Upper South Platte Watershed Protection and Restoration Project
Pike & San Isabel National Forests

Annual Report 2002
A Year of Fire & Recovery

A Note from the Partnership Chair:

Since the inception of the Upper South Platte Watershed Project in 1998, fires in the watershed have had a devastating impact. Fire season 2002 was no exception, with the most destructive fire season in Colorado's history burning over 500,000 acres throughout the state. The Hayman Fire, the largest fire in the state's history, which consumed over 137,000 acres, 133 homes and 447 other structures, significantly impacted the Upper South Platte Watershed southwest of Denver. Two other significant fires, Schoonover and Snaking, destroyed 6,400 acres in the project area.

The key impact of the 2002 fires to the national Upper South Platte Watershed Project involved the loss of over 5,800 of the 17,400 acres of National Forest lands that had been planned for fuel treatment by the NEPA decisions of the summer of 2001 and spring of 2002. Other project layout work was also lost. In addition nearly all the fuels treatments done on Denver Water properties around Cheesman Reservoir were lost to the Hayman Fire as well as the monitoring studies and the research in the Cheesman Reservoir area. The fire also had a catastrophic impact on soils, water quality, recreation and wildlife habitat.

Hayman Fire, June 2002

Clearly the Hayman Fire was devastating, but we need to now regroup and the Steering Committee is doing that through our partnership (See the list of primary Steering Committee members at page 14). This fall, the U.S. Forest Service will complete its first fuel treatments on approximately 1000 acres through contracts awarded just prior to the Hayman Fire. This is a major step forward, given the appeals-delayed Decision Notices and the early and tumultuous fire season this year. The Colorado State Forest Service is also making progress with fuel treatments on private lands in the Lower Elk Creek area as well as on the unburned Denver Water properties. There are still many fuel reduction acres that have cleared NEPA which have been reprioritized and scheduled for layout work. A NEPA process is being completed and a decision is scheduled for late Spring 2003 on another 20,000 acres slated for fuels treatment by the U.S. Forest Service in the Trout-West area of the watershed. The watershed project has made great strides in implementing monitoring in the project area, though much of that work was lost to fire this year.

The 2002 fires and their impacts have brought public agencies and communities closer together and focused even greater attention, among the media, public and legislators, on the importance of the watershed to the region. The burned area rehabilitation effort on private and public lands is now underway. This work will continue for years to come. The Steering Committee's efforts will be to reassess and readjust project planning for the watershed and to work even more closely with the Pike National Forest to potentially expand the project to incorporate a larger area of the watershed that directly abuts the urban interface areas. This will increase the partnership's work with the public, state, counties and other local agencies. It will increase efforts to collaborate closely with local communities and publics as forest restoration treatments expand into a larger project area.

This annual report provides information on the status of this national watershed project. I hope you will find it interesting and informative. I am proud of the progress we have made through this partnership in some very difficult times. The partnership is ready to take on the challenges that lie ahead.

Dave Hessel
Chairman, Steering Committee
Upper South Platte Watershed Protection
& Restoration Project

The Watershed

The Upper South Platte Watershed is located in the foothills of the Colorado Rocky Mountains, and is critical to the state, providing 80% of Denver's citizens with water that comes from or is transmitted through this river drainage. Most of the watershed is located within the Pike National Forest, southwest of metropolitan Denver.

The greater Upper South Platte Watershed covers approximately 1.7 million acres and includes 41 major sub-watersheds. Within that, the overall Upper South Platte Watershed project assessment area encompasses 645,000 acres southwest of Denver, including lands managed by the State, Denver Water and the U.S. Forest Service. During the short-term, three of the project area's sub-watersheds—Waterton-Deckers, Horse Creek, and Buffalo Creek—will be the focal areas for vegetation treatment. These sub-watersheds cover about 140,000 acres of public and private lands and were ranked as top priority areas for restoration management based on their high risk of fire and soil erosion. They are located in Jefferson and Douglas Counties.

The South Platte drainage is a major recreation area in Colorado, highly regarded for its "Gold-Medal" trout fishery, its wildlife habitat and its trails. It is home to many species, including several Threatened and Endangered Species. Water quality issues have become a major concern in recent years, with the drainage listed as a "high-priority watershed in need of restoration" in The Colorado Unified Watershed Assessment.

