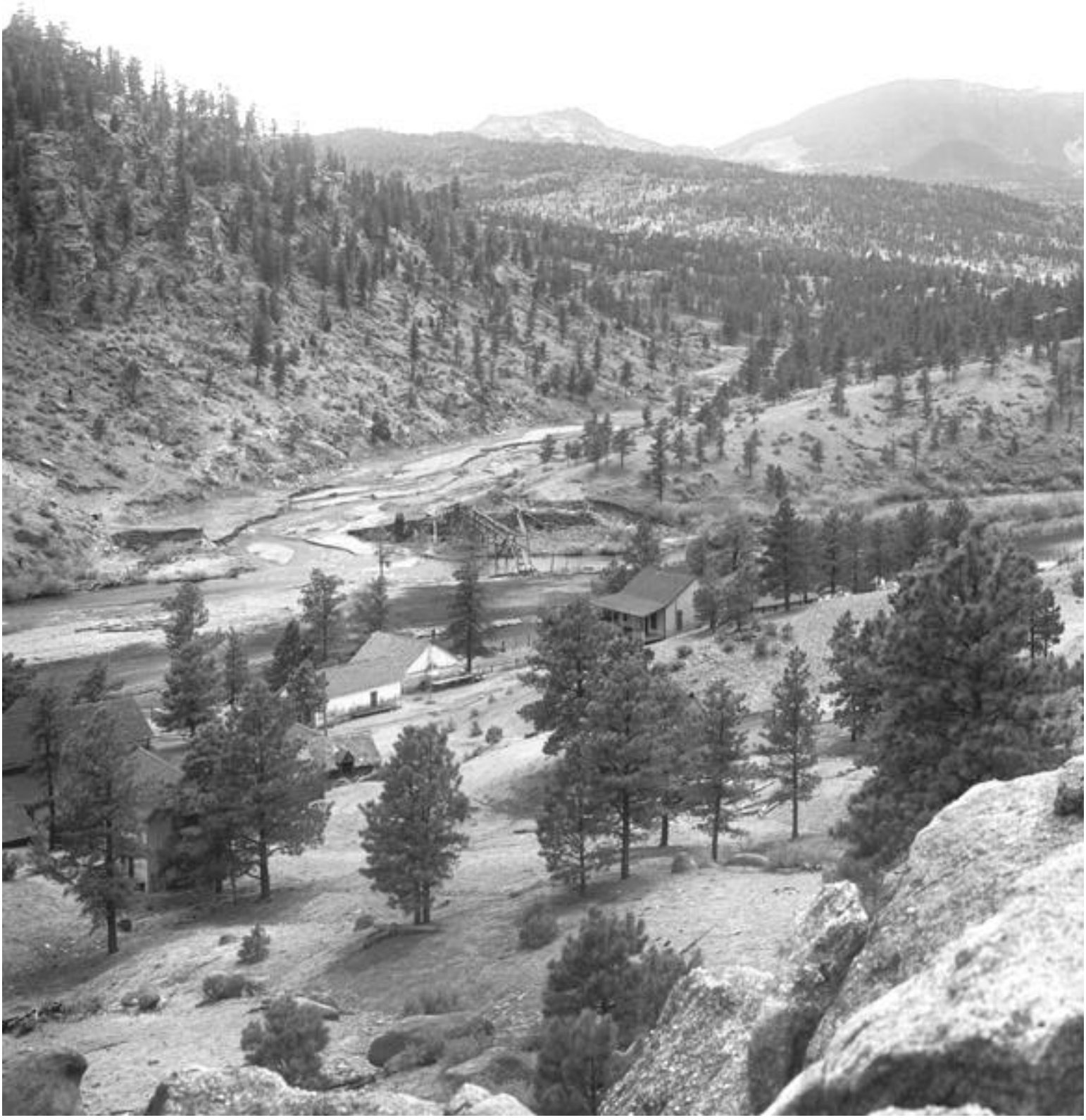
Upper South Platte Watershed

PROTECTION AND RESTORATION PROJECT

June 2000



Business Plan

June 2000

UPPER SOUTH PLATTE WATERSHED

Restoration and Protection Project

Contents

I. EXECUTIVE SUMMARY

The Upper South Platte Watershed is critical to Colorado. Eighty percent of the water used by 1.5 million Denver metropolitan residents comes from or is transmitted through this river drainage. Most of the Watershed is located within the Pike National Forest southwest of the city of Denver. The South Platte River is a major recreation area in Colorado and is highly regarded for its trout fishery. Water quality issues have become a major concern in recent years. The Colorado Unified Watershed Assessment identified the Upper South Platte River as a high priority watershed in need of restoration.

The Buffalo Creek Fire burned approximately 12,000 acres within the Watershed in 1996, resulting in the loss of several homes and essential forest cover on highly erodible soils. Heavy rainfall and floods following the fire resulted in two fatalities and caused substantial erosion and sedimentation. A downstream reservoir that supplies water to the Denver metropolitan area was adversely affected. The Upper South Platte Watershed Protection and Restoration Project (Upper South Platte Project) was proposed in 1998 by Denver Water, the Colorado State Forest Service, Colorado State University, the Environmental Protection Agency, and the USDA Forest Service, to respond to concerns about future catastrophic disturbances in the Watershed following the Buffalo Creek Fire and subsequent floods. The Project is addressing the catastrophic disturbance concerns by focusing on landscape vegetation patterns, soil erosion, and water quality within the Upper South Platte Watershed.

The USDA Forest Service, the Colorado Forest Service, and Denver Water are coordinating with other Federal and State agencies, local governments, and interested parties to plan, implement, and monitor restoration projects in the Upper South Platte Watershed. The Project is a collaborative, innovative approach to assess forest conditions and implement management actions on a landscape level on both public and private lands in the Watershed. The partners involved in the Upper South Platte Project will implement new methods of doing business to protect landscapes that cross ownership or jurisdictional boundaries. The Steering Committee provides guidance and oversight for Project planning, implementation, and monitoring.

Together, we will reduce the potential for adverse effects to water quality, human life, and property. Our goals are to: reduce sediment; crown fires and risks to property; and create more sustainable forest conditions in the Upper South Platte Watershed. Forest conditions are considered sustainable if landscape goals are achieved while allowing for natural disturbances.

We will improve water quality by reducing road and trail related sediment, stabilizing stream channels, and reducing noxious weeds. We will reduce high intensity crown fires using combinations of mechanical vegetation treatments and prescribed fires. We will reduce urban/forest interface hazards through educational programs and vegetation treatment on public and private lands. Our actions will result in sustainable forest conditions similar to historic conditions. Our emphasis will be placed on thinning stands, establishing openings, and maintaining snags and down logs. These forest restoration activities will be guided by research from the Cheesman historic forest landscape conditions within the Watershed.

The Project will begin using a two-prong approach in three subwatersheds. Restoration actions on public and Denver Water lands will be focused in the Waterton/Deckers and Horse Creek Subwatersheds. Individual projects will occur within the entire 645,000-acre Project area, but the

actions will be concentrated in the two priority subwatersheds. The actions will emphasize restoring watershed function and sustainable vegetation conditions.

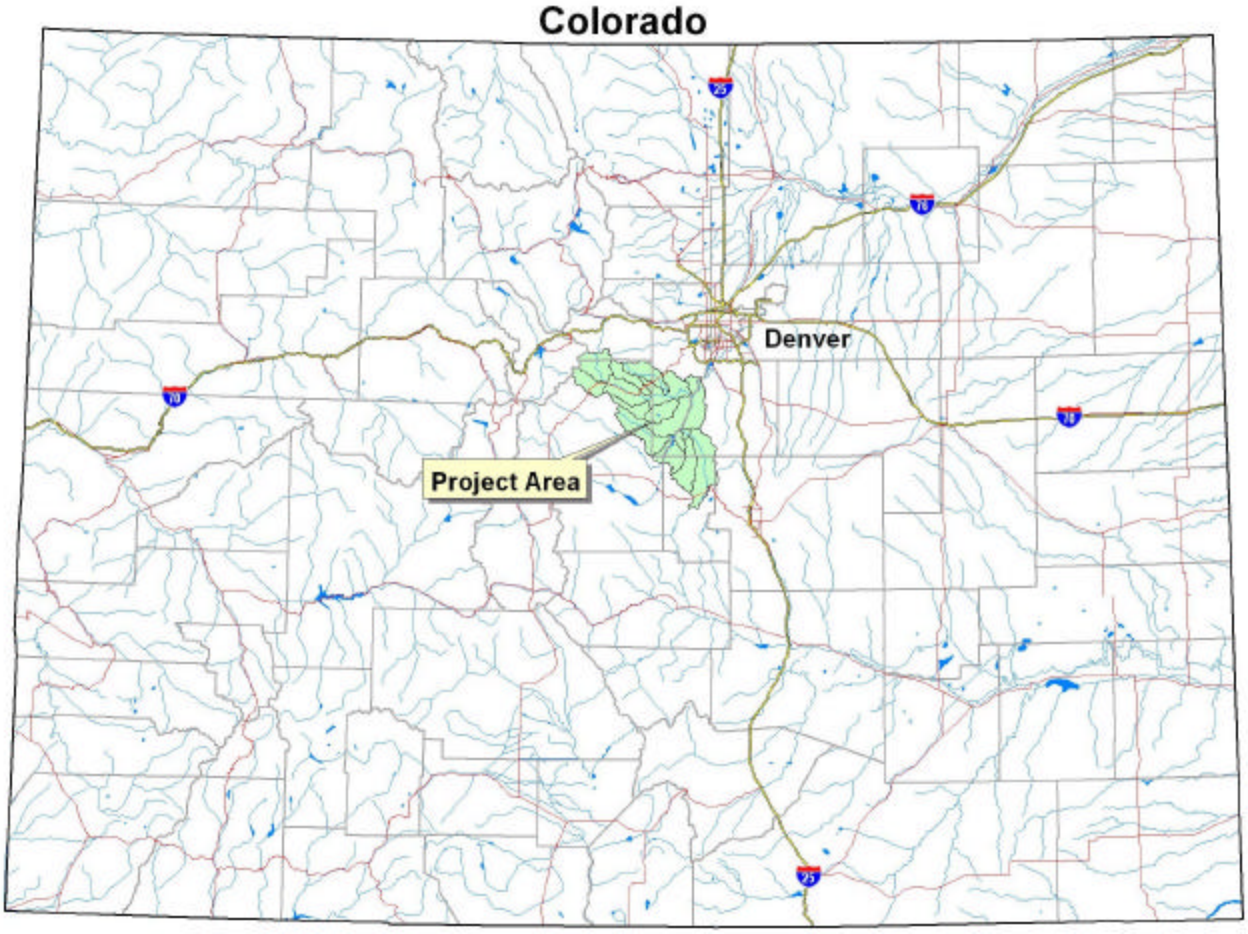
The second prong will focus on restoration actions on private lands in the urban/forest interface in the Elk Creek Subwatershed. These actions will emphasize protecting property and lives through education. The Colorado Forest Service will actively work with homeowners within the Elk Creek Subwatershed to create defensible space. The Project will work with private landowners outside of Elk Creek, but will not initially emphasize the other subwatersheds.

The cost to plan, implement, and monitor the Project is estimated to be $12 million over a five-year period. The approved work will be funded using a combination of the partners' normal operating funds, special earmarked funds, and outside sources. For example, a road reclamation project may be completed using Forest, Regional Office, and Model Watershed funds in addition to volunteer labor. Just as Project-related actions are not funded exclusively by Project funds, not all actions within the area are considered part of the Project. Denver Water, for example may take actions at Cheesman Lake unrelated to the Project.

II. THE LAND, THE WATER, & THE ECOSYSTEM

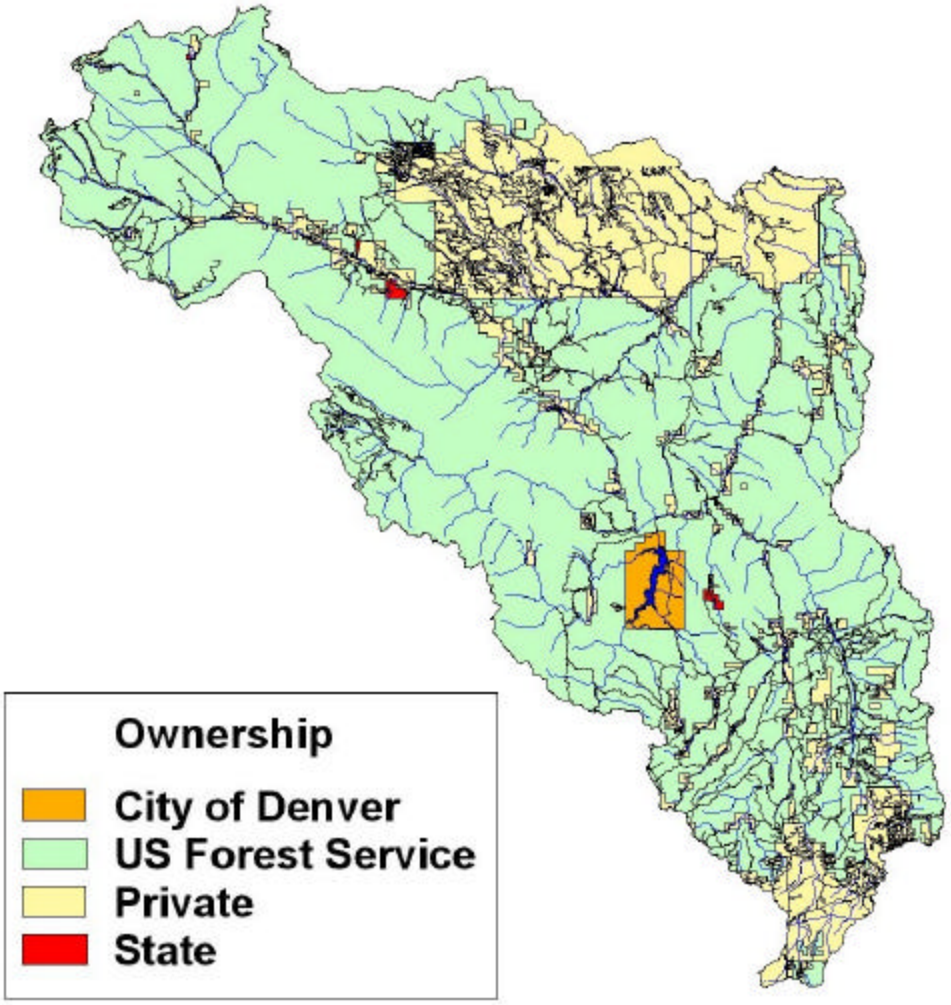
Characterization

The Upper South Platte Watershed is critical to Colorado. Eighty percent of the water used by 1.5 million Denver metropolitan residents comes from or is transmitted through this river drainage. Most of the Watershed is located within the Pike National Forest southwest of the city of Denver. The South Platte River is a major recreation area in Colorado and is highly regarded for its trout fishery. Water quality issues have become a major concern in recent years. The Colorado Unified Watershed Assessment identified the Upper South Platte River as a high priority watershed in need of restoration.



