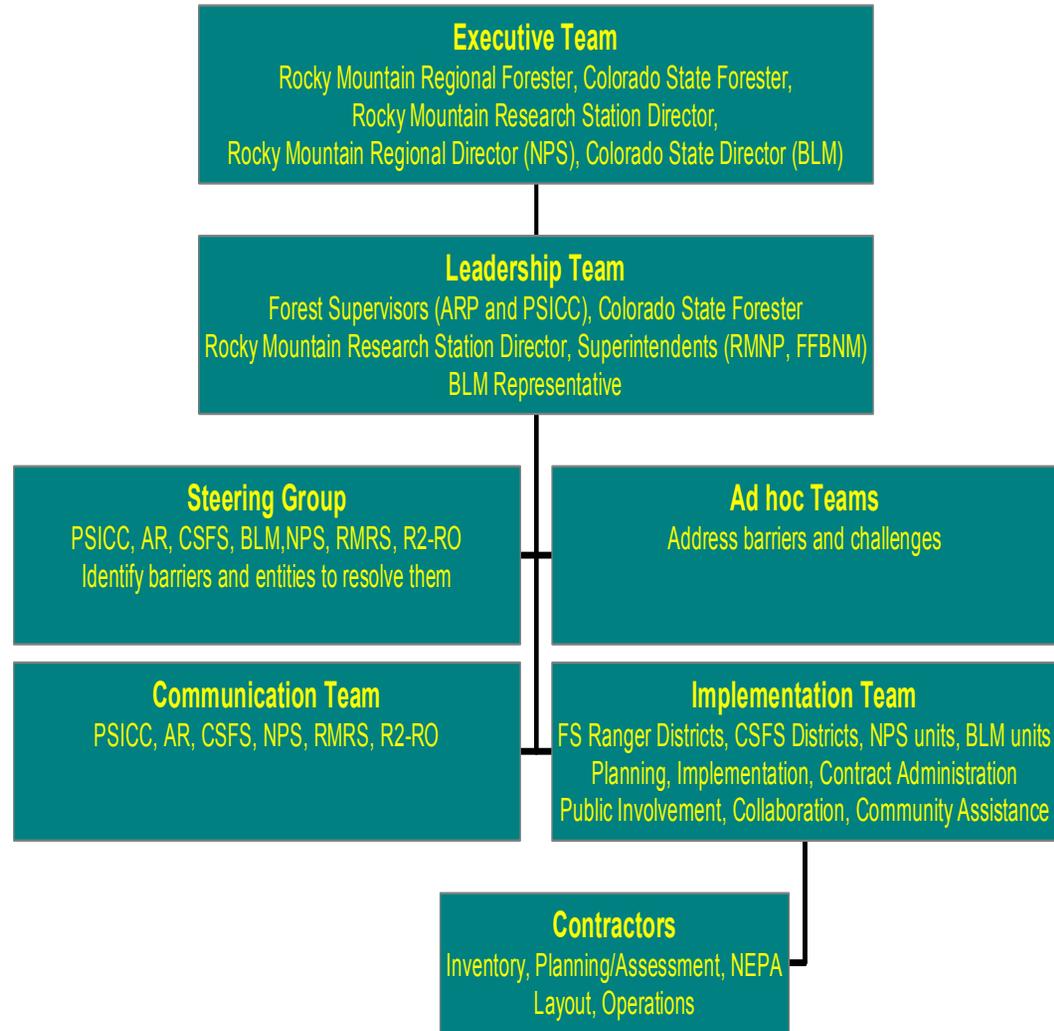
Fuel Treatments

- Upper South Platte Watershed Restoration Project
- Polhemus prescribed fire

Organizational Approaches

The partnership will build upon established and proven organizational delivery systems at the Supervisor Offices and Ranger Districts, as well as through CSFS District Offices. These core teams will continue to play key roles in collaboration, planning and project implementation along with other state and local partners. It is vital to maintain core organizational capability in order to sustain treatment levels over the 10-year period. The expertise and knowledge of field conditions and local constituencies in the core teams will then be leveraged through the use of contractors to accomplish inventory, planning, production and monitoring at higher levels of output.

In addition, a steering committee composed of ARP, PSICC, CSFS, RMRS, NPS, BLM, and Rocky Mountain Regional Office personnel will facilitate implementation of this strategy. This group will meet regularly to address challenges to implementation and to provide for coordination across the Front Range.