The watershed is in an urban/forest interface, and has been identified as a "Red Zone," or area that is susceptible to catastrophic fire. According to research performed by Dr. Merrill Kaufmann and his team at the USFS Rocky Mountain Research Station, "The current forested landscape condition does not reflect the historic disturbance regime and is not sustainable. Wildfire historically came through these areas on a thirty to fifty year cycle. These fires created a patchy crown structure, with many small to moderate openings." For years, fire has been suppressed, and logging and grazing practices have had real impacts on the ground. The result: Fires escape, becoming catastrophic events. The Buffalo Creek (1996), Hi Meadow (2000) and Hayman (2002) fires brought home to resource managers, public officials and homeowners in the area the importance of both the watershed to the area and the critical need to effectively treat and manage the forest.

The Partnership

United States Forest Service (USFS)
Colorado State Forest Service (CSFS)
U. S. Environmental Protection Agency (EPA)
U.S. Natural Resources Conservation Service (NRCS)
United States Geological Survey (USGS)
Denver Water Department (Denver Water)
Coalition for the Upper South Platte (CUSP)
U.S. Fish & Wildlife Service

Partnership Overview

The project has seven primary partners. Each partner comes to the project with a slightly different mission and brings a different level of expertise, which dictates how each is involved in the project.

The United States is the largest landowner in the watershed with the **U.S. Forest Service (USFS)** serving as the lead agency – managing approximately 500,000 acres in the Pike National Forest within the project area. Other federal agencies share an interest in protecting the watershed as well: The **U.S. Geological Survey (USGS)** is responsible for monitoring water quality nationally; the **Environmental Protection Agency (EPA)** is responsible for overall environmental health nationally; and the **Natural Resources Conservation Service (NRCS)** helps private and public landowners. This past year, it has had a particularly active role in assisting citizens with their restoration needs following the Hayman and Schoonover fires. **Denver Water**'s customers count on high quality water at an affordable price; helping protect and restore the watershed helps them meet their customer's needs. The **Colorado State Forest Service (CSFS)** provides forest management advice and assistance on state-owned lands and to private landowners. Denver Water has contracted with CSFS to provide management assistance on their lands. The **Coalition for the Upper South Platte (CUSP)** is a stakeholder group addressing watershed issues in the entire 1.7 million-acre South Platte River drainage above Strontia Springs Reservoir, which includes the project area. CUSP has also been extremely active this year, working closely with the USFS, CSFS, NRCS and others, in assuming a coordination role to assist victims of the Hayman Fire with their recovery and rehabilitation needs.

Other organizations support the project, including the jurisdictions of Jefferson County, Douglas County, Park County, Elk Creek Fire Protection District, Colorado Division of Wildlife, Fish and Wildlife Service, Trout Unlimited, Volunteers for Colorado Outdoors, the Colorado Mountain Club, the Rampart Range Motorcycle Management Committee, Colorado State University and the Middle Eastern Regional Cooperative. Other interested parties are encouraged to participate in the project. The partners and supporting organizations share a desire to protect the water quality and ecological health of the watershed. Now, more than ever, the impact of fire on the watershed is recognized as one of the most serious threats.

Partnership Vision & Goals

The intensity of the 2002 fire season visibly demonstrated the importance of the Upper South Platte Watershed Protection and Restoration Project to the region and, particularly, to the communities in and around Metropolitan Denver. Within this framework, the vision and goals originally established for the USP Watershed Project are even more valid and profound than when the project was first established.

Partnership Vision

<u>Sustainable forest conditions within the watershed and surrounding forest area</u> that enable the forest ecosystem to thrive and function over time while adapting to changing environmental and social conditions.

Project Goals

- **Reduce the risks of large catastrophic fires occurring**
- **Reduce the risk to human life and property**
- **Protect water quality for all users**
- **Create a program of continuous and effective forest management through integrated research, continuous monitoring and adaptive management techniques**

Accomplishments

Decision Notices Issued and Appealed

The year began with two Decision Notices having just been rendered (August 2001) for vegetation restoration; the first for adaptive management of up to 12,200 acres in non-roadless areas and the second enabling adaptive management of 5,200 acres in Inventoried Roadless Areas. The Decision Notice for adaptive management in the non-Roadless areas went un-appealed, enabling work to begin early in Fiscal Year 2002 on that portion of the project. However, the Decision Notice for adaptive management in the Inventoried Roadless Areas was appealed by a coalition of environmental groups and was subsequently reversed by the deputy regional forester who directed that further economic assessment be completed. The Decision Notice was then revised, with a new Decision Notice issued in January 2002 with a Finding of No Significant Impact issued. This decision was also appealed by the same coalition of environmental groups as well as by an association representing timber interests. In April 2002, however, a decision was issued upholding the January Decision Notice. Work was now able to move forward on vegetative treatment in the entire 17,400-acre treatment area.