The Upper South Platte River Basin is located southwest of Denver, Colorado. The area includes portions of Park, Jefferson, Douglas, Teller, and Clear Creek Counties. Residential land use in the Upper South Platte Watershed is primarily rural with recreation, mining, and agriculture forming the economic base. The Watershed is sparsely populated, with several small towns located near historic mining and recreation areas. The small communities have a mixture of permanent and seasonal residents. The communities of Bailey (population 9,100) and Woodland Park (population 9,000) are the largest urban areas within the Watershed. Other small communities include Pine, Deckers, Trumbull, Oxyoke, Nighthawk and Sprucewood. Many homes are located in unincorporated areas adjacent to the South Platte River and its tributaries.

The Pike National Forest comprises approximately 500,000 acres within the Watershed. The State of Colorado owns approximately 4,000 acres within the Project and manages the lands owned by the Denver Water (15,725 acres). The Bureau of Land Management and the City of Aurora also manage public lands in the Watershed. Private landholdings comprise approximately 100,000 acres within the Project boundary.



The Upper South Platte Watershed has three major vegetation zones generally following elevation bands. The montane zone ranges from 6,500 to 10,000 feet in elevation and is comprised primarily of ponderosa pine, Douglas-fir, and in the upper portions, lodgepole pine. Approximately 450,000 acres are in the montane zone. The subalpine zone ranges from 10,000 to 12,000 feet in elevation and is comprised primarily of lodgepole pine, aspen, Engelmann spruce and subalpine fir on approximately 150,000 acres. The alpine zone includes the areas above tree line primarily composed of alpine meadows, shrubland, rock and pockets of bristelcone pine on approximately 50,000 acres. The forests were intensively harvested in the late 1800s and early 1900s to supply mining needs, railroad ties, and building materials. However, a 12 square mile area of montane forest was not logged and provides valuable insight regarding restoration guidelines. Timber management today primarily involves the harvest of down and/or dead wood for firewood. The majority of the forested stands are mature, with 80 percent or more of the forested area in densely stocked, late seral conditions.

Dr. Merrill Kaufmann describes four vegetation categories that can occur on any portion of the montane landscape. The first category is persistent openings. Historically openings persisted for decades on approximately 25% of the landscape. Today those openings comprise about 3% of the landscape. The second category is a ponderosa pine group where large disturbances and recruitment maintained a ponderosa forest without achieving old-growth characteristics. The pure ponderosa represented about 40% of the historic landscape, but today only accounts for 15%. In addition, the ponderosa pine stands today are much denser than those of the early 1800s. The ponderosa pine and Douglas-fir mix group is the third category. These stands are also denser today than they were historically and they have increased from 20% to 80% of the landscape. The final category is persistent old growth. The old growth conditions persisted for centuries and often contained a mix of ponderosa pine and Douglas-fir. The persistent old growth has decreased from 15% of the historic landscape to 2% today.

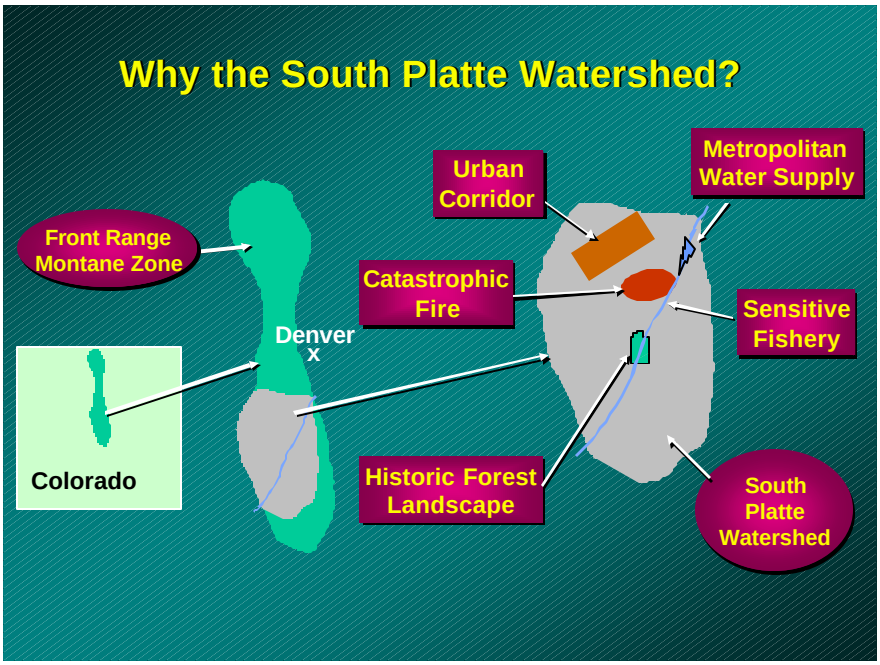
Typical wildlife and fish that occur in the watershed include mule deer, elk, Merriam's turkey, Abert's squirrel,Wilson's warbler , and a variety of trout, suckers, and minnows. Wildlife viewing, photography, hunting, and fishing are an important part of many recreation activities.

Recreation in the Upper South Platte Watershed includes sightseeing, picnicking, camping, hiking, mountain biking, motorcycle and ATV riding, cross-country skiing, boating, fishing, and hunting. There are two designated wilderness areas within the Watershed, Lost Creek and Mount Evans. Developed recreation facilities along the river corridors include 20 campgrounds that are managed by concessionaires under special use permit with the USDA Forest Service. In addition to the campgrounds on the South Platte River, there are several developed picnic areas, and numerous trailheads and parking sites.

Use of the South Platte River and surrounding area has steadily increased during the past decade. Recreation use was estimated at 1,650,000 visitor days in 1995. Recreation increase is due to the rapid population growth in the Denver metropolitan area and neighboring counties. The population has been increasing about 2.5 percent per year or 40,000 people per year. In-migrating residents tend to be active and affluent, giving rise to an increase in demand for dispersed recreation activities.

Landscape Assessments

The USDA Forest Service and other State and Federal agencies recently conducted a number of scientific and administrative studies (see appendix A). The recent Colorado Front Range "Red Zone" Assessment identified extensive areas along the Colorado Front Range where current forest conditions and urban/forest interface are not conducive with the natural disturbance processes. The current forested landscape condition is not sustainable. Fire control in the 20th century allowed smaller, thin barked trees to proliferate. The Upper South Platte forests today are generally much denser with a higher portion of small trees compared to the forests before 1900. The small trees serve as ladder fuels permitting surface fires to climb into the tree canopy and become crown fires. Wildland fire severity and frequency have increased in recent years. The current forest conditions combined with greater human encroachment into the forestlands has dramatically increased the risk for loss of life and property from wildfires in recent years.



The Buffalo Creek Fire burned approximately 12,000 acres in 1996, resulting in the loss of several homes and essential forest cover on highly erosive soils. Heavy rainfall and floods following the fire resulted in two fatalities and caused substantial erosion and sedimentation. Downstream reservoirs that supply water for the Denver metropolitan area were adversely affected. The Denver Water spent nearly one million dollars on water quality cleanupafter the 1996 flood. They estimate it will cost an additional 10-15 million dollars on future cleanup, dredging, and water treatment modifications in the next 10 years because of the Buffalo Creek Fire.

A landscape assessment was completed for the 645,000-acre Upper South Platte Watershed in August 1999. The landscape assessment identified the dominant ecological processes and developed recommendations to restore and maintain the health of the Upper South Platte Watershed. Key issues were identified and management recommendations were made to address the recent catastrophic disturbances.

- **Landscape pattern of vegetation** – The structure, composition, and landscape pattern of vegetation is altered from its pre-European conditions by cumulative human impacts.

Lowering stand densities and creating more openings in ponderosa pine/Douglas fir and lodge pole pine forests will reduce the risk of large-scale catastrophic fires, such as the Buffalo Creek Fire. Maintaining vigorous forest stand conditions will also reduce the severity of other disturbances including insect epidemics. A reduction in existing fuel loadings by prescribed fire and other treatments will reduce the threat of high-intensity wildfires and the associated risks of flooding, erosion, and downstream sedimentation.

- **Soil development and movement** – Soil development and movement in the Upper South Platte Watershed may be changed significantly due to human influences on disturbance processes.

Soil erosion hazard is correlated to road and trail density, vegetation, and drainage patterns. Roads and trails are in highly erodible soils in the Watershed. Paved and non-paved roads and trails with

inadequate maintenance, inadequate drainage or improper engineering can lead to considerable erosion and increased sedimentation. Realigning or improving drainage and maintenance of existing roads and trails will reduce soil erosion and sedimentation, and improve road and trail safety. Closing and restoring unnecessary roads and trails will also reduce soil erosion and sedimentation.

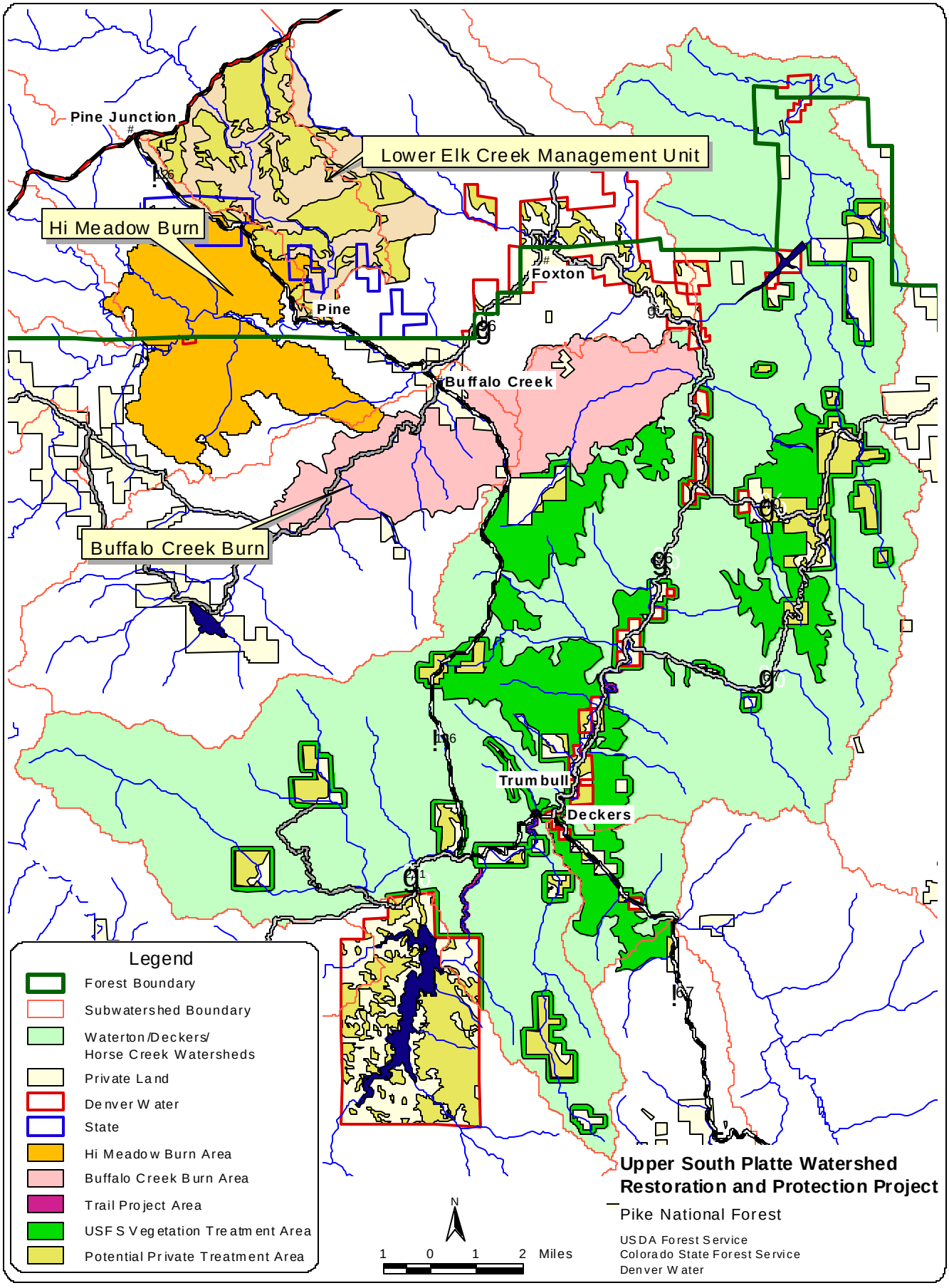
Water quality, quantity and aquatic habitats – Recent catastrophic events have resulted in the movement of large amounts of sediment into the streams, causing harmful impacts to water quality, aquatic habitat and valuable municipal water systems. The 1996 flood caused extreme amounts of sediment and other pollutants to enter Denver's water system resulting in the primary water treatment plant being taken off-line and tap water throughout much of the Denver metro area to smell and taste bad.

Restoring the landscape vegetation to more sustainable conditions will reduce the potential for catastrophic events (high intensity fires and the subsequent flooding) that have adverse effects on water quality and aquatic habitats. Abandoned mine reclamation and drainage control will also have a positive impact on aquatic habitat.

The Waterton/Deckers, Horse Creek, and Elk Creek Subwatersheds were ranked the highest priority for restoration among thirteen subwatersheds Restoration priority was based on a synthesis of various risks associated with each key issue (see Project Area Map).

The Hi Meadow Fire burned nearly 11,000 acres in June 2000. The fire included a portion of the Elk Creek Subwatershed and destroyed 58 structures including 51 homes. The suppression cost was nearly $5,000,000. The Hi Meadow Incident Operations Report (June 13-22, 2000) analyzed forest management activities on fire behavior. The report states, "It is evident that thinning and prescribed fire reduced the spread and intensity of the High [sic] Meadow wildfire."

The left photo below displays where a high intensity fire to the right of the vehicle changed to a moderate intensity fire to the left in an area previously treated with prescribed fire. The photo on the right shows the treated area to the right of the road did not sustain a low intensity ground fire while the untreated area left of the road burned with low-moderate intensity.