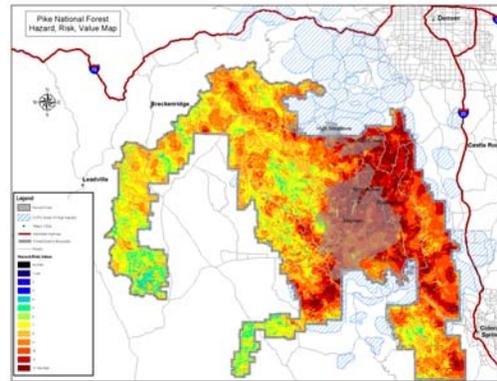


Rapid Assessment

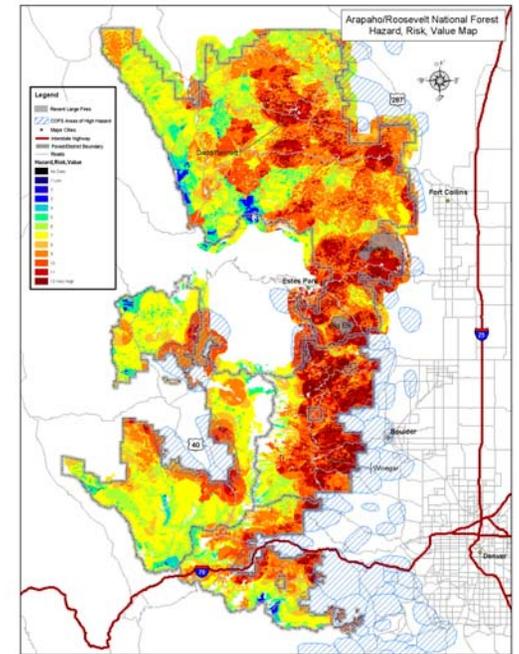
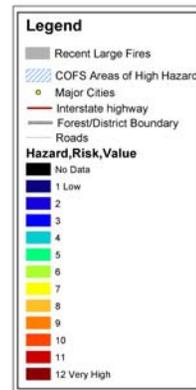
This strategy utilized a large-scale rapid assessment of hazardous fuel conditions along the Front Range of Colorado enabling the identification of large areas where treatment needs are of greatest concern. As a result of this assessment, maps were developed that delineate areas of low to very high hazard, risk and value. These maps provide an indication of both overall treatment opportunities and of areas with the greatest immediate need. The most immediate needs are demonstrated where the ratings for hazard, risk and value are all very high.

The CSFS has completed a similar assessment for non-federal lands in the interface where hazardous fuels place communities at risk.

These assessments have indicated that approximately 510,000 acres are high priority for treatment. There are 300,000 acres within the PSICC, 140,000 acres within the ARP and 70,000 acres of non-federal lands.



Combined Hazard/Risk/Value Map, Pike National Forest



Combined Hazard/Risk/Value Map, Arapaho and Roosevelt National Forests

Prioritization and Collaboration

The ARP, PSICC, CSFS and RMRS are developing and will be implementing a collaboration process for identifying and prioritizing fuel treatment projects for the Colorado Front Range. This key task will be done in collaboration with local governments, other agency cooperators and the public. This effort will be a continuation of the efforts already begun with the National Fire Plan and the 10-Year Comprehensive Strategy Implementation Plan. However, to facilitate swift implementation of this strategy it will be important to enhance collaborative efforts. This will involve increased contacts with all partners to identify high priority areas where rapid treatment will be most beneficial. The CSFS will be hosting County Forums in counties that have requested them to address forest conditions and hazardous fuels reduction needs. These forums will provide an excellent opportunity to enhance collaborative efforts.

Community assistance is also an important part of this strategy. The collaboration process will be used to identify areas where community assistance grants would be of highest value in aiding the implementation of

this strategy. Community assistance will primarily focus on two areas: (1) providing assistance to aid in the execution of fuels reduction projects that will complement treatments on National Forest System lands, and (2) providing assistance in developing and expanding markets for traditionally underutilized wood products, such as those removed during hazardous fuels management activities.

Proposed Activities and Funding Levels

This strategy emphasizes fuels reduction treatments in ponderosa pine/Douglas fir forest types where high hazard conditions (Condition Class 3 areas) combine with high value areas (housing developments, key watersheds, or threatened or endangered species habitats). However, high hazard lodgepole and spruce-fir forest types (Condition Class 2), will also be treated when high value areas occur within these areas and treatment would have a positive effect in reducing risks.

Implementation of this strategy will require funding beyond the amounts programmed as part of the constrained budgets of the Forests. This funding will

be needed in several functional areas to address primary purpose rules. Additional funding will be needed to both implement treatments on National Forest System lands and provide grants to aid the State and local governments in implementing treatments on non-federal lands.

The cost of the Partnership is still small when compared to the wildfire related costs that have been increasing since the late 1980s with 2002 wildfire costs along the Front Range of Colorado reaching new heights.



Fuels Treatment, Stringtown, Roosevelt National Forest

FY 2003

Activities

- Continue staffing and skill development of core fuels planning and implementation teams begun with the National Fire Plan.
- Establish steering committee.
- Refine collaborative process with CSFS and counties in the identification of priority planning and treatment acres.
- Utilize contracts to accomplish inventory and analysis processes.
- Initiate research on fire roles and effects on ecological processes. Initiate research on social and economic issues related to fires and fuels treatments.