National Forest Hazardous Fuels Treatments

Mechanical Fuel Treatments. Over 1000 acres of mechanical and manual hazardous fuel reduction treatment was completed in critical national forest sub-watersheds by thinning generally smaller trees with hand crews as well as with heavy equipment. The bulk of the thinning was accomplished through a performance-based, end-result Forest Service contract to mechanically thin 955 acres of dense mixed conifer forest. By fiscal year's end, the contractor had completed thinning on approximately 400 acres near Moonridge and Trumbull, Colorado. The contractor used a track-mounted excavator with a hot saw to masticate most of the trees less than nine inches in diameter. Earlier in the year, the Forest Service also completed a 12-acre demonstration area near Trumbull with a Hydro-Ax using micro-purchasing authority.

Trumbull area before thinning

Trumbull area after thinning

Polhemus Prescribed Burn. Funded through the National Fire Plan, Forest Service fuels management and watershed project planners worked together to complete an 8,000-acre prescribed burn in September – October 2001 to reduce ladder fuels on national forest land in and around the watershed. Because of changing weather conditions and the proximity of the burn to metropolitan Denver, a significant amount of smoke drifted into the metropolitan area causing concern and controversy. However, during the Hayman Fire, the value and impact of the Polhemus prescribed burn became apparent, being credited with causing the high-intensity wildfire to drop to the ground, enabling firefighting crews to finally get a line around that portion of the fire. It is believed to have saved 30 or more homes in the Rainbow Falls subdivision and stemmed the northeastern head of the fire from proceeding further towards high population areas in southwest metropolitan Denver.

Denver Water & Private Land Treatments

Thinning, Fuel breaks and Defensible Space. The Colorado State Forest Service (CSFS) completed more than 100 acres of fuel breaks funded through the National Fire Plan, 22 acres in defensible space work funded through a 50/50 cost share match with homeowners and 32 additional acres being treated and thinned in the project area. These accomplishments are important aspects of the watershed project. Increased emphasis and effort has been placed this past year by partner agencies in working with private landowners and homeowner associations to complete fuel breaks and defensible space planning and projects. The fires of this spring and summer provide many success stories of defensible space work that saved homes.

CSFS has also worked closely with Denver Water to complete a host of fuel treatment projects in and around the Cheesman Reservoir and Trumbull area, including completing defensible space work around Denver Water structures, which was credited with having saved those structures during this summer's fires, and completing thinning projects on 186 acres of land around Cheesman Reservoir and Camp Kotami, near Foxton, CO. CSFS has also prescribed burned a combined 24 acres in the Cheesman and Trumbull areas and is now taking on significant planning and preparations to harvest acreage in the Staunton State Park.

Photos reflect clearing of trees and debris around a private home in the Buffalo Creek area both before (left) and near completion of Colorado State Forest Service defensible space work.

Fuels reduction planning with communities. Both the CSFS and USFS provided fuels reduction planning assistance to the Perry Park residential development in the wildland-urban interface zone just east of the watershed. This community of several thousand homes first began fuels reduction planning two years ago supported by federal grants and by working with local and state authorities. The community and its residents completed considerable fuel break and defensible space work this year and Forest Service planning began on fuels treatment on national forest land abutting the development. The education and attention the community gave to wildfire hazards and the need for fuels treatment paid off this summer. Though the community escaped damage from the fires, the entire community was evacuated during the Hayman Fire.

Cheesman Canyon (Gill Trail) Restoration Project

The USFS and Trout Unlimited are partnered in this joint project to restore a popular trail along the "Gold-Medal" fishing waters of the South Platte River. The project is creating a safe, sustainable route for anglers while reducing sediment in the river and protecting habitat for the threatened Pawnee montane skipper butterfly that lives only in the South Platte drainage. USFS fire crews and Volunteers from Volunteers for Outdoor Colorado (VOC) supported the project work.