Pine Junction
Lower Elk Creek Management Unit
Hi Meadow Burn
Foxton
Pine
Buffalo Creek
Buffalo Creek Burn
Trumbull
Deckers
Legend
Forest Boundary
Subwatershed Boundary
Waterton/Deckers/
Horse Creek Watersheds
Private Land
Denver Water
State
Hi Meadow Burn Area
Buffalo Creek Burn Area
Trail Project Area
USFS Vegetation Treatment Area
Potential Private Treatment Area
N
1 0 1 2 Miles
Upper South Platte Watershed
Restoration and Protection Project
Pike National Forest
USDA Forest Service
Colorado State Forest Service
Denver Water

III. THE CUSTOMERS AND THE PUBLIC BENEFIT

The Upper South Platte Project's primary goal is to reduce the risk of catastrophic fire to protect human life, property, and water quality. The goal will be accomplished by restoring the vegetation to an ecologically sustainable condition while balancing other uses. The partner's management actions will focus on reducing the potential for crown fires, sediment transport, and risks to life and property in the urban/forest interface, and creating sustainable forest conditions in the Upper South Platte Watershed.

A secondary goal is to reduce existing sediment sources. Reducing road and trail related sediment, stabilizing stream channels, and reducing noxious weeds will reduce the risk of adverse effects to water quality. The potential for high intensity crown fires will be reduced by developing sustainable forest conditions with mechanical vegetation treatments and prescribed fires. Urban/forest interface hazards will be reduced through educational programs, pre-attack planning, and vegetation treatment on private lands. Sustainable forest conditions will be developed and maintained by mimicking historic conditions with emphasis placed on thinning stands, establishing openings in the forest canopy, and creating and maintaining snags and down logs.

A clear understanding of the potential role agencies, organizations, and individuals have is necessary to understand the customers and the public benefit. In this Business Plan, we are identifying four potential roles. The partners are those who are contributing funds or services to the Upper South Platte Project. Stakeholders are anyone with an active interest in the management of the Watershed. Customers are users of the Watershed resources who expect quality services at a fair price. The public is anyone who does not have an active interest in or use the Watershed. Overlap and gray areas exist between the partners, stakeholders, customers, and public.

The Partners

The partners' missions affects how each of us will be involved in the Project. The US Forest Service has responsibility to manage national forest lands on a sustainable basis while also being fiscally responsible. The Colorado Forest Service provides forest management advice and assistance on state lands and to private landowners. The Denver Water provides potable water to its customers at an affordable price. The Upper South Platte Watershed Protection Association is a stakeholder group addressing watershed issues on the entire 1.7 million acre South Platte River drainage above Strontia Springs. The Association shares the Project's goals within the Watershed and in addition is actively involved in the portion of the drainage above the Watershed.

The Stakeholders

The stakeholders include local and county governments, fire departments, landowners, and the business and environmental communities. The Project will seek to develop a partnership with as many stakeholders as possible.

The Upper South Platte Project will benefit watershed stakeholders in several ways. Reduction of wildfire severity will reduce the risk of conflagrations and the resulting home and property damage in the urban/forest interface. Many of the residents' livelihoods are dependent on the surrounding natural

resources. Sustainable forest conditions would permit continued employment opportunities in the natural resource related jobs and continued recreation opportunities.

The Customers

Our customers include recreationists (horsemen, hikers, mountain bikers, motorcyclists, ATV riders, four wheel drive users, campers, fishermen, and hunters), guides, Denver water consumers, and downstream irrigators.

The Denver Water and the City of Aurora get 50 percent of their water supply from the mainstem of the South Platte River and an additional 30 percent from the North Fork. The current demand on the Denver water system averages 265,000 acre-feet per year. Approximately 345,000 acre-feet per year flows through the Watershed. Water development proponents have identified the Upper South Platte Watershed as the most efficient, least costly, storage sites for the Denver metropolitan area's future water supply.

The Denver metropolitan area residents will benefit from the Upper South Platte Project in several ways. Reducing sediment transport will reduce impacts on water quality. The water companies will save money on maintaining reservoir capacity and water treatmentso they can continue to deliver quality drinking water at low cost. The Denver metropolitan area residents comprise the majority of the recreation users in the Upper South Platte River Watershed. Sustainable forest conditions will permit continued high quality forest recreation opportunities.

The Public

The public benefits from the Upper South Platte Restoration Project by having a forest that is less prone to catastrophic wildfire and insect epidemics. Savings will be realized on fire fighting and other resource management. Improving the landscape's sustainability will maintain or improve soil, water, fish, wildlife, and recreation qualities.

IV. THE CONTROVERSIES

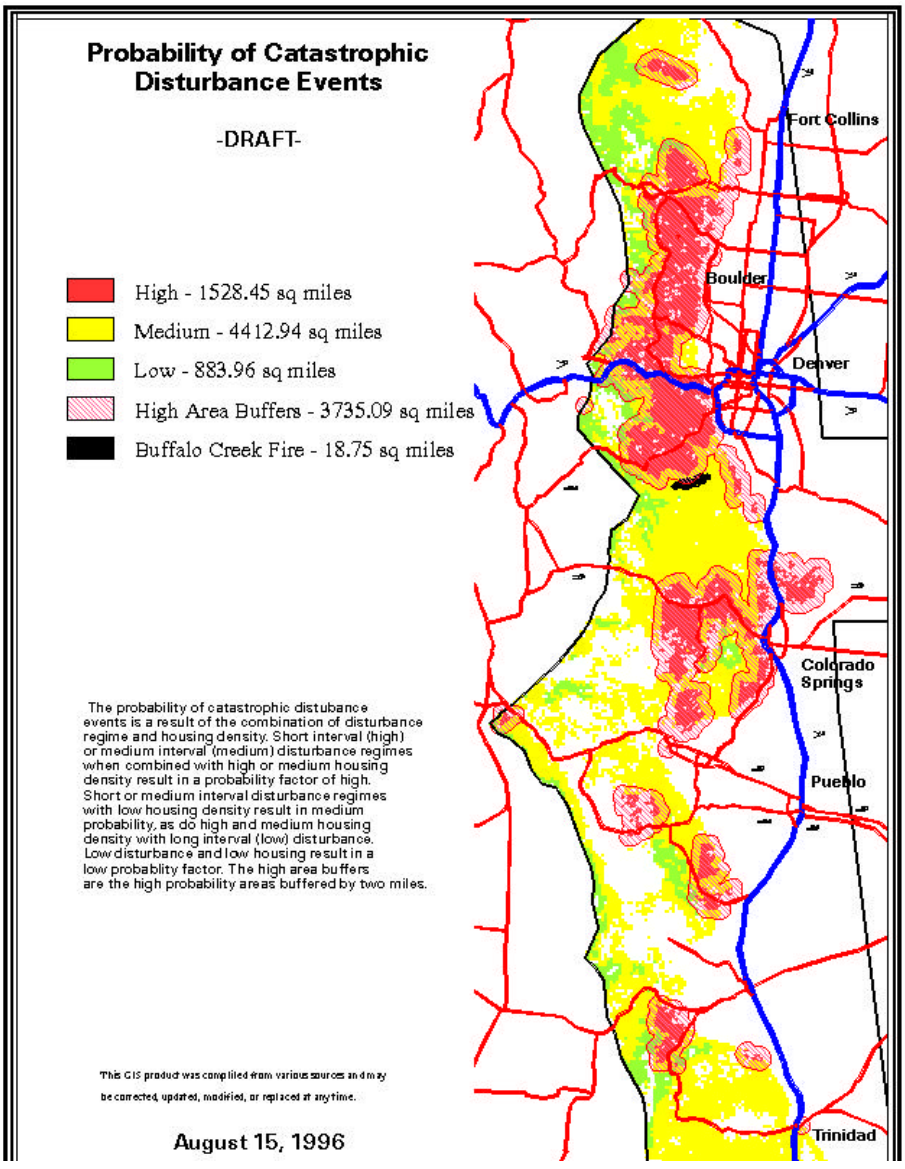
Fire Risks

Many people view forest fires as destructive agents that need to be controlled. "Uncontrollable wild fires should be seen as a failure of land management and public policy, not as an unpredictable act of nature. The size, intensity, destructiveness and cost of wildfires are no accident. It is an outcome of our attitudes and priorities. The fire situation will become worse rather than better unless there are changes in land management priority at all levels" (General Accounting Office Report). This report lays out the seriousness and problems that now exist with the threat of catastrophic wildfires to forest resources and communities.

European settlement has drastically altered the Watershed from its historic conditions. Early logging, grazing, and fire suppression have combined to create forest conditions that are denser and at greater risk of catastrophic fire than prior to European settlement.

One hundred twenty years passed without an extensive fire in this drainage prior to the Buffalo Creek Fire. The typical historic recurrence interval was sixty years. Historic fires and tree recruitment periods following the fires resulted in considerable spatial and temporal heterogeneity in the historic forest landscape. Large fires in 1723, 1851, and 1880 were quite extensive but low in intensity. Today's fires burn in more homogenous, dense forest conditions that result in much more intense fire behavior and subsequent adverse effects.

Prescribed fire is part of the Project. There is a risk that a prescribed fire may escape beyond its prescription. Administrative controls require a line officer signs a Burn Plan that identifies fuel, weather, and personnel requirements. Prescribed fires can only be conducted within identified conditions under the direction of a qualified Fire Boss, Lighting Boss, and Holding Boss. Experience has shown the risk of a prescribed fire escaping is less than one percent. The risk will be even lower in areas where the larger fuels are removed from the site by mechanical means before burning.



Air Quality

Wildfire is a major source of air pollutants that has the potential to create high concentrations of fine particulates. The Environmental Protection Agency's 24-hour standard for these particulates with a diameter of less than ten microns is 150 micrograms per cubic meter. Concentrations of 5,000 micrograms per cubic meter have been measured on some wildfires.

Emissions vary significantly between flaming and smoldering combustion. Smoldering causes six to ten times more particulates than flaming. Generally, small fuels are consumed by flames while larger fuels smolder for prolong periods. We can reduce the amount of smoke by removing larger materials before ignition. .

It is possible to schedule prescribed fires during time periods when meteorological conditions will prevent violating air quality standards. Of course, it is not possible to schedule a wildfire. Prescribed fire is an excellent technique to prevent extreme emissions from being generated by a wildfire, but can potentially adversely affect air quality. Agencies in Colorado are working to improve monitoring and predicting the impacts of fire emissions to air quality. We are also working to develop markets for small diameter materials to reduce fuel loads before prescribed fire use.

Timber Harvest

Timber harvest on public lands is a national controversy. Some people believe cutting trees on public lands is an inappropriate practice. Timber harvest can have adverse effects on aesthetics, water quality, wildlife, rare plants, etc. Several groups wish to eliminate commercial harvest on national forest lands. These groups may become stakeholders in the Upper South Platte Project.

The Partners believe removing some of trees is the only way to achieve the Project's goal to reduce the risk of catastrophic fire. The partners do not believe surface fuels are adequate to modify stand composition solely with prescribed fire. The partners believe the only feasible method to reduce the current forest density is using a mechanical method to fall the trees. Prescribed fire or other slash treatments will be required to reduce the biomass and fire risk where removal is not feasible.

We propose to remove the biomass as commercial forest products where resource values can be protected and it is economically feasible. Conventional timber sales will generally be used where road access exists and the trees have economic value. Service contracts with salvage rights will be emphasized in areas of gentle terrain near existing roads where the timber values will not support the removal, haul, and processing costs. Forwarders may be used, but no new roads will be permitted. In less accessible areas, equipment will be used to chip or crush the felled trees. Prescribed fire will be used in combination with mechanical vegetation treatments.

V. THE COMPETITIVE STRATEGY

The Project is based on research conducted in the Watershed by the Dr. Merrill Kaufmann, Rocky Mountain Research Station. The area surrounding Cheesman Lake is an intact historical landscape serving as a model for restoration activities in the lower montane zone. Research also is occurring on adjacent managed forests. We know a great deal about the natural disturbance processes and historic and current landscape components of the South Platte Watershed. Research has determined that the ponderosa pine/Douglas-fir forests in the Watershed were historically patchy with an open forest canopy. Current forests differ drastically, having relatively homogenous, dense forest cover with few openings.

Project actions can commence to move toward more sustainable conditions. Biological, social, and economic issues will be included as the desired landscape conditions are identified. Research on the historic landscape conditions will continue. Our adaptive management approach monitors biological, social, and economic components as well as new research information to provide a feedback mechanism for future Project planning and implementation.

The Project is a cooperative effort of federal, state, and local governments and non-government organizations. The Project's roots go back to September 1998 when several state and federal agencies were looking for an area to test fire occurrence and other fire models. These agencies agreed to support a large watershed restoration project. The Project began in January 1999 with the US Forest Service, the Colorado Forest Service, and Denver Water forming a partnership to support restoration actions in the Upper South Platte Watershed. The Steering Committee was chartered in April 1999. An essential element of the Upper South Platte Project is to coordinate with, and seek involvement of other State and Federal agencies, local governments, key interested and affected parties, local residents, and other users.

The Project's first task was to develop a landscape scale assessment for the 645,000-acre Upper South Platte Watershed. This assessment was accomplished through a Colorado State University contract and submitted to the USDA Forest Service, the Colorado State Forest Service, Denver Water and the US Environmental Protection Agency in August 1999.

The second task is to use the landscape assessment to identify forest management opportunities that will maintain or restore watershed function. These opportunities include commercial and non-commercial thinning, fuels reduction, prescribed fire, reforestation, sediment control, and other treatments to improve habitats and reduce undesirable exotic species. Forest management activities will be based on research information that describes sustainable ecological conditions consistent with the natural disturbance processes.

The third task is to implement a series of linked restoration actions focused on the priority subwatersheds identified in the Landscape Assessment. Combined, the restoration actions will change the landscape response to an extensive fire and reduce sediment.

The majority of the Upper South Platte River Watershed is public land. The partners' vision of the Upper South Platte River Watershed is one where the public lands are in a condition more similar to historic conditions than the current conditions are. The vision does not mean the desired future condition is synonymous with the historic condition. The future forest may be denser than the historic conditions, but will be more open than current conditions. The partners recognize heavily used portions of the Watershed will remain altered. The partners believe there is a need for active management to reduce sediment from

trails and roads. A full range of treatments including timber harvest, non-commercial thinning, slash chipping, and prescribed fire is necessary to modify the vegetation to successfully reduce the risk of catastrophic fires. All Project activities will contribute to the overall restoration goals regardless of the land ownership.

Competing Visions of the Watershed

Some groups would like to see little or no active management on public lands. Groups and individuals commenting on other public projects have stated they believe natural processes are best for the land. Using this philosophy, most of the public lands would have little management and fire would be the main disturbance mechanism. We are confident modern wildfires burn much hotter than they did historically since the existing vegetation is much denser than historic conditions. We believe fires in the current vegetation will result in scenarios similar to the Buffalo Creek Fire. The risks to water quality, soil productivity, wildlife, aesthetics, and private property and possible loss of life are unacceptable to the partners.