Outputs

- Accelerate fuels treatments: 5,450 acres on ARP and 23,000 acres on PSICC. (**7,500** additional acres)
- Utilize cooperative fire funds to assess private lands, facilitate additional fuels treatments on **1,000** acres of non-federal lands and aid in community assistance.
- Conduct landscape analyses and complete NEPA decisions covering 145,000 acres on the PSICC and 150,000 acres on the ARP.
- Research accomplishments on: fire history in mixed conifer stands; mapping; treatment plans; develop treatment models; and socio-economics.

Funding needs

- ARP: \$6,300,000; PSICC: \$8,000,000; CSFS and community assistance grants: \$500,000; RMRS and other research efforts: \$1,400,000. Total: \$16,200,000 (**\$9,900,000** over current funding)

FY 2004

Activities

- Core fuels planning and implementation teams are fully staffed and functioning.
- CSFS reviews and refines approaches to work with local governments and landowners.
- Collaborative process shifts to project planning focus across all ownerships.
- Request extension of the Good Neighbor Agreement termination date of September 30, 2004, to facilitate across boundary fuel reduction projects.
- Contracts are utilized for inventory, implementation and analysis processes.
- Continue research on fire roles and effects on ecological processes and on social and economic issues.

Outputs

- Accelerate fuels treatments: 10,250 acres on ARP and 24,000 acres on PSICC. (**14,350** additional acres)
- Cooperative fire funds are used to facilitate additional fuels treatments on **1,500** acres of non-federal lands and aid in community assistance.
- Conduct landscape analyses and complete NEPA for 55,000 acres on the PSICC and 90,000 acres on the ARP.
- Research accomplishments on: fuel treatment models; technology for material disposal; and social acceptance and efficacy of treatments.

Funding needs

- ARP: \$7,800,000; PSICC: \$8,900,000; CSFS and community assistance grants: \$600,000; RMRS and other research efforts: \$1,400,000. Total: \$18,700,000 (**\$12,900,000** over P2 funding level)

FY 2005- 2012

Activities

- Collaborative process continues on project planning and monitoring.
- Contracts used for implementation, inventory and analysis processes.
- Research on fire roles and effects on ecological processes and on social and economic issues related to fires and fuels treatments continue.

Outputs

- Fuels treatments accelerated to an annual rate of 12,000 (2005) to 14,000 (2006) acres on the ARP and 30,000 acres plus on the PSICC. (**22,100** (2005); **24,100** (2006) additional acres)
- Cooperative fire funds are used to facilitate additional fuels treatments on **2,500** to **3,500** acres of non-federal lands and to aid in community assistance.
- Conduct landscape analyses and complete NEPA for 70,000 acres on the PSICC and 90,000 acres on the ARP.
- Research accomplishments on: social acceptance of treatments; improved cost effectiveness; new fuels treatment technologies; habitats being moved more quickly to restoration.

Funding needs

- ARP: \$9,300,000 (2005); \$10,800,000/ year (2006); PSICC: \$11,000,000/ year; CSFS and community assistance grants: \$800,000/ year; RMRS and other research efforts: \$1,400,000/ year. Total \$22,500,000 (2005); \$24,000,000 (2006) (**\$16,300,000** (2005); **\$17,800,000** (2006) over FY 2004 P2 funding level)

Challenges

Implementation of the Strategy will present complex challenges. There are a number of items that will challenge the success of this strategy. For example:

- sustained funding;
- loss of skilled personnel to coordinate and manage implementation;
- limited numbers of CSFS personnel to work with landowners;
- difficulty in removing fuels from forests due to lack of markets and cost of removal systems;
- uncertainty of a continuous supply of products due to environmental processes;
- smoke management;
- land ownership patterns requiring rights-of-ways and boundary line location; and
- implementation costs- mechanical treatments will play an increasingly important role because of limitations on prescribed fire due to smoke concerns, high fuels build-ups and interspersed ownership patterns, which will increase implementation costs. Reducing

fuels on areas of steep slopes and to remove materials from treatment areas will require use of a wide range of mechanical treatment systems. Some of these will also be costly unless markets for the materials produced are available.

Resolving these issues will require actions at various levels of the Forest Service, as well as State and local governments and the private sector. The steering committee will coordinate ad hoc teams to address identified challenges. For example, efforts are currently underway to start activities along the Front Range like those being used in the “Four Corners Partnership.”

Summary

Past disruptions of natural fire cycles, as well as other management practices, have resulted in wildfires of increasing intensity and severity. We appear to be in an era of large, very damaging and record setting wildfires that threaten community and ecosystem sustainability. Treatment of hazardous fuels will help reduce the impacts of wildfires on communities and restore health to fire

adapted ecosystems. In order to expand our hazardous fuels management programs to address the risk and hazards on the National Forests and other lands and conduct efficient land stewardship projects, we need to apply all mechanisms to reduce this dangerous fuel buildup. The FRFTP provides a community-based approach to wildfire management through: involving communities using collaborative processes, investing in natural resources and nearby communities, using both scientific expertise and on the ground knowledge, and developing a system of monitoring and accountability as called for in the 10-year Comprehensive Strategy.



Bobcat Gulch Wildfire, Roosevelt National Forest