Despite having access to the trail denied through the summer due to the Hayman Fire, crews completed nearly 1,200 feet of trail extension and rerouting work, closed and rehabilitated 23 social trails emanating from the

main Gill Trail and completed a variety of trail-widening, repair and switchback realignment projects along the main trail. Crews also constructed two switchbacks on an area of the trail complex wedged between two rock outcroppings, requiring rock drilling and difficult stonework to complete the work. They also completed riser work for safety and erosion control, extensive construction of stone retaining walls and blocked "tempting" social access routes to the river with large deadfall trees. Finally, a significant amount of design and site preparation work (construction flagging) was completed for several trails, switchbacks and more than 6,000 feet of new trails and trail improvements. New signage was also installed along the trail to keep users informed of progress and trail changes.

Photo by Troy Parker

Volunteers work on the Gill Trail in Cheesman Canyon

Water Quality Monitoring: Middle Eastern Regional Cooperative (MERC)

One unique component of the Upper South Platte Watershed Project is the joint Middle East study "Monitoring Evaluation of Watersheds in the Middle East Region". The Monitoring study, a collaborative effort between Israel, Jordan, Palestine Authority, Turkey, and the United States, is intended to foster cooperation and the peace process, in the Middle East. The study focuses on the effectiveness of monitoring techniques relating to erosion In 2001, as part of the MERC study, Colorado State University established an erosion and water quality-

Before and After: The flume on the left was placed in the watershed's Brush Creek in June 2002, just prior to the Hayman Fire, to measure stream flow in the watershed. On the right is the same flume in July 2002, just after the Hayman Fire. The fires have had a significant impact on the type of monitoring being conducted in the watershed; the original intent was to determine normal watershed occurrences and impacts, and in some cases, to learn how to treat vegetation to prevent wildfires. Now, much of the focus is to monitor wildfire impacts on the watershed.

monitoring program, which continued through 2002 and included the measurement of sediment captured in silt fences that eroded from study area swales and road segments; collection of data from rain gauges and traffic counters on study area roads; the collection of water samples; monitoring of maximum water stages in study swales; and analysis of sediment collected before the 2002 wildfires. Additionally, two H-flumes were installed to measure changes in runoff and peak discharges due to vegetation thinning in sub-watersheds. As a result of fire damage to the sub-watersheds, the focus was changed from measuring forest-thinning effects to measuring post-fire runoff/sediment production, and the general effects of wildfire and rehabilitation treatments.

Wildlife Monitoring

Wildlife Habitat. Wildlife monitoring was increased to document fire effects on wildlife and habitat, though the Hayman Fire seriously disrupted planned monitoring efforts in the Trumbull and Saloon Gulch treatment areas, and had moderate impacts on monitoring in several other watershed areas. The monitoring program lost valuable information due to delayed or cancelled surveys, as well as approximately $6,000 in direct monetary losses from lost time, materials and the cost of replacement equipment. Additionally, because of fire closures, a year of pre-treatment data in unburned areas was unable to be collected. Time and effort was also lost because of pretreatment surveys that had already been completed in areas subsequently burned in the fire.This has had a significant impact on the monitoring of the watershed's sensitive species and their habitat, including the Pawnee montane skipper, Abert's squirrel, Preble's meadow jumping mouse and northern goshawk.

Threatened & Endangered Species (Pawnee skipper). One objective of the Upper South Platte Watershed Project is to improve Pawnee montane skipper habitat to reduce the downward trend of this threatened butterfly. The project area hosts the only known habitat for the skipper covering 38 square miles along the South Platte River.

Endangered Pawnee montane skipper on a nectar plant

An annual monitoring program for this species was established in 2000. During 2002 this program was continued by counting adult skippers and blooming prairie gayfeather (nectar source) within three sample areas, including areas in which vegetation had been treated previously, areas to be treated in 2002 and later, and a control area of high quality skipper habitat not scheduled for treatment.

Because this year's fires burning 40% of suitable Pawnee montane skipper habitat, monitoring was conducted to measure the affects of the wildfires on the skipper. This was a cooperative effort among Denver Water, US Fish and Wildlife Service, the Colorado Natural Heritage Program and U.S. Forest Service. The objective of this new monitoring program is to document skipper survival and habitat conditions in burned and unburned skipper habitat. A multi-agency team sampled 56 randomly selected 40-acre habitat units during September 2002. Monitoring of skipper numbers, habitat and burn conditions suggest that this year's drought and wildfires reduced the number of adult skippers and prairie gayfeather plants, and forest thinning may have a long-term beneficial effect on skipper habitat.