Other groups agree fires in the current vegetation will result in unacceptable risks to private property and potential increases in soil erosion and sedimentation. Some groups would like to see the vegetation managed using prescribed fire only so conditions would be more controlled to reduce the adverse consequences. They believe prescribed fire is best since fire is the natural disturbance mechanism on the landscape and would have less adverse consequences than mechanical vegetation treatments. We believe most of the landscape has insufficient down woody fuels and other fine fuels to conduct burns within safe prescriptions and still modify stand structure. We also believe such tremendous quantities of vegetation would have to be burned that air quality standards could not be met.

Still other groups would like to see the national forests more actively managed with more emphasis on timber management. They believe trees should be converted into wood products if economics permit and to not do so is a waste. They also believe the national forest should provide a dependable, consistent source of wood to sustain a wood products industry. The partners share the concern of limited forest products industries on the Front Range of Colorado. We believe other resources in the Upper South Platte River Watershed are higher in value than the timber resource. We prefer to focus on an outcome of sustainable forest conditions where forest products may be sold where feasible, or used to offset the cost of vegetation treatment but are not required.

Competing Projects for Funds

The Upper South Platte Restoration Project must compete for funds with other watershed projects and with other management options for the partners. The Denver Water believes it is more cost effective to reduce the water quality risks at the source rather than develop expensive systems to treat poor quality water. The US Forest Service is currently focusing additional funds to Upper South Platte River, which is one of twelve model watersheds in the nation. The Upper South Platte Restoration Project needs to achieve measurable results and attract additional partners to successfully compete for limited funds. The Project also needs to mesh with other Forest programs to focus funds on common objectives. The Colorado State Forest Service is also focusing funds in the Upper South Platte to achieve its objectives by partnering with the US Forest Service and the Denver Water. The State funds may be used in other areas if the Project does not achieve measurable results.

Without implementation of the proposed management strategies a continued decline in forest health, increased fire and soil erosion hazards, degraded water quality, degraded fish and wildlife habitat, and increased property damage risk and risk to human life is expected in this important watershed.

VI. MARKETING AND SALES

The Upper South Platte Project will be easy to market and sell if a desirable Watershed vision can be effectively communicated.

The partners' vision of the Upper South Platte Watershed is one that supports a sustainable ecosystem; has low fire and flood risks; has high water quality; and provides many opportunities for high quality outdoor recreation.

The Upper South Platte Project will strive to provide the best public service; recognize stakeholders' interests and partners' needs; and be guided by research and professional experience.

Marketing Communication Plan

Our marketing communication plan provides specific guidance for achieving the desired public images of the Watershed and Project, involving the stakeholders, customers, and the public,and integrating information received into project management. Appendix C lists our target audience that would benefit from and are interested in this Project. The plan also provides guidance for distributing information about the landscape assessment findings, proposed restoration actions, and Project accomplishments. The communication objectives are to:

- Provide timely and accurate information about the Upper South Platte Project to interested parties, media, public officials and others (e.g., website, libraries);
- Prepare and issue news releases from the partners pertaining to the Upper South Platte Project in coordination with the Pike National Forest, Rocky Mountain Regional Office Colorado State Forest Service and Denver Water;
- Inform the stakeholders, customers, and public of the importance of healthy watersheds and the disturbances that can affect them;

- Emphasize partner's commitment to implementing the Upper South Platte Project and completing activities on the ground;
- Offer opportunities for individuals and affected interests to contribute to the Project – support, comments, ideas, assistance;
- Build and strengthen relationships with Project leaders as well as interested individuals and organizations.
- Gain recognition of and support for the Project.

Key Messages and Talking Points

The public will be educated about Watershed values, management, and disturbance effects. The key messages and talking points are:

- Forests are the headwaters of America's rivers.

- The Upper South Platte Watershed supplies 80 percent of the Denver metropolitan area's water supply and has been identified as a critical watershed in need of restoration through Colorado's Unified Assessment.

- The Upper South Platte Project is a science-based collaborative effort involving Denver Water, Colorado State Forest Service, Colorado State University, EPA, USDA Forest Service, USDI Geological Survey, and USDA Natural Resources Conservation Service.

- The partners are implementing new methods of doing business to protect watersheds that cross many jurisdictional boundaries.

- Work began on private lands in 1999, and is expected to begin on federal lands in 2000.

- We are using the data and analysis contained in the Landscape Assessment to develop an action plan that will address vegetation conditions and erosion problems. Actions will include but are not limited to: thinning, fuels reduction, prescribed fire, reforestation, sediment control, and other treatments to improve habitats and reduce noxious weeds.

Key points to communicate about the National Environmental Policy Act (NEPA) process, issues, and alternative management actions are:

- The Landscape Assessment identified opportunities and prioritized forest management that will maintain or restore watershed functions.

- Forest management opportunities may include commercial and non-commercial thinning, fuels reduction, prescribed fire, reforestation, sediment control, and other treatments to improve habitats and reduce undesirable exotic species.

- The research into historical ponderosa pine/Douglas-fir landscapes at Cheesman Reservoir, where the past fire regime was mixed severity with mean fire intervals of 50 years or more will

serve as a science-based guide for restoration of the forest landscapes to improve sustainability and minimize wildfire and post-fire erosion risks.

Key points to communicate about implementing of restoration actions are:

- Restoration actions will be used to reduce the likelihood of catastrophic fire, insects and disease and their associated risks to human life, property, water quality and air quality.

- Restoration actions will address the utilization of small wood to improve landscape conditions, reduce fuel levels, and reduce sediment transport mechanisms.

Communication Techniques

The following media and methods will be used to distribute information about the Project.

Product	Purpose	Timing	Responsibility
Website	Tool to help explain the Upper South Platte Project – link to FS/partners homepages	Ongoing	Team
PowerPoint Presentations	Internal briefings and other public meetings. Similar to website presentations.	Ongoing	Team and partners
News releases/ media packet	News release announcing scoping period, public meetings, open houses. Notice in the PSICC Schedule of Proposed Actions.	February 2000	Project Team Leader & State Wildland Fire Coordinator
Public meetings	Display highlights of the proposed action, results of the landscape assessment.	Ongoing	Team
Key messages and talking points	Address concerns and questions about the proposed action, and landscape assessment.	January 2000	Project Leader
Internal communication	Communicate with employees and partner agencies about the Upper South Platte Project.	Ongoing	Team and partners

Marketing Actions

The following table outlines the actions for informing to the public about the South Platte Project and Assessment; involving landowners in the Elk Creek Subwatershed, providing a forum for cooperative planning/restoration for reducing catastrophic fire potential.

ELK CREEK COMMUNICATIONS

Action	Purpose	Timing	Responsibility
Public Meetings Open House	Display highlights of the landscape assessment. Discuss the proposed Elk Creek Subwatershed project.	February 2000	State Wildland Fire Coordinator
Planning with Elk Creek Fire Marshall.	Planning meeting with Elk Creek Fire Marshall and staff.	February 2000	State Wildland Fire Coordinator
Develop mailing list	Interested and other landowners and send out information on the Project.	After first public meeting April 1, 2000.	State Wildland Fire Coordinator
Public meetings/ Open house	Discuss Elk Creek Area. Seek involvement and input from landowners.	May 2000	State Wildland Fire Coordinator

Field Trip	Discuss problems and solutions.	June 2000	State Wildland Fire Coordinator
Contacts with landowners regarding Man Pine Beetle (MPB).	Discuss Mountain Pine Beetle and forest condition link. Forest Restoration.	Ongoing	State Wildland Fire Coordinator and local CSFS District
Douglas Ranch Fire Wise Community Open House	Award 1st in the state.	May 2000	State Wildland Fire Coordinator
Article in small local newspapers	Information on forestry issues. Elk Creek Project.	Ongoing	State Wildland Fire Coordinator
Jefferson County Fire Forum	Information display Upper South Platte Project	March 2000	State Wildland Fire Coordinator
Jefferson County Slash Collection	Information on what to do with slash – contact or brochure for Upper South Platte Project/Elk Creek	April-September 2000	State Wildland Fire Coordinator

The partners will carry out the following actions to inform the public about the Upper South Platte Project planning and NEPA process.

PROJECT PLANNING AND NEPA SCOPING

Action	Purpose	Timing	Responsibility
Notify PSICC to update Schedule of Proposed Actions (SOPA)	Provides an update to the Forest mailing list on status of the Upper South Platte Project.	Ongoing	Project Team Leader
Mailing list	Review existing mailing list for changes/ additions and prepare labels	Completed April 2000, updates ongoing	Team
Scoping Notice	Send to: Key media contacts PSICC/RO PAOs Partners Mailing list	Day of release	Team, RO Public Affairs
Public meetings/ Open house	Locations to be determined; provide information about the Upper South Platte Project.	After Scoping Notice is mailed and before the end of the comment period	Team
Content Analysis	Analyze public comments for new information, to clarify issues, develop/ modify alternatives, etc.	After Scoping period.	NEPA Contractor

VII. PARTNERSHIPS

Partners in the Upper South Platte Watershed are those agencies and organizations contributing funds or services to the Restoration Project. The Upper South Platte Restoration Project will coordinate with and seek involvement of stakeholders, customers, and the public. The Project will also develop additional partners from the stakeholders. The partners are concerned with water quality issues and fire risk within the Upper South Platte River Watershed.

The partners agree to use Watershed restoration as a guide for management and project planning within the Upper South Platte River Watershed. The partners agree to the following collaboration principles: no one is the center of a network; keep commitments; communicate in a candid and tactful manner; honor each others' interests and contributions; and keep shared work products visible.

US Forest Service (Rocky Mountain Region and Pike National Forest)

The USDA Forest Service manages approximately 500,000 acres of the Pike National Forest within the Upper South Platte Watershed. National forest management occurs within a framework set by federal laws and regulations. The agency's ultimate responsibility is to manage national forest lands for multiple benefits on a sustainable basis. The USDA Forest Service operates within the annual budgets appropriated by Congress. Individual projects are planned with public input using the National Environmental Policy Act (NEPA) process. The federal budget, acquisition, and planning processes result in the USDA Forest Service moving slower than the other partners.

The Rocky Mountain Region and the Pike National Forest entered into the partnership to facilitate meeting landscape objectives. Although the agency manages nearly 80 percent of the lands within the Upper South Platte River Watershed, it cannot hope to achieve the landscape objectives without partners. The partners will provide resources to improve conditions adjacent to the largest streams and in the urban/forest interface where the private lands predominate. The partnerships provide a means to increase efficiencies in planning and implementing projects on a landscape basis. The partners provide a collaboration to leverage funds to achieve shared objectives.

The USDA Forest Service has a full-time 3-person team assigned to the Upper South Platte Project. The team is involved in all aspects of the Project including the Business Plan, public involvement, partner recruitment, restoration projects, and coordination with other Forest Service projects and programs. The team has identified numerous specific restoration projects to improve terrestrial and aquatic conditions. The planning for these projects will begin this year. The majority of the projects described in the Operational Plan (Section VIII of this document) will occur on the Pike National Forest.

USDA Forest Service (Rocky Mountain Research Station)

The USDA Forest Service Research focuses on academic issues in forest management. Peer-reviewed research provides tools and context for management of the national forest lands. The research branch is relatively independent of national forest management to minimize any scientific bias. The Rocky Mountain Research Station entered the partnership to assure the relevance of research to land management by formalizing the feedback loop to the knowledge base. Monitoring by the research community assures the adaptive management process where research conclusions can be tested on a landscape basis. Research will help to modify management actions.

The Upper South Platte Project is not a pilot or test. It is to be based on science. It will rely heavily on research being conducted at Cheesman Lake, an intact historical landscape that can serve as a model for restoration activities in the lower montane zone for the Colorado Front Range, and on research in surrounding areas in the project area.

We know a great deal about the natural disturbance history of the historical landscape and about the structure of the landscape components. Initial aAreas can be treated based on this knowledge without compromising options. We need to know more about the overall landscape and about the structure and processes regulating it, and research during the first years of the project will address this situation. This research will focus on the effectiveness of treatments in mitigating wildfire risk while simultaneously creating more sustainable ecosystem conditions. In addition three other areas of research will help the project meet its goals. These are: (1) studies of biodiversity, focusing on both plants and animal responses to mechanical and prescribed burning treatments; (2) studies of riparian productivity and the extent of its relation to anticipated increases in water yield when forests are thinned; and (3) hydrology, soil erosion and stream geomorphology in relation to restoration treatments. These research areas will provide a comprehensive understanding of both benefits and problems associated with large-scale landscape treatment, particularly when done in the context of the landscape studies already underway. An adaptive management approach will allow new research to be incorporated into project planning and implementation, provided the research is funded adequately to keep out in front of the project. Technical limitations are unlikely to prevent our developing research information in a timely way.

Forest Service Research will take the lead in conducting the necessary research for implementing the restoration activities. Estimated research costs from the project are $100,000 for the first year, with an additional contribution of $100,000 per year from the Rocky Mountain Research Station. Beginning with fiscal year 2001, research costs are projected to be $250,000 per year (with adjustments for inflation), including the additional studies listed above. The Forest Vegetation Simulator and Stand Visualization System are being used with the research data. A GIS layer of mapped forest structure at the landscape scale has been developed for the historical Cheesman Lake landscape, and fire behavior is being evaluated for several landscape scenarios using the FARSITE model. Additional research for fiscal year 2000 will: (a) Develop an integrated landscape Historical Range of Variability for historical landscape; (b) Test this Historical Range of Variability in South Platte Watershed; (c) Refine restoration scenarios for the Project landscape; (d) Evaluate crown fire potential and water balance, comparing Watershed and historical landscape; (e) Evaluate ecological sustainability of restoration scenarios based on landscape structure; and (f) Assess biodiversity including noxious weeds.

After the first year, subsequent research will focus on tightening the description of the historical landscape and natural variation in the processes affecting landscape patterns, with the overall goal of extending results to the larger montane zone of the Front Range. This will include refining restoration scenarios for the project landscape and evaluating crown fire potential andhydrologic balance, comparing the Watershed and historical landscape. Subsequent research also will assess pre-treatment and post-treatment plant and animal diversity in the Watershed,(including noxious weeds), riparian productivity (especially for intermittent streams,) and hydrology and erosion characteristics of sub-watersheds.

Colorado State Forest Service

The Colorado State Forest Service's mission is to achieve stewardship of Colorado's environment through forestry outreach and service. The mission includes protecting natural resources from damaging elements and increasing public understanding of forestry's role and value in a healthy environment. There are over 100,000 acres of State and private lands within the Watershed. The Colorado State Forest Service has a contract to manage the Denver Water's lands in addition to the State lands. The State will work closely with private landowners to reduce the fire risk in the urban/forest interface targeted in the

Elk Creek Subwatershed. The partnership provides the State with demonstration areas for other landowners on Colorado's Front Range. The partnership also provides a mechanism to leverage funds and improve communication with the general public.

Denver Water

Denver Water owns 15,725 acres within the Upper South Platte River Watershed. They are the second largest landowner in the Watershed. Their lands are primarily adjacent to the North Fork and mainstem South Platte River with the largest parcel being the 13-mi^2 Cheesman Lake area. The research on their Cheesman Lake property provides the scientific basis for the Project's restoration guidelines.

Denver Water manages several dams and reservoirs within the Watershed, which provide 40 percent of the water used by Denver metropolitan residents. They became a partner in the Project because sediment adversely affected Strontia Springs Reservoir after the Buffalo Creek Fire and ensuing floods. Denver Water wants to reduce the risk of future events like the Buffalo Creek Fire by proactively managing its lands and the public lands within the Watershed. The forest management of their lands is under contract to the Colorado State Forest Service. Denver Water is able to communicate the partners' objectives to nearly one million residential water users.

Colorado State Board of Land Commissioners

The State Board of Land Commissioners has provided $9,000 for the development of a comprehensive Vegetation Management Plan for the Pine Gulch section of the State Land located within the Lower Elk Creek Management Unit. Last year, the State Board of Land Commissioners provided funding for the update and development of comprehensive Vegetation Management Plans for the Cathedral Spires and Banner Peak located within the lower North Fork Subwatershed.

US Geologic Survey

The US Geologic Survey maintains stream gages and monitors water quality across the United States. The US Geologic Survey collected water quality and soil erosion data in the Upper South Platte River Watershed following the Buffalo Creek Fire. The US Geologic Survey has GIS data available for the landscape. Their monitoring experience has resulted in well-established monitoring protocols for soil and water parameters. They will help to develop and implement the monitoring plan.

US Natural Resource Conservation Service

The Natural Resource Conservation Service provides soil and conservation technical assistance to private landowners. They provide an additional avenue of public outreach and have a close working relationship with the local Soil Conservation Districts (local officials appointed by County Commissioners). The Natural Resource Conservation Service may be a source of potential cost-share funding for private landowners. They have soil inventories for the area and can provide water quality testing.

US Environmental Protection Agency

The US Environmental Protection Agency has regulatory responsibility for air and water quality. They are concerned about water quality problems following the Buffalo Creek Fire. They would like to be involved in a proactive solution to the landscape concerns before another event like the Buffalo Creek Fire occurs.

Trout Unlimited

The Cutthroat Chapter of Trout Unlimited is concerned about road and trail related sediment that is adversely affecting fish habitat in the South Platte River. They are interested in identifying potential restoration projects to reduce sediment and are able to provide volunteer work. One restoration project Trout Unlimited has expressed an interest in is reconstructing the Gill trail.

Elk Creek, North Fork, Mountain Communities, and Trumbull Fire Protection Districts

The fire protection districts provide fire protection in the urban/forest interface. The districts are interested in creating defensible space to fight forest fires before homes become engulfed in flames. The districts will work with the Colorado State Forest Service to raise public awareness and educate homeowners on how to create defensible space. The Elk Creek Fire Protection District is providing office space for the Colorado State Forest Service project Forester responsible for implementation within the Lower Elk Creek Management Unit. This office space is valued at approximately $2,500 per year.

VIII. OPERATIONAL PLAN

Mechanical Vegetation Treatment

The Landscape Assessment identified the Cheesman, Trout Creek, and Waterton/Deckers Subwatersheds as ranking high for restoration to address forest vegetation and wildlife. There is a high risk of catastrophic fire throughout the ponderosa pine/Douglas-fir forest. The high fire risk is due to relatively dense, even-aged, closed crown forest conditions. These forests have very little down wood to permit low intensity, ground fires. High intensity, crown fires may occur in hot, dry, and windy conditions. Mechanical treatment is needed to reduce the canopy density and create openings. The objective is to reduce canopy density to 25% or less on up to 80% of the ponderosa pine/Douglas-fir landscape. Openings generally 1-40 acres will be created on up to 25% of this landscape. The mechanical vegetation treatments will include commercial harvest where there is value, service contracts, noncommercial thinning, and chipping or shredding to masticate the trees on site. Prescribed fire will be used in conjunction with mechanical vegetation treatments.

Two thousand acres will have mechanical vegetation treatment on an annual basis. The operational costs vary considerably based on the method used. Accomplishments will be measured under the monitoring plan which includes vegetation plots and landscape mosaics. Generally, lands with existing road access

and slopes less than 35% will utilize commercial timber sales if it is economically feasible and consistent with other resource values. The timber value in the Front Range and specifically within the Watershed is relatively low. The lack of a varied local forest products industry brings uncertainty to the methods of treatment and associated costs

Most of the mechanical vegetation treatments will be on national forest lands, managed by the US Forest Service. The Colorado Forest Service will manage State and Denver Water's lands and provide assistance to private lands. Costs for mechanical vegetation treatment vary from commercial value for some timber sales to several hundred dollars per acre for hand falling. An average cost of $137.50 per acre is used for mechanical treatment in this business plan.

Colorado State Forest Service has prepared vegetation management plans for over 2000 acres of Denver Water's land. About 250 acres of Denver Water's land will be restored with mechanical vegetation treatments in 2000. A demonstration area near Trumbull was thinned in 1999. The demonstration area provides an area where people can see the appearance after harvest.

Prescribed Fire

Fire has been suppressed in the Waterton-Deckers and Horse Creek Subwatersheds for more than 100 years. The natural and activity fuels have been building up over time and have the potential for large catastrophic stand replacing fires. These stands are generally dense, even-aged, with closed crown conditions. Extreme fire conditions (low humidity, low fuel moistures, high temperatures and wind) allow fire ignitions to result in high intensity crown fire. The objective of this Project will be to treat 2,000 acres annually with prescribed fire to reduce natural and activity fuels and where possible create openings in the Ponderosa Pine Douglas-fir stands in these subwatersheds. The areas to be treated will be companion areas to those being treated by mechanical methods.

The operational costs should not vary from experienced costs for the past five years in the prescribed fire program. Accomplishments will be measured based on the monitoring plan. Prescribed fire can be used to treat lands with little or no access and slopes greater than 35 percent. The slopes of greater than 35 percent are an upper limit for mechanical treatment. There may be a need to return to the stands treated by prescribed fire to supplement the prescription by hand felling tree not killed by fire to enlarge openings. Mechanical treatments will generally be followed by prescribed fire on lands managed by the Colorado State Forest Service and the USDA Forest Service.

Reforestation

A portion of the Buffalo Creek Fire area requires reforestation to provide vegetation diversity. The US Forest Service will plant approximately 1000 acres with ponderosa pine on a wide spacing. Accomplishments will be measured using standard reforestation survival and growth protocol. The seed inventory is currently insufficient to provide an adequate number of seedlings. Seeds will be sowed in 2000 to plant 100 acres of container seedlings in 2001. Cones will be collected in 2000-2002 to replenish the seed inventory. Additional seed will be sowed in 2001-2003 to plant 300 acres per year the following years. Reforestation costs are expected to be $500 per acre.

Noxious Weeds

Leafy spurge, diffuse knapweed, yellow and Dalmatian toadflax, and Canada and musk thistles are noxious weeds along 25 miles of the South Platte River. These noxious weeds are less palatable to wildlife; are less effective in stabilizing soil, and often out compete native vegetation. The goal is to reduce the infested acres. Two hundred acres will be treated annually using chemical, biological, mechanical, and manual methods. Accomplishments will be measured by surveying the river corridor annually to determine if the infestation zone is shrinking, remaining constant, or growing. The US Forest Service, Colorado Division of Wildlife, Colorado Department of Agriculture, and county weed boards are working with private landowners and volunteer groups to manage the noxious weed problem. County weed management departments will assist in developing integrated weed management plans for all land ownerships. The National Fish and Wildlife Foundation and the US Forest Service have provided grants for noxious weed treatments in previous years. $20,000 annually in NFRG funds will be used to leverage an additional $40,000 in grants from partners. A noxious weed prevention strategy will require treating an additional 200 acres annually prior to mechanical and prescribed fire vegetation treatments. The additional 200 acres will require $40,000 for a total of $60,000 NFRG funds annually.

The Colorado Forest Service is coordinating with Jefferson and Douglas Counties to develop an integrated weed management plan for Denver Water's lands.

Roads

Many of the roads in the Watershed are poorly located and/or poorly maintained. The roads are the major source of anthropogenic erosion and sedimentation. The Pike National Forest plans to inventory its roads and update the information during the next three years. The Project will accelerate the inventory within the Watershed and supplement the collected information to include site-specific erosion and sedimentation concerns. The updated information will be used to assess and prioritize roads for maintenance, closure, and obliteration. Fiscal Year 2000 cost will be $55,000 in TRTR funds.

Road maintenance in the Watershed is approximately $100,000 annually. Currently, several roads not normally maintained are in obvious need of maintenance or need more effective closure devices. $45,000 will be used in fiscal year 2000 to place effective water bars or closure devices on 100 miles of priority roads known to be contributing high amounts of sediment. The road assessment is anticipated to identify $120,000 of road maintenance needs, $73,000 of road reconstruction improvements, and $57,000 of road obliteration opportunities annually in fiscal year 2002-2005. Accomplishments will be measured by visual inspection to assure best management practices are implemented and effective. Our monitoring plan identifies how we will evaluate if roadwork is affecting water quality.

An opportunity exists to work with Douglas County on surfacing and other design changes to significantly reduce sediment in Pine Creek, Sugar Creek, and the mainstem South Platte River. A similar opportunity may exist to work with Jefferson County along the North Fork South Platte River. These are expensive road costs in the hundreds of thousands of dollars and require funding sources beyond what is currently available to the counties or the model watershed.

Trails

The overall goal of the following trails projects is to create a safe trail system that minimizes erosion and sediment.

Gill Trail. Anglers use this trail for river access in Cheesman Canyon. Day hikers use the trail for its views of the Historic Cheesman Dam and rugged canyon scenery. The Gill Trail was originally constructed about 40 years ago but stopped short of Cheesman Reservoir. There have been no major trail improvements since then. An estimated 25,000 visitors per year use the trail and their effects are clearly evident. Crumbling side slope trails have caused numerous braided routes and excessive erosion. Many social trails have been created to try to reach Cheesman Reservoir and some sections of this route are unsafe to the point of being considered dangerous. The excessive and braided trails also cut through habitat used by the federally listed pawnee montane skipper habitat, killing the plants on which they depend.

Trail and restoration work will include safe rerouting and repair of existing trial, building a new safe sustainable trail from the original alignment to Cheesman Reservoir, expanding parking areas, eliminating braided trails, rehabilitating damaged side slopes, restoring native vegetation that can be used by the skipper. All work will be completed by fiscal year 2004. Expected project benefits include improved safety, hiking experience, and visual quality along the trail, restored skipper habitat, and reduced river sediment input from eroding trails. Local economic benefits would also result from expenditures for goods and services by anglers and hikers attracted to the improved South Platte River access. Partners in this project include the Cutthroat Chapter of Trout Unlimited, Denver Water, and the US Forest Service.

The estimated total cost for this project is $400,00 over the next five years. The trail design, construction, maintenance portion would be about $355,000, restoration about $30,000, and monitoring $15,000. Besides the USDA Forest Service's contribution, Trout Unlimited and Denver Water will contribute about $126,000 (32% of the project total cost). Trout Unlimited and the USDA Forest Service have also applied for grants totaling 145,000 (36% of the project total) from the Colorado State Trails Program and Fishing is Fun. This project will make extensive use of volunteers from Trout Unlimited and Volunteers for Colorado Outdoors to perform trail and restoration work to also help offset the costs.

Platte River Access Trails. The project area is located along the South Platte River from Wigwam Fishing Club to Scraggy View. Just an hour from Denver, the South Platte River continues to receive almost 500,000 visitors each year. Past efforts have protected and restored riparian habitat at many of the heavily visited sites along the river that were damaged by vehicle traffic. With so many people using this river, foot traffic has also begun to affect the riparian areas.

The USDA Forest Service and Colorado Division of Wildlife proposes to construct logical routes from the most heavily used parking sites to the river and restore unnecessary or dead-end routes. The agencies propose constructing at least 50 stable routes to provide access to the river in some of the most popular fishing sites. Most of these will involve constructing stairways to get anglers from the parking sites or roadway to the river and providing wheelchair accessible fishing spots.Trout Unlimited is a potential partner.

The total project cost will be an estimated $55,000 for material and labor for construction, installation and trail building, and monitoring. The USDA Forest Service will contribute $25,000, Colorado Division of Wildlife may contribute $20,000, and volunteer organizations another $10,000.

Rampart Range Motorized Trails. Off-highway vehicle (OHV) use within the Waterton/Deckers composite, Horse Creek, and Trout Creek Subwatersheds has increased dramatically in recent years, resulting in vegetation loss, accelerated erosion and soil loss, degraded fish and wildlife habitat, and safety problems. There are over 76 miles of motorized trails within this area.

Improvement actions will include relocating trails away from sensitive and wet areas, surface hardening, repairing drainage problems, and reclaiming unauthorized trails. About 30 miles of trails will be relocated or improved within the Watershed by fiscal year 2005. This project will help ensure a high quality and safe recreational experience while protecting sensitive resources such as water quality and wildlife habitat.

The initial planning costs, excluding NEPA, will be an estimated $50,000. Trail improvements will cost about $470,000 and monitoring about $25,000 over the next 5 years. State trail grants, donations, and volunteer group contributions will help offset the forest service costs by as much as $230,000.

Streams and Fisheries

The overall goals for the following stream and fisheries projects are to: 1) protect or restore ecological and river processes and conditions in channels, wetlands, and riparian areas along the South Platte River and its tributaries; 2) preserve or restore the opportunity for high quality angling experiences along the South Platte River and its tributaries. Forest fisheries staff developed these projects based on inventory and monitoring records, and individual observations within the Watershed. Most of these projects are in the preliminary stages of development. Project costs were estimated based on previous project experience on the Pike & San Isabel National Forests, and from Colorado Division of Wildlife and other sources.

Buffalo Creek and Spring Creek Restoration. The principal objective of this project is to reestablish a viable fishery in the stream, and substantially reduce sediment entering into the North Fork of the South Platte River. Several miles of stream channel and adjacent riparian area were decimated in 1996 during the Buffalo Creek Fire and subsequent flooding events. As a result many areas next to Buffalo Creek are poorly vegetated with large exposed soil areas that are easily eroded during high runoff periods. Erosion from burned areas, streamside campgrounds, and road also contribute sediment to the creek. In addition, several road sections constrict the stream channel causing accelerated water velocities. The increased water velocities cause channel scour, bank failure, and road damage. A few road sections along the most restricted reaches are frequently washed out. These sections are then repaired with new fill material to replace road material that was carried downstream.

The USDA Forest Service will begin doing riparian planting to reestablish indigenous riparian communities on disturbed areas to stabilize stream banks and improve habitat. The Forest Service will also assess the road and campgrounds within the floodplain for possible relocation, maintenance, and reclamation needs. The USDA Forest Service will seek technical assistance and funding from both the Colorado Division of Wildlife and USDA Natural Resources Conservation Service.