Challenges & Changes

A Year of Fires, Recovery and National Focus

Added Emphasis to Accelerating and Expanding Fuels Treatments

This year, the Upper South Platte Watershed Project became a focal point nationally as an example of how existing environmental laws and administrative requirements contributed to the U.S. Forest Service's challenges in addressing the treatment of the nation's national forests. Because of the drought conditions and devastating wildfires in Colorado, the Pike National Forest and the Upper South Platte Watershed Project drew national media and Congressional Attention and were used as one of a handful of examples in the west of the challenges faced by the U.S. Forest Service and other agencies in managing the nation's forests.

In February 2002, PSICC Forest Supervisor Abigail Kimbell and Upper South Platte Watershed Project Manager Fred Patten presented testimony at a U.S. House Subcommittee on Forests and Forest Health hearing relating to the Upper South Platte Watershed Protection and Restoration Project. The hearing was called by the committee's chair, Representative Scott McInnis of Colorado. The primary focus of the hearing was to provide background to the committee and staff relating to the project's split Decision Notices for the inventoried roadless and non-roadless areas and the ongoing appeal on the inventoried roadless decision. Following this summer's announcement of the President's Healthy Forest Initiative, Representative McInnis proposed legislation that would streamline the processes federal agencies must follow to effect fuels treatment projects more expeditiously.

Through the summer and fall of 2002, increased national interest was levied to accelerate the treatment of Colorado's Front Range forests. Additional treatment areas and opportunities were identified within the Upper South Platte Watershed's larger assessment area. The Upper South Platte Watershed is a high priority because of its importance to metropolitan Denver's water supply and because many of its NEPA planning processes had been completed and were ready for implementation.

Catastrophic Wildfires Directly Impact the Watershed

Within a two-month period in 2002, the Hayman and Schoonover wildfires alone combined to burn over 142,000 acres in and around the Upper South Platte Watershed. The 137,000-acre Hayman fire burned nearly 48,000 acres at high intensity, destroyed 600 structures (133 homes) and caused the evacuation of 5,430 people. The 3,860-acre Schoonover fire burned about 2,150 acres with intense heat and destroyed 13 structures.

Home in the Upper South Platte Watershed, destroyed by the 3,800-acre Schoonover Fire, May 2002

Treatment Area Impacts

The fires affected two restoration/fuel reduction projects underway as part of the Upper South Platte Watershed Project. Mechanical treatment designed to restore sustainable conditions on 17,400 acres was just being started. Over 5,800 acres of the proposed treatment areas burned in the two fires, making it necessary to redesign the approved treatments in the burned areas. At fiscal year's end, the Trout-West Fuels Reduction project, within the watershed project area, was still in the NEPA planning stages, but of the 32,000 acres being studied for treatment, 5,600 acres burned in the Hayman Fire, making it necessary to reassess the conditions and alternatives considered.

The Schoonover Fire burned just as the U.S. Forest Service was preparing to award a 1029-acre mastication contract; the fire burned 74 acres of the contract area. The contract was modified and awarded the day before the Hayman Fire started which further delayed initiation of the contract until July 30. Additionally, lay out was completed on 500 acres in Saloon Gulch for a stewardship contract to thin smaller trees. The Hayman Fire burned the entire contract area.

Wildlife Habitat

The consequences of the Hayman and Schoonover fires on wildlife habitat are most dramatic for the Pawnee montane skipper, since the only known population of the endangered butterfly occurs in the South Platte River drainage. The Hayman and Schoonover fires burned 40 percent of known skipper habitat with 21 percent burned at high or moderate severity. There are likely negative short-term effects to this species from the Hayman and Schoonover fires, especially when combined with the drought. Approximately 10,000 acres of skipper habitat were burned in both fires.

In addition to this year's fire impacts on the montane skipper, the fires burned approximately 40,000 acres of Mexican-spotted owl designated critical habitat and more than 6,000 acres of potential lynx habitat. Another 800 acres of proposed critical habitat for the Preble's meadow jumping mouse were also burned.

Impacts on water supply

Denver Water challenges. The aftermath of the Hayman Fire (erosion, sediment, runoff) has had a devastating impact on Denver Water and metropolitan Denver's water supply that passes through the Upper South Platte Watershed. Because of poor water quality, Denver Water had to bypass storage water during the rain events that occurred after the fire. Additionally, over one million Denver Water customers were impacted because of taste and odor problems resulting from fire.