An estimated three miles of stream would be restored. Two and one half miles (30 acres) would receive low intensity stream reclamation work (riparian planting and seeding) at a cost of about $4,200/acre or $50,000/stream mile (for 100ft wide riparian area) and one mile would receive high intensity stream reclamation work (earthwork, seeding, plant propagation and installation, and willow wattles) at a cost of $10,000/acre or $120,000/stream mile. Stream reclamation work planning and monitoring would cost an additional $60,000. Thus, the total project cost would be about $300,000 over the next 5 years. The Colorado Division of Wildlife will contribute $75,000. The Colorado Forest Service can grow the willows needed for this project.

Trout Creek Subwatershed & Fishery Restoration. This project is outside the priority subwatersheds, but is an important restoration opportunity. Trout Creek has become a sad example of undesirable cumulative effects in a watershed. Estimates in 1988 were of over 2,600 fish per mile in 1988. The number of trout per mile today is zero. This complete collapse of this coldwater fishery appears to be in part due the intense development occurring in the headwaters of the subwatershed, resulting in major changes in water chemistry and temperature. In 1998, Trout Creek was added to the State's list of 303d impaired waters for sediment and temperature. Work scheduled for fiscal year 2000 includes installing bottom release at the Manitou Lake Dam and repairing or maintaining bank stabilization structures in the South Pasture within Manitou Experimental Forest. Additionally, riparian exclosures throughout the Manitou Park area will be reestablished. The project would later implement riparian, floodplain, and channel restoration in the North Pasture reach and between Forest Road 350 and Rainbow Falls Park. In addition to channel and habitat work, riparian and unauthorized ATV trails would be obliterated. This project will cost about $75,000.

Mainstem South Platte and North Fork Fisheries Enhancement. The mainstem South Platte River (from Scraggy View to the confluence of the North Fork) and North Fork (below Buffalo Creek) are characterized by a severe lack of habitat complexity. The river channels exhibit a high width/depth ratio, little in stream and overhead cover for salmonids, little large organic debris structure, laminar flows, and high sediment loading. Trout populations are depressed throughout this reach, unlike the highly productive areas just a few miles upstream. The project would strategically place wood and rock structures to introduce habitat complexity into the stream system. Design and installation of these structures would be done in a manner to be self-scouring of sediment, in order to prevent formation of mid-channel bars downstream. A similar project in ElevenMile Canyon has demonstrated increased salmon recruitment The cost for this project will cost up to $225,000 over a 3-year period.

Goose Creek / Lost Valley Ranch Sediment Reduction/Habitat Enhancement. This project is outside of the priority subwatersheds but has the potential to attract another partner. Goose Creek near Molly Gulch Campground is severely impacted by sediment. Most of the channel degradation is directly attributable to cattle and horse operations immediately upstream at the Lost Valley Dude Ranch. The owner of the Lost Valley Ranch, has on several occasions expressed a desire to improve fishing opportunities within the property, in order to enhance the overall experience of the guests. By working with the private landowner to improve habitat and riparian conditions on the private land, downstream sediment will be reduced and fisheries improve near Molly Gulch Campground. This work could include development of lateral scour pools, introduction of large wood, and riparian enhancement. The cost for this project (on National Forest System Lands only) will be about $50,000.

Sugar Creek Riparian Restoration. This project would be a continuation of current District efforts to reduce sediment-entering Sugar Creek from Douglas County Road 67. Work would include riparian

enhancement and road drainage improvements to reduce water velocities and sediment run-off. Additionally, changes in road maintenance methods by the County would be encouraged or negotiated. Costs for this project will cost about $20,000. Significant improvements could be achieved in partnership with Douglas County to redesign the road (see Roads subsection above).

Trail Creek Riparian Restoration. This project is outside the priority area but may presents an opportunity to develop a partnership with another county. It would be identical to the Sugar Creek Project. Trail Creek is the most severely impacted stream within the West Creek Subwatershed. Teller County Road 3 is immediately adjacent to the stream. Work would include riparian enhancement and road drainage improvements to reduce water velocities and sediment run-off. Additionally, changes in road maintenance methods by the County would be encouraged or negotiated. Costs for this project will be about $40,000.

Turkey Creek Subwatershed Restoration. This project is also outside the priority subwatersheds. A 700-acre wildfire occurred in the headwaters of Turkey Creek in the summer of 1998. About 150 acres of private land was subsequently salvaged. Subsequent soil erosion has placed the brook trout fishery immediately below the burned area at extreme risk. This project would construct sediment retention structures in the ephemeral drainages and stabilize hill slopes with slash and/or wood chips. Project cost will be about $65,000.

Interpretation and Education

This program will work with people at a grass roots level to help them understand the Project, appreciate the natural resources of the Watershed and learn how to conserve these resources for future generations. This will be accomplished through structured experiences and activities targeted to various age groups. The key element in the development of this program will be with the Communication Plan in this Business Plan.

This program will work to develop a consistent understanding of the Restoration Project and its connection to forest health and fire risk management. There will be a great deal of effort put forth to help all employees understand the role of their own agency as well as the role of the cooperators.

This program will help organize public meetings, workshops, field trips or other forums to inform and involve other federal and state agencies, tribes, organizations or individuals in the development and implementation of the appropriate restoration activities. This can be accomplished by effectively using the Marketing Communication Plan in this Business Plan (see the "Marketing and Sales" section).

This program will coordinate with the Red Zone Communication Plan based on a 1996 Forest Health Assessment completed by the Colorado State Forest Service and USDA Forest Service. A portion of the funds for this program will come from the South Platte District Fire Management Program.

Colorado State Forest Service will develop a "FireWise" demonstration and interpretation site adjacent to Denver Water's rental cabins in 2000. Tours will be conducted at the Forest Restoration Demonstration Area at Trumbull.

National Environmental Policy Act (NEPA)

The USDA Forest Service actions must comply with the requirements of the National Environmental Policy Act of 1969, as amended; the Council on Environmental Quality Regulations (40 CFR 1500-1508); the USFS Environmental Policy and Procedures Handbook (FSH 1909.15) and Manual (FSM 1900, Chapter 1950); and other relevant environmental regulations and policies.

The USDA Forest Service will contract for environmental compliance services for most project actions. Contractors will prepare NEPA and other regulatory documents, such as biological assessments as per section 7 of the Endangered Species Act. They will also assist the USDA Forest Service with incorporating public comments and assuring all regulatory requirements are met.

The initial contract will cost an estimated $350,000. Subsequent cost for environmental services will cost an average of about $175,000 per year for the life of the project.

Colorado State Land Timber Sale

Approximately 300 acres of State land will be harvested utilizing restoration management principles. The Four Mile Timber Sale will be sold to US Forest Industries as part of a study to evaluate the suitability of small diameter Front Range ponderosa pine and Douglas-Fir for structural as well as dimension lumber. The timber from this sale will be segregated and followed through the manufacturing process. Strength tests will be performed and manufacturing and drying problems will be documented.

Denver Water

Approximately 200 acres of Denver Water lands will be harvested annually to restore forest vegetation to sustainable stocking levels. Denver Waters forested lands will be thinned from below with the larger ponderosa pine retained in the stands. Thinning began in the Trumbull area in 1999. Appendix F lists the vegetation management program for Denver Water lands as prepared by the Colorado State Forest Service for Denver Water Lands.

IX. GOVERNANCE

The governance is being developed. A Memoranda of Understanding will: establish how decisions are made (consensus, super majority, etc.); to determine how partners and steering committee members are added or removed; and it will be signed by all the partners.. The partners will each retain their decision authority on the lands they manage while meeting the overall Project goals and objectives.

Jim Hubbard, Colorado State Forester, and Lyle Laverty, Rocky Mountain Regional Forester, chartered the Upper South Platte Project Steering Committee in April 1999. The Steering Committee provides overall guidance and oversight to project planning, implementation, and monitoring. The State Forester and Regional Forester appoint the chairperson. The Steering Committee currently includes:

Dave Hessel (Committee Chair) and Chuck Dennis Colorado State Forest Service;
Susan Gray, Fred Patten, Randy Hickenbottom, Charlie Marsh and Gail Kimbell, USDA Forest Service;
Merrill Kaufmann, USDA Forest Service, Rocky Mountain Research Station;
Gene Backhaus, USDA Natural Resource Conservation Service;
Deborah Martin, USDI Geological Survey;
John Giedt, US Environmental Protection Agency;
Rocky Wiley, Denver Water:
Carol Ekarious, Upper South Platte Protection Association.

The role and responsibilities of the Steering Committee shall include but are not limited to:

1. Develop an overall work plan for the Project.
2. Develop additional partners and funding for the Project.
3. Provide liaison with local, state and other federal entities.
4. Integrate stakeholder's interests.
5. Develop sideboards for Project implementation.
6. Provide guidance to the Activity and Monitoring Teams, helping to resolve barriers.
7. Monitor and evaluate progress of the Project.
8. Coordinate with other resource projects when necessary.
9. Evaluate costs and benefits of implementation, including the potential for a sustainable watershed restoration project utilizing small diameter materials for revenue.

The Project Activity and Monitoring Teams will plan, implement, and monitor individual projects under the guidance and oversight of the Steering Committee. Land and resource management decisions will be made by the appropriate agency official with jurisdiction. Partner landowners or managers will act to achieve the Project's goals and objectives while retaining the decision authority and accountability for their lands.

X. THE PROJECT IMPLEMENTATION TEAM

Steering Committee		
USDA Forest Service	Susan Gray	Regional Forest Stewardship
	Gail Kimbell	Forest Supervisor
	Randy Hickenbottom	District Ranger
	Fred Patten	Project Team Leader
	Charlie Marsh	Forest Hydrologist
	Merrill Kaufmann	Research Ecologist
Colorado State Forest Service	Dave Hessel	Forester, Steering Committee Chair
	Chuck Dennis	Area Forester
Denver Water	Rocky Wiley	Natural Resource Planner
USDI Geological Survey	Deborah Martin	Research Hydrologist
Natural Resources Conservation Service	Gene Backhaus	Range Conservationist
Environmental Protection Agency	John Giedt	Program Manager
Upper South Platte Protection Association	Carol Ekarious	Association Coordinator

Activity Teams	
USDA Forest Service Watershed Project Team	Fred Patten, Project Team Leader Steve Culver, Fish Biologist/GIS Jim Thinnes, Silviculturist
Colorado State Forest Service and Denver Water Project Team Lower Elk Creek	Chuck Dennis, Forester Scott Woods, Forester Jennifer Chase, Forester
Elk Creek Fire Protection District	Chris Woolley, Fire Marshal

Monitoring Team	USDA Forest Service, Pike & San Isabel NF USDA Forest Service, Rocky Mtn Res. Station Natural Resources Conservation Service USDI Geological Survey Denver Water

Volunteer Groups	Trout Unlimited KBCO Radio Cimarron Design Colorado Trail Volunteers Volunteers for Outdoor Colorado Mountain Bike Group Colorado Mountain Club Colorado State Forest Service Volunteers

XI. MEASUREMENT AND ACCOUNTABILITY

Monitoring represents the quality control aspect of the Project. Implementation, effectiveness, and validation monitoring will occur. Individual projects will be reviewed to ensure they are implemented within the context of the Project's objectives. Individual project monitoring plans will be developed in project's planning process and will provide a link to the Upper South Platte Project monitoring.

Project effectiveness will be evaluated using the Project's Monitoring Strategy as a framework. Vegetation, hydrology, and landscape elements will be evaluated. Data collection and analysis protocols are being developed within established scientific procedures. The data analysis will determine if the Project's objectives of reducing wildfire risk and improving water quality are being achieved. An evaluation of the Project's ability to adapt research findings from the Cheesman research project will also be made. The US Forest Service will take the lead Project effectiveness monitoring. The US Geological Survey, Denver Water, the Natural Resources Conservation Service, and the US Forest Service will cooperatively monitor soil and water elements. The US Forest Service and Colorado State Forest Service will combine to monitor the vegetation elements. The US Forest Service will provide data storage. Information will be shared with all partners on a regular basis.

The Rocky Mountain Research Station will determine if our assumption that historic conditions will reduce wildfire risk and provide sustainable forests is a valid. The validation monitoring is discussed under the US Forest Service (Rocky Mountain Research Station) under section VII Partnerships.

The Upper South Platte Project is part of the Monitoring and Evaluation of Watersheds in the Middle East Regional Cooperation Program (MERC). Species composition, tree density, tree diameter, stands structure, stream flow, stream flow modeling, sediment in ponds, and on-site erosion would be monitored as part of MERC. Data collected in the Upper South Platte Project will be shared as part of the Middle East Regional Cooperation Program.

The respective decision makers for each agency are ultimately accountable for the lands they manage.

XII. ASSUMPTIONS AND RISKS

The partners' vision assumes historic conditions are accurately depicted and those conditions are sustainable. The partners also assume moving closer to historic conditions while focusing management actions in priority areas is the most effective means to achieve the Project goals.
The goals of the Upper South Platte Watershed Restoration and Protection Project are to:

- Reduce the probability of fires the magnitude of Buffalo Creek Fire across the landscape.
- Reduce fire hazards near residential areas or critical areas for water supply.
- Restore sustainable forest conditions across the landscape.

For this business plan, any event, issue, or constraint that could cause the above management goals to not be achieved in a timely manner is considered a major risk to the Restoration and Protection Project. Potential risks of something going awry and thus preventing or significantly delaying the Project are displayed in the following table.

Risk	Consequences	Solutions
Large magnitude fire before Project completion	Property damage; water supply impacts; loss of life and property, increased erosion hazards	Target the highest risk subwatersheds first; interface with local communities in high-risk areas to quickly develop and implement fire protection measures.
Escape of prescribed fire	Property damage; water quality effects	Follow prescribed fire policy. Remove large fuels to extent practical before burning.
Major storm event before Buffalo Creek burn area recovers	Property damage; water supply impacts; loss of life.	Educate public about flash flood risks. Evaluate effectiveness of past Buffalo Creek burn restoration efforts. Apply those that are cost-effective on a larger area.
Management actions ineffective	Loss of time and money	Phase work starting with actions most likely to be successful; Monitor Project effectiveness; Adapt management strategies based on successes and failures.
Lawsuits and appeals	Project delayed prolonging existing fire/erosion risks	Produce legally defensible plans/NEPA documents; acquire needed permits; consult with regulatory agencies
Lack of public support	Project delayed prolonging existing fire/erosion risks	Inform the public early about the Project; enlist more partners; listen to stakeholders and customers then be responsive to their desires and ideas.
Lack of funding	Project delayed prolonging existing fire/erosion risks	Market the Project and its successes to potential partners.
Process constraints	Project delayed prolonging existing fire/erosion risks	Work with partners to streamline processes; implement actions on nonfederal land to show results early; seek alternative ways to complete USFS processes in a timely manner.
Regulatory/policy constraints	Project delayed prolonging existing fire/erosion risks	Identify and document regulatory/policy sideboards during initial planning. Develop management actions within these sideboards.
Insufficient research	Inappropriate treatments; not achieving sustainability or reducing wildfire/erosion risks	Maintain adequate research component; apply research results appropriately.