Storage losses to both Strontia Springs and Cheesman Reservoirs have occurred and will continue to occur from the tremendous amount of sediment generated from erosion in the Upper South Platte Watershed.
In addition, operational and maintenance costs have increased at Cheesman Reservoir due to sedimentation.

Denver Water also suffered significant impacts relating to land and fuels management, including the destruction of several fuel reduction projects encompassing 1800 acres that were ready to go to contract. They are spending over $100,000 a week for restoration activities at the Cheesman Reservoir property and estimate that these costs will exceed over seven million dollars. The extensive restoration and rehabilitation work has included:

- Aerial seeding on 900 acres and ground hydro-seeding on another 300 acres;
- Hydro-ax mulching of more than 1600 acres with contour felling as well as seeding;
- Directional felling of burned trees along 7 miles of major drainages and installation of countless straw bale check dams to ease runoff and erosion of sediment into the watershed and reservoir;

Vehicular ground hydro mulching. Spray can reach 300 feet and is a green-colored mixture of grass seed, fiber, water and a substance to hold the mulch together and to better enable application

Finally, instead of conducting timber stand improvement work on properties at Cheesman Reservoir, Denver Water will now be working on timber salvage of the burned trees that are still standing.

Straw bale work in the Cheesman Reservoir area to slow runoff and subsequent erosion

Soils, erosion and runoff. The soils in the Upper South Platte watershed are shallow granite soils that are highly erodible and prone to develop hydrophobic (water repellent) conditions. These conditions, combined with the recent intense wildfires and the area's propensity for high-intensity thunderstorms, increased concerns of severe flooding and catastrophic erosion/sedimentation conditions, and accentuated the urgency to complete emergency rehabilitation measures in and around the watershed.

Following the Hayman Fire, water repellent soils were estimated to exist on 82,200 acres out of the total burned area of 137,526 acres. High erosion hazard exists on 95,900 acres or 70 percent of the burned area, with the increased sedimentation potential estimated at 24,200 cubic yards per square mile for the next 5 years. Major ash flows have already impacted water quality at Cheesman Lake, the key reservoir in the watershed. Soil erosion is estimated to have increased from 1 ton/acre to 86 tons/acre on average.

Vegetation Monitoring

The fires had a fairly significant impact on the watershed vegetation-monitoring program. Active vegetation monitoring was occurring in three key areas of the watershed (Saloon Gulch watershed, Upper Spring Creek and around Trumbull, CO), with sample points placed throughout each area. The fire had the most significant impact on the Saloon Gulch watershed with all but one of the 15 samples consumed by the fire. Only four of 31 samples around Trumbull and none of the 13 samples in the Upper Spring Creek area were lost to fire. Since a large proportion of the Saloon Gulch watershed burned in the Hayman Fire as well as some in Trumbull, a decision was made to continue the monitoring in those samples, but to change the goal from monitoring the effects of forest management for preventing crown fires, to instead focus on monitoring the effects of wildfire.

The Hayman Fire burned extremely hot, burning the litter and duff in many stands as well as the erosion-stemming Kinnikinnick … much of which will take an extremely lengthy time to recover. Some riparian areas, as above, are recovering, though completely blackened during both the Schoonover & Hayman fires. Erosion and sedimentation has had significant long-term impacts on many riparian areas.

Based on analysis at the sampling locations touched by the Schoonover and Hayman fires, the major ecological consequences of those fires appear to be: 1) loss of the litter and duff in many stands as well as many kinnikinnick plants, both of which play an important role in stemming erosion; 2) loss of forest cover with very little cover left for herbivores; and 3) loss of both shrub and significant herbaceous cover, though some shrub species are re-sprouting.

Rehabilitation of the Burned Areas

National Forest Land. Burned Area Emergency Rehabilitation (BAER) teams consisting of professionals from across the United States and a host of agencies prescribed treatments to rehabilitate the Hayman and Schoonover burn areas for erosion control and flood mitigation, and to protect people and property. The BAER treatments are anticipated to help stabilize soils and accelerate native revegetation in the most severely burned areas. This would reduce post-fire erosion, flooding, stream sedimentation and hazards within and near the burn areas. BAER treatments were carried out from both air and ground, and included aerial hydro-mulching, seeding and dry mulching; hand-seeding and scarification; and ground hydro-mulching along forest roads and highways; treatment of noxious weeds; historical and archeological surveying; cleaning, reinforcement and removal of culverts and stream crossings; and grading and reconditioning of roads in the burn area. Private landowners were also contacted to assess risks from national forest land and to treat the national forest land to help protect the private property.

Rehab on Private Land. The Natural Resources Conservation Service (NRCS) received $ 6.8 million from the Emergency Watershed Protection Program to assist citizens with their private property fire recovery and rehabilitation efforts. The NRCS coordinated over 6,300 volunteers in 21,000 hours of volunteer work to provide property owners with assistance in sandbagging, contour tree felling, ground scarification, seeding straw bale work and other recovery assistance. This equates to the equivalent of more than $315,00 in volunteer support from mid-July through end of October 2002. This represents recovery and rehabilitation work on 350 – 500 acres of private land in the Upper South Platte Watershed. At fiscal year's end, the agency continued to work with remaining property owners in recovery planning and contract work.

Changing Role of a Project Partner

This past summer, in the aftermath of the Hayman Fire and its impact on private property owners and entire communities, one of the watershed's primary project partners assumed a new and more significant role … as well as a new identity. In July 2002, at the request of watershed stakeholders, the **Coalition for the Upper South Platte (CUSP),** formerly the Upper South Platte Protection Association, assumed responsibility for coordinating an interagency effort to aid victims of the Hayman Fire. Initially formed as the Hayman Recovery Assistance Center, the program needed long-term leadership to help coordinate recovery and rehabilitation efforts for fire victims, to aid the healing of impacted communities and to work with state and federal agencies to aid forest recovery efforts and lessen the impacts on the community of future wildfires. Through the end of September 2002, CUSP's accomplishments have included coordinating over 40 volunteer events (6000+ hours of volunteer time), seeking and receiving funding to assist livestock owners with meeting hay needs, facilitating and attending scores of meetings with members of the public and public officials and responding to dozens of media requests for information

Fire & Fuels Research

Research on fire history and fire ecology at Cheesman Lake continues to provide an important basis for evaluating the current condition of ponderosa pine forests in the South Platte Watershed. Research from other sources also promises to prove valuable to the watershed project. This includes research on:

- Historical stand conditions that can help determine the characteristics for landscape-scale restoration;
- The identification and protection of old-growth ponderosa pine stands as an important part of restoring old-growth landscape conditions;
- The use of a remote sensing tool, Lidar, to characterize forest structure. Lidar successfully identifies individual trees and the shapes of tree crowns in a forest stand. This illustrates the potential for using Lidar to characterize overstory structure in relation to fire management and forest inventory to achieve a wide range of restoration and ecological goals.

Typical Colorado Front-Range forest structure today

Presentations. Research findings for the South Platte watershed have been presented numerous times this year. Audiences included an international forest restoration conference in Denmark; a national ecology symposium (Ecological Society of America); The Nature Conservancy Fire Learning Network program; and tours for national and state legislators and their staffs. Findings on ecological research and the use of science as a basis for restoration activities are guiding other restoration and fire management projects throughout the West.

Historical fires vs. Hayman Fire at Cheesman Lake

Cheesman Lake studies completed prior to the Hayman fire provide insight into historical fire behavior patterns and other factors that affect landscape conditions in the Hayman fire area. The Cheesman landscape, which burned with high severity on day two of the fire, was in the center of the main block of the Hayman Fire. Research on fire history prior to Euro-American settlement indicates that the size of the Hayman fire was probably not unusual in the Colorado Front Range, although its severity and rate of spread were unprecedented.

Roughly half of the total fire area burned at a high severity, sufficient to kill all trees. In sharp contrast with historical fires at Cheesman Lake, the area of complete mortality in the Hayman fire was many thousands of acres, most of it burning in one day, leaving only a limited number of widely spaced patches of surviving forest and large areas with no surviving trees.

Historical Forest Structure: The open forest structure at Cheesman Lake in 1896

These fire history studies at Cheesman Lake and the recent Hayman fire leave little doubt that current fire behavior is far outside the historical range of variability in the South Platte watershed and probably at other Front Range locations. These studies provide further support for the need to restore forest landscapes. Because recent fires cover large landscape areas, treatments will be required at a landscape scale.