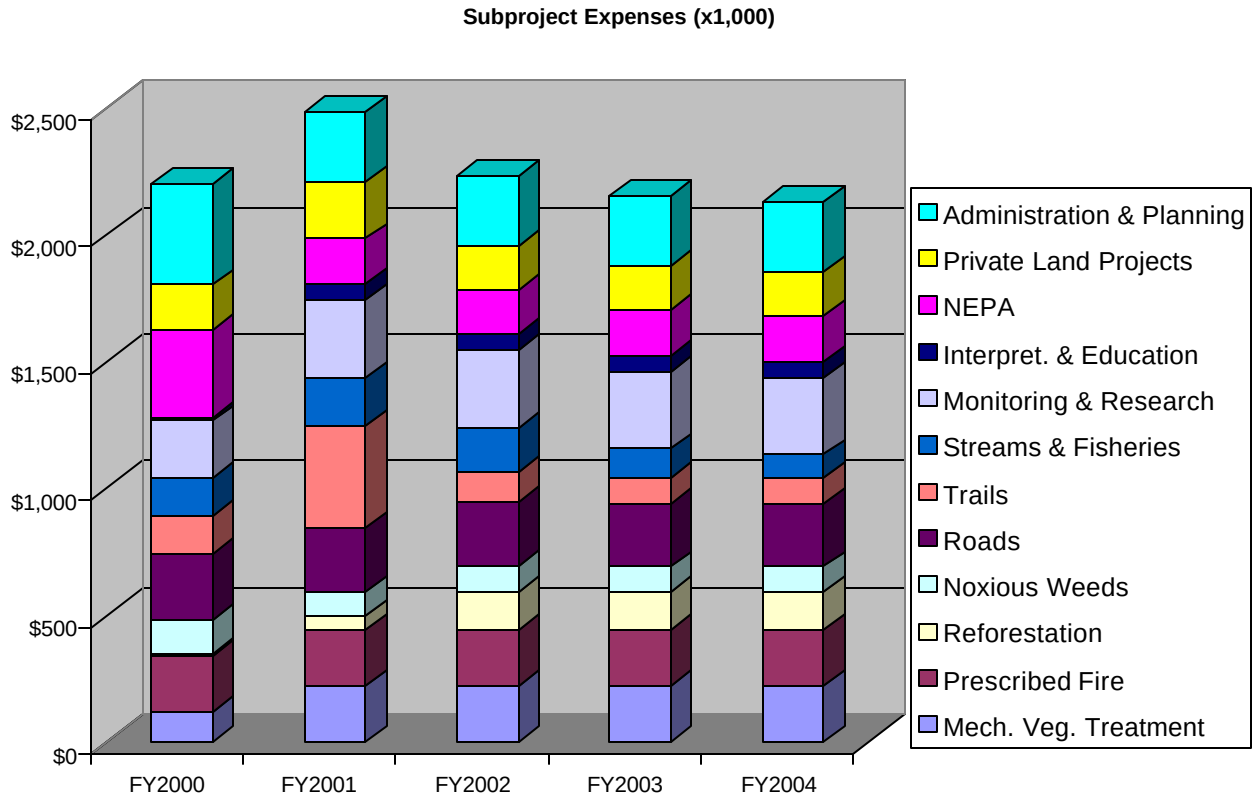
XIII. FINANCIAL PLAN

The total cost estimate for this project will be $12 million over a five-year period. This estimate includes the costs for administration, planning, information gathering, regulatory and policy compliance, social and forest restoration and protection work, research, and monitoring. The partners will fund most project costs if approved. The partners will also seek other funding sources to partially offset project costs. The following table summarizes the major funding sources. The estimated value of goods and services contributed by non-government sources were included in the table. See Appendix D for a summary of the revenues available and needed to fund this project.

Annual Funding Sources for the Upper South Platte Project (x1,000).

Partners	Code	FY2000	FY2001	FY2002	FY2003	FY2004	TOTAL
CO Forest Service	CSFS	$100	$150	$100	$100	$100	**$550**
Denver Water	DWB	$150	$150	$150	$150	$150	**$750**
EPA	EPA	$10	$10	$10	$10	$10	**$50**
US Geological Survey	USGS	$25	$25	$25	$25	$25	**$125**
Nat. Res. Conserv. Serv.	NRCS	$25	$25	$25	$25	$25	**$125**
Colo. Div. Of Wildlife	CDOW	$109	$53	$21	$21	$21	**$225**
Jefferson County	JEFCO	$0	$0	$0	$0	$0	**$0**
Park County	PACO	$0	$0	$0	$0	$0	**$0**
Douglas County	DOCO	$0	$0	$0	$0	$0	**$0**
Up. S. Platte Prot. Assoc.	USPPA	$10	$10	$10	$10	$10	**$50**
Mid. E. Regional Coop.	MERC	$0	$80	$80	$80	$80	**$320**
Trout Unlimited	TU	$10	$34	$1	$1	$1	**$47**
Fishing is Fun	FIF	$0	$20	$0	$0	$0	**$20**
CO Trails Program	CSTP	$10	$22	$6	$6	$6	**$50**
Vol. for CO Outdoors	VFCO	$5	$33	$0	$0	$0	**$38**
RR Motor. Mgt. Comm.	RRMMC	$4	$4	$4	$4	$4	**$20**
Donations	DO	$5	$5	$5	$5	$5	**$25**
Future Partners	FP	$10	$30	$30	$20	$20	**$110**
USFS EBLI							
Forest/Range Research	FRRE	$175	$175	$175	$175	$175	**$875**
Forest Steward. Prog.	SPST	$145	$145	$145	$145	$145	**$725**
Forest Health Mgt. - Fed	SPFH	$0	$0	$0	$0	$0	**$0**
Forest Health Mgt. Coop.	SPCH	$0	$0	$0	$0	$0	**$0**
Wildlife Habitat Mgt.	NFWL	$10	$10	$10	$10	$10	**$50**
Inland Fish Habitat Mgt.	NFIF	$41	$53	$55	$55	$41	**$245**
TE&SS Habitat Mgt.	NFTE	$8	$8	$8	$8	$8	**$40**
Grazing Mgt.	NFRG	$95	$60	$60	$60	$60	**$335**
Range Veg. Mgt.	NFRV	$32	$12	$12	$12	$12	**$80**
Forestland Veg. Mgt.	NFFV	$3	$53	$153	$153	$153	**$515**
Soil, Water, and Air Ops.	NFSO	$567	$302	$302	$302	$302	**$1,775**
Watershed Improve.	NFSI	$35	$163	$162	$107	$97	**$564**
Hazardous Fuels	WFHF	$360	$685	$685	$685	$685	**$3,100**
Road Construction	PARD	$0	$0	$73	$73	$73	**$219**
Trail Construction	PATC	$43	$176	$50	$38	$38	**$345**
Road Maintenance	PAMR	$110	$110	$120	$120	$120	**$580**
Trail Maintenance	PAMT	$20	$20	$20	$20	$20	**$100**
Road & Trail Maint.	TRTR	$180	$131	$6	$6	$6	**$329**
Working Capital Fund	WCF	$5	$5	$5	$0	$0	**$15**
Total		$2,302	$2,759	$2,508	$2,426	$2,402	**$12397**

The following chart shows subproject costs for the next five years. See the "Operational Plans" section for a description of the subprojects and their costs.



XIV. OUR CONCERNS

The Upper South Platte Project Team's concerns center on sufficient staffing to deliver products in a timely manner. The South Platte Ranger District does not have a Business Management section. Project team members provide computer support, contracting and procurement assistance, etc. A significant part of Project team and funding is linked with the US Forest Service. Project requests for support compete with other projects for personnel time and within the agency's regulations. An example of the unexpected and uncontrollable delays occurred due to a requirement to use an agency-wide procurement contract where four Project computers were requested in July 1999, but were not delivered until January 2000.

Many of the projects will occur on national forest lands and require environmental analysis and compliance with the National Environmental Policy Act. The issues identified in the Controversies section may delay implementation of controversial projects.

The Project expects to use mechanical vegetation treatment on approximately 2000 acres per year with a portion of the treatment resulting in sawlogs and other wood products. The forest products market in the Front Range of Colorado is very small and may not be able to fully utilize the material from the Project. The forest products will be of low value making the economics marginal of transporting the material to larger wood processing facilities.

APPENDIX A: PROJECT TIMELINE

Key points in the history of the project are:

1995. Research began on historical forest landscape conditions in the Upper South Platte Watershed.

May 1996. The Buffalo Creek Fire resulted in the loss of homes and forest cover on 11,900 acres. Two high intense rain events in 1996 and one in 1997 occurred after the fire. Soil erosion continues to occur every year during storm events.

August 1996. "Red Zone Assessment" of the Front Range Completed.

1997 - 1998. A group of Watershed stakeholders began the development of the Upper South Platte Watershed Protection Program for the purpose of protecting the water quality in the Watershed over the long term. They formed the association to develop an alternative in response to the "Wild and Scenic River Study Report and Draft Legislative Environmental Impact Statement, North Fork of the South Platte and the South Platte Rivers" released by the USDA Forest Service in 1997. The Watershed Protection Program was guided by a steering committee that included major landowners and others with responsibility for water management in the Upper South Platte Watershed, including Douglas County, Jefferson County, Park County, Teller County, Denver Water, City of Aurora, Center of Colorado Water Conservancy District, Upper South Platte Water Conservancy District, Soil Conservation Districts, and the State Land Board.

September 1998. The Denver Water, the Colorado State Forest Service, the Environmental Protection Agency, Colorado State University, the Forest Service's Rocky Mountain Region and Rocky Mountain Research Station proposed the Upper South Platte Watershed Protection and Restoration Project.

December 1998. The Colorado State Forester and Rocky Mountain Regional Forester presented the project to the USDA Forest Service, Board of Deputy Chiefs in Washington, DC.

January 1999. The Upper South Platte Project was presented to the Chief of the USDA Forest Service. The Chief indicated strong support for the project.

February 1999. The Upper South Platte Project received its initial funding from the Denver Water, the Colorado State Forest Service and the USDA Forest Service.

March 1999. The Colorado State Forester and Regional Forester of the Rocky Mountain Region chartered a Steering Committee for the Upper South Platte Project. The purpose of the committee was to provide overall guidance and oversight to project planning, implementation and monitoring. The Steering Committee was comprised of the organizations who have committed funding or personnel to the project.

April 1999. Colorado State Forest Service signed a contract with Denver Water to manage all of their lands in Colorado, including those lands within the boundary of the Upper South Platte Project.

August 1999. The Upper South Platte Watershed Landscape Assessment was completed under contract with Foster Wheeler Environmental Corporation of Denver, Colorado.

Spatial prioritization of the Upper South Platte Project was identified in the Landscape Assessment. The Steering Committee agreed to focus the initial projects in the Waterton/Deckers, Horse Creek, and Elk Creek Subwatersheds.

The Landscape Assessment identified three goals, which were subsequently adopted by the Steering Committee. The goals are to reduce sediment, crown fires, and risks to property in the urban/forest interface, and create sustainable forest conditions in the Upper South Platte Watershed.

The project began identifying management opportunities to meet its goals. Reducing road and trail related sediment, stabilizing stream channels, and reducing noxious weeds will reduce the risk of adverse effects to water quality. High intensity crown fires will be reduced with additional prescribed fires, natural fires, mechanical vegetation treatments, and through the development of sustainable forest conditions. Urban/forest interface hazards will be reduced through educational programs and vegetation treatment on private lands. Sustainable forest conditions will be developed and maintained by mimicking historic conditions with emphasis placed on thinning stands, establishing openings, and creating and maintaining snags and down logs.

An essential element of the Upper South Platte Project is to coordinate with, and seek involvement of other State and Federal agencies, local governments, key interested and affected parties, local residents, and other users.

Fall 1999. The Colorado State Forest Service planned and negotiated the first mechanical vegetation treatment projects on Denver Water's lands. The 45-acre forest restoration demonstration area includes an interpretive program with signs, brochures and guided tours. The Colorado State Forest Service also designed, marked and will sell a 95-acre fuel break and restoration thinning at Cheesman Reservoir.

The Colorado State Forest Service evaluated approximately 110 homes owned by Denver Water along the South Platte River, and will design and mark defensible space around each. A community protection plan will be developed for the homes and structures owned by Denver Water in the villages of Foxton, Nighthawk and Deckers. A contract was let to gather data on 1,000 acres of Denver Water lands along the South Platte River.

Winter 2000. Distribute the landscape assessment and share information about the project, discuss possible projects and gather comments.

The USDA Forest Service will begin NEPA planning with the intent to implement projects to mechanically manage forest vegetation, chemically treat noxious weeds, plant shrubs, and reconstruct and obliterate trails and roads.

The Steering Committee and Upper South Platte Project team will develop the implementation and effectiveness monitoring plans to ensure projects meet the stated goals and objectives. Monitoring will occur annually with the results used for feedback in an adaptive management framework.

Spring 2000 CSFS, Denver Water, Louisiana Pacific Corporation and Brandt Logging are testing and documenting costs for doing highly mechanized harvesting on 165 acres of Denver Water Lands.

2000 – 2005. The short-term annual outcomes are: approximately 2000 acres of high-risk forest will be restored to sustainable conditions; 10 acres of noxious weeds treated; 1 mile of stream bank stabilized; 10 miles of road stabilized or obliterated; and 20 additional residences will have defensible space.

2025 – 2050. The long-term outcomes will be the realization of the Upper South Platte Project goals of reduced sediment and crown fires, defensible space in the urban/forest interface, and sustainable forest conditions in the Upper South Platte Watershed.