Future Actions and Opportunities

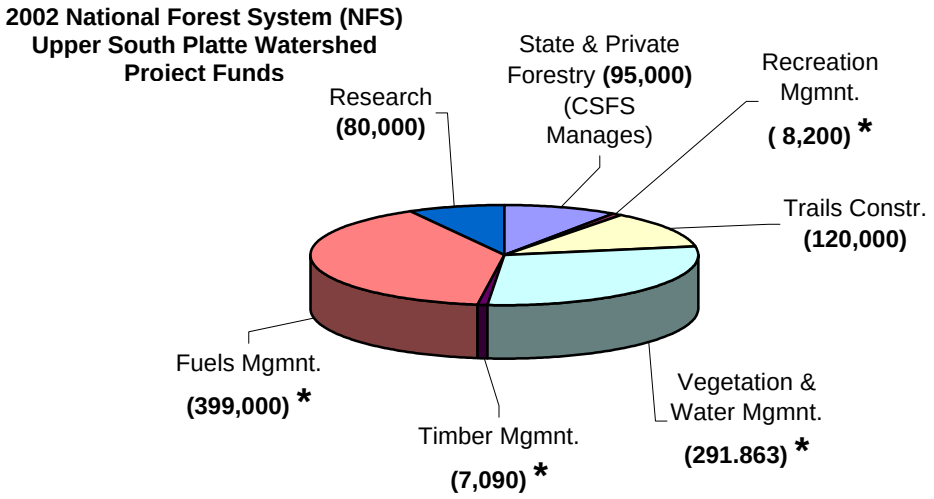
Acceleration of fuels treatment activities. The wildfires of 2002 have gained public and political support for the partners to both accelerate the implementation of fuels treatment in the watershed project area and in the forests along the Front Range, as well as to expand fuels treatment into the larger Upper South Platte Watershed assessment area. Action has already been initiated to prioritize the project area and begin implementing those treatment projects on which the NEPA process has been completed or are near completion. Additionally, the Upper South Platte Watershed's treatment plans have been made an integral part of the overall Front Range fuels treatment initiative.

Modify the project's business plan. With the urgency now placed on fuels treatment in the watershed and the wildland-urban interface, accountability and measurement of accomplishment must now be a priority for the steering committee and the project partners. Early in the new fiscal year, the watershed project steering committee will modify the project business plan to incorporate more specific, measurable project objectives, both yearly as well as for the mid- to long-term. Timelines will also be assigned to those objectives to better enable progress to be measured.

Greater partnering roles. A positive aspect of the summer's devastating fires is the sense of community that developed among the watershed project's partners as well as with surrounding jurisdictions and community organizations and businesses during both the fire suppression activities and, particularly, during the recovery and rehabilitation phase. The time is ideal to capitalize on the interests and relationships that now exist and the general public support for federal, state and local agencies to address the area's fuels treatment and forest management needs.

Partnership Budget/Costs

In 2002, the Upper South Platte Watershed Project was funded through a combination of public funds and in-kind matches. The project has been successful in leveraging federal grants to combine with matching funds or cash for services, the latter of which may not only benefit the organization receiving the services, but support the goals of the watershed project as well. For example, the Colorado State Forest Service (CSFS) works with private property owners to complete fuels management work on their property for a 50/50 match in funding. This enables twice the amount of work to be completed though CSFS has not had to spend additional funds.



The chart reflects appropriated federal dollars that have been allocated to the Upper South Platte Watershed Project. Three categories of funding are included: Funds directly allocated to the USFS to work on the watershed project; State & Private Forestry grant funds provided for the state to manage in its work on the watershed; and a mixture of Stewardship Pilot Program funds provided from USFS Region 2 to the watershed project for specific categories of work (indicated by *).

Leveraging Successes:

- The partners leveraged $ 100,000 for research they provided to the Rocky Mountain Research Station into two major research grants of $ 540,000 per year for three years that began in FY 2002.

- CSFS has leveraged its federal grant funding of $ 233,239 through the National Watershed Program and National Fire Plan into an additional $ 265,106, more than doubling its available project funding.

- The USFS USP Watershed team has
  a. Leveraged $ 24,800 in International Forestry carry-over funds from 2001 into an agreement with a Colorado State University professor to obtain monitoring equipment and conduct monitoring for the MERC program.

  b. Leveraged approx $ 500,000 in USFS fuels management funding by partnering with the district fuels management team to complete an 8,000-acre prescribed burn on federal land in and around the watershed project area.

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