APPENDIX B: SYNTHESIS OF LANDSCAPE ASSESSMENT ISSUES, FINDINGS, AND RECOMMENDATIONS

Issue A (Synthesis): Landscape Pattern of Vegetation

Issue/ Key Question	Finding	Cause	Future Trend	Outcome/ Resources Affected	Recommendations
What are the existing patterns and distribution of the types/ages of forest's vegetation?	Ponderosa pine (PP) and Douglas-fir (DF) types occupy the montane forest zone and the majority of the Assessment Area. Spruce/fir (S/F) and lodge pole pine (LP) occupy the sub alpine zone. Late seral stages dominate the Assessment Area.	Extensive grazing, logging between 1870-1900, and fire suppression from 1900 to present.	Continued dominance of PP/DF type.	NA	NA
What disturbance processes are primarily responsible for the patterns/ distribution of the forest's vegetation?	Lack of disturbances in PP/DF since extensive logging of area. Two key processes in the S/F and LP forests: insects create small-scale disturbance, insects and fire create large-scale disturbance, fire may occur on a 300- to 400-year cycle while insect mortality is an on-going process with periodic epidemics.	Extensive grazing, logging between 1870-1900, and fire suppression from 1900 to present changed stand structure and density. Most of the area has not had a fire in 148 years. It is likely that much of the area would have burned about 1906 and again in from multiple fire starts in 1963 had these fires not been suppressed. Insect outbreaks in the S/F and LP forests often follow windthrow events, which lead to insect population increases. Insect-caused mortality in LP and S/F forests increases fuel loads and sometimes lead to stand-replacement fires.	Fires in PP/DF forests may follow fuel build-up that occurs during wet periods. Continued natural processes in S/F and LP where fires do not threaten structures.	Large-scale stand-replacement fires like Buffalo Creek followed by erosion and flooding that threaten life and property.	N/A
What are the patterns of fire hazard? Where are areas of uniformity in forest cover that reflect an increased risk of fire spread? How does the current composition /pattern of the forest vegetation contribute to the risk of catastrophic disturbance that may lead to excessive soil erosion? How do these factors contribute to the risk of excessive soil erosion resulting from sparse vegetation cover?	The lack of openings that act as fire breaks and the presence of dense stands covering most of the PP/DF area encourage crownfires that can kill trees over thousands of acres and lead to soil erosion on a massive scale. Subwatersheds with large amounts of PP/DF are the most "at risk" (Waterton/Deckers, Horse, Cheesman, West, and Trout).	Fire suppression (compounded by logging in the late 19th century which removed the larger trees).	Continued fire suppression often unsuccessful in preventing large, stand-replacement fires.	Additional catastrophic fires followed by erosion and flooding in the PP/DF forests.	N/A

Issue/ Key Question	Finding	Cause	Future Trend	Outcome/ Resources Affected	Recommendations
What are the current patterns of distribution of weedy or invasive plant species? Where are invasive species most likely to be of concern for restoration management?	Leafy spurge, kochia, diffuse knapweed, Canada thistle, musk thistle, yellow toad flax, Russian thistle have become common invasive plants in burned areas (Buffalo Creek Fire), out-competing native plants and reducing forage value, requiring extensive efforts to combat.	Introduced by people and domestic animals.	Continued spread to new areas.	Further loss of forage values and native plants.	Follow Pike-San Isabel Noxious Weed Management Plan. Consider noxious weeds when planning thinning, creating openings, or building trails or roads into uninfested areas or crossing infested areas with equipment and vehicles.
Where are known population of terrestrial species of special interest or concern? Where is potential habitat for these species?	Habitats within the area support 30 target species. The large habitat blocks are the montane forest characterized by PP/DF forest. Snags and cavities are generally lacking.	Current conditions.	High risk of large-scale fires. Gradual increase in snags and cavities as forests age.	More snags and cavities would increase habitat for some species. Large-scale forest fires would reduce habitat quality and quantity dramatically.	Maintain/create snags & trees w/cavities.
What were the key pre-European disturbances that contributed to patterns of vegetation development? How were historical fires characterized? What was the historical occurrence of intense, large fires?	The natural range of variation in vegetation in the PP/DF forests included openings (that may have covered 10 to 20% of the area) and a mosaic of age classes (ranging from seedlings to trees over 400 years). PP predominated except on north slopes. DF predominated on north slopes. The natural range of variation in vegetation in the S/F and LP forests was probably similar to current conditions.	Frequent large-scale fires that burned at different intensities throughout the PP/DF forests.	N/A	A mosaic of openings and patches of different age classes and densities in the PP/DF forests which tended result in fires that skipped around rather than killing all trees over several thousand acres. Insect damage and/or windthrow in the S/F and LP forests resulted in uneven-aged stands of shade tolerant species (S and F). Fires in the S/F and LP forests resulted in even-aged stands of LP, aspen, and/or S.	N/A

Issue/ Key Question	Finding	Cause	Future Trend	Outcome/ Resources Affected	Recommendations
How do existing conditions of forest vegetation differ from historical or reference conditions? What distribution and patterns of forest vegetation conditions across the landscape would lessen the risks of catastrophic disturbance that might lead to extreme soil erosion? What would be considered a sustainable forest vegetation composition and landscape pattern?	Key process in the PP/DF forests was large-scale fire on an average 60-year cycle. These were often a mixture of surface and crown fires that created a mosaic of openings and patches with different age classes and tree densities. Two key processes in the S/F and LP forests: insects create small-scale disturbance, insects and fire create large-scale disturbance, fire may occur on a 300- to 400-year cycle while insect mortality is an on-going process with periodic epidemics.	Fires in PP/DF forests may follow fuel build-up that occurs during wet periods. Insect outbreaks in the S/F and LP forests often follow windthrow events, which lead to insect population increases. Insect-caused mortality in LP and S/F forests increases fuel loads and sometimes lead to stand-replacement fires.	N/A	Effects on resources remained within the natural range of variation.	Recreate pre-European forest conditions in PP/DF forests. Create 5-10 acre openings (10 to 20% of the landscape). Thin remaining stands to the appropriate species mix and tree densities. Leave large PP trees and some large DF trees. Favor DF on north slopes. Use prescribed fire to maintain some openings, generally on south slopes. Consider removing blowdown in S/F forests to reduce insects' population explosions. Maintain aspen stands for sapsuckers and other resource values. Consider leaving a buffer around aspen stands. Regenerate LP stands, log and burn stand-sized patches, allow some to regenerate to aspen. Plan for a low-density road system. Treat stands that are near to existing roads to avoid new roads where that strategy will meet resource objectives. Decommission roads not needed for future management. Storm proof existing roads and new roads not planned for decommissioning. Consider erosion potential of soils when planning treatments. Closely monitor results and implement an adaptive management approach to restoration activities.
Where are the high priority restoration needs or opportunities?	Many species would benefit from increased numbers of snags, large trees with cavities, openings, and age class diversity in PP/DF forests Sub alpine zone have high levels of snags and cavities	Loss of these components over time due to fire suppression and logging	Gradual increase in snags and cavities as forests age. High risk of large-scale fires.	Adverse impacts to many species, including TES species, reduced species diversity and abundance if large-scale fires happen.	Thin, create openings, create snags and cavities, increase age class diversity in PP/DF areas Consult recovery plans for TES species

Issue B (Synthesis): Soil Development and Movement

Issue/ Key Question	Finding	Cause	Future Trend	Outcome/ Resources Affected	Recommendations
How do land use, road and trail networks contribute to current soil erosion patterns?	Road and trail networks, rural and suburban development locally cause detrimental soil compaction, which reduces or eliminates infiltration of surface water into the soil column. The result of decreased infiltration is the increase of sheet erosion that can lead to rill and gully erosion during periods of precipitation or snowmelt.	Insufficient design and maintenance.	Increased erosion due to expansion of road and trail networks as a result of development.	N/A	Reduction of local erosion by correction of design, improve maintenance and local closure and reclamation of roads & trails.
What subwatersheds in the study currently have high erosion hazards?	Map S-2 displays the current high erosion hazards. There is an area in the northern central portion of the Assessment Area that is rated as extreme erosion hazard. Severe erosion hazard areas are prevalent in the Assessment Area.	Inherent soil erodibility and human soil compaction.	Increased erosion hazard due to expansion of road networks as a result of development.	N/A	N/A
What subwatersheds are characterized by geologic instability?	The faults and fractures that are present are such that, while influencing local topography and stream locations, their density, type, and orientation do not create significant weaknesses that lead to large zones of mass movement and instability.	N/A	N/A	N/A	N/A
What subwatersheds have the highest potential for soil loss following a wildfire?	Horse Creek rated extreme in potential for soil movement following wildfire. Subwatersheds rated as high are Buffalo Creek, Cheesman, Deer Creek, Elk Creek, Lower North Fork, and Waterton/Deckers.	Those subwatersheds displayed high soil erosion hazard, hydrophobicity potential and fire risk.	Potential for catastrophic wildfire followed by erosion.	Substantial soil erosion similar to Buffalo Creek.	Reduce risk of wildfire in priority subwatersheds.
What is the potential for problems associated with hydrophobic soils?	Hydrophobic soils are not well understood. They can result in a higher rate of sheetwash instead of infiltration.	Inherent soil characteristics.	N/A	N/A	N/A

Issue/ Key Question	Finding	Cause	Future Trend	Outcome/ Resources Affected	Recommendations
Historically, what were the primary types and patterns of disturbances that contributed to soil erosion?	Reference conditions are hard to establish, but using photographic and survey records and ecologic reconstructions by fire ecologists we commonly get a picture of more open forests. Pre-European influences were both natural such as lightning started fires and possibly widespread fire application by Native Americans. Both of these events disturbed soil and increased erosion. Also, Pre-European conditions had abundant wildlife similar Alaska and Arctic Canada. Some of these large herds were very destructive to soil.		Wildlife will never return to Pre-European levels. Wildfires will increase in scale and frequency if the current management plan is followed.		Reduce tree densities, create openings and increase the frequency of ground fires to clear out the understory and reduce build up of fuel.
What was the soil loss due to erosion that could be attributed to these historic patterns?	Historic soil losses in the Assessment Area probably were similar to present rates; however, the potential for soil loss has steadily increased under fire suppression. Because of the granular characteristic of weathered granite the resulting soil will always have tendency towards being highly erosive.	Assessment Area has natural tendency towards erosive soils but can be exacerbated by severe fires.	Under continued fire suppression the threat of massive soil losses following wildfire over extended periods increases.	Additional catastrophic fires followed by extensive erosion and flooding in the PP/DF forests.	Reduce tree density, fuel build up and understory height and create openings to act as fire breaks in the PP/DF forests as described in Issue A.
Did Eros ional events such as those occurring after the Buffalo Creek fire occur in the pre-European era? How often might they have occurred?	Erosion events such as Buffalo Creek occurred in prehistory. The evidence is in the large expanses of even aged PP stands that the European settlers harvested and some are still to be seen. For these to have occurred a devastating fire had to come through the area resulting in massive erosion until vegetation stabilized the area.	Natural or Aboriginal.	N/A	N/A	Reduce tree density, fuel build up and understory height and create openings to act as fire breaks in the PP/DF forests as described in Issue A.
What is the importance of macrobiotic crusts to ecosystem function and soil retention?	The role of macrobiotic crusts is unclear, but it is probable that their soil-stabilizing role is lost during an intense fire.	N/A	N/A	N/A	Further research on the function of microbiotic crusts, especially following fire. Document responses to disturbances associated with restoration projects.

Issue/ Key Question	Finding	Cause	Future Trend	Outcome/ Resources Affected	Recommendations
What subwatersheds have patterns of soil distribution that are farthest from what would be expected from pre-European disturbance patterns? What subwatersheds do soil erosion patterns and processes that are farthest from the historic erosion patterns currently characterize?	The subwatersheds were ranked for both the pre- and post-European periods for soil disturbance patterns (Map S-1). The changes in rankings were given a direction and magnitude. The subwatersheds with the greatest change from reference conditions are Deer, Elk and Trout Creeks, which contain some of the highest human populations.	Human caused changes resulted in a change in rankings for soil disturbances.	Increased human disturbances due to increased development.	Some increased detrimental impacts to soils in areas of construction of roads, etc.	Use management direction to minimize extent of new roads.
What subwatersheds have the greatest need for restoration based upon soil integrity and sustainability?	Map S4 shows the ranking for subwatersheds that are at risk for soils, have areas of high erosion hazards, and are susceptible to potential soil loss following fire (combination of Maps S1 through S3). Horse Creek is the only subwatershed that is identified as extreme risk. Buffalo Creek, Deer Creek, Elk Creek, Lower North Fork, and Waterton/Deckers subwatersheds are all identified as high risk.	The subwatersheds ranked as high or extreme risk have a combination of factors that lead to their ranking.	Increasing soil impacts in areas of human development. Catastrophic erosion events associated with large fires such as Buffalo Creek Fire.	Extensive soil erosion as evidenced following the Buffalo Creek Fire.	Reduce fire risk, minimize new road construction and other human development related impacts. Review Buffalo Creek fire area for erosion mitigation and soil stabilization efforts that worked. Formulate an action plan for future fires in the area.

Issue C (Synthesis): Water Quality and Quantity and Aquatic Habitat

Issue/ Key Question	Finding	Cause	Future Trend	Outcome/ Resources Affected	Recommendations
What are the physical structures of the streams in the Watershed and how do those structures affect the movement and quantity of sediment in the streams?	There are 899 miles of stream in the Watershed. 48 percent are A and Aa+ types channels (high gradient (greater than 4 percent)), 23 percent are B and G types channels (moderate gradient (2 to 4 percent)), 25 percent are C and E type channels (low gradient < 2 percent), and 4 percent is lakes and reservoirs.	Geomorphic influences	N/A	N/A	N/A
Where are the most sensitive and highly erodible soils and how do they relate to the Watershed's streams? Where are the critical sources of sediment and how do they relate to the Watershed's streams?	Transport potential is dependent upon the hydrometeorological characteristics of the subwatersheds and stream channel morphology.	Areas below 7500 feet are more susceptible to greater transport potential because of the increased influence of rainfall dominated peak flows; response reaches, especially those areas in which channel gradient and characteristics change from a sediment transport areas to one where sediment supply exceeds transport capacity of the stream (places where Rosgen A channels meet to form Rosgen C and E channels) are more susceptible to limiting transport of sediment prior to large storm events; in addition, reservoirs and impoundments on streams will be sources of storage for sediment	Historic flash floods are evident in the recent (Holocene) geologic record and will continue to occur into the future		
What are the sources and causes of water quality impairments as they relate to the state water quality rules and regulations and the Clean Water Act?	There are four stream segments listed on the State 303(d) list. They are: Trout Creek, South Platte River above Cheesman portions of Geneva Creek and the Hall Valley area. 17 other reaches are listed on the State's monitoring and evaluation list for sediment. These reaches are the targets for water quality.	Trout Creek is listed for sediment but the actual impacts are from nutrient enrichment. The South Platte River above Cheesman is listed for problems outside the Watershed. Geneva Creek and Hall Valley were listed for water quality impacts from historic mines. Most of the reaches on the Monitoring and Evaluation list are sediment impacted from roads.	Continued road and mine impacts for listed segments. The State and EPA are assessing Geneva Creek and Hall Valley area for possible remediation projects, which should improve water quality there. Large-scale fires like Buffalo Creek could seriously impact more streams.	Road derived sediments may be transported downstream where deposition could cause pools to fill and fish spawning habitat to be adversely affected. Agencies are becoming more aware of possible problems with sediment yield from roads in the assessment area.	Inventory roads in subwatersheds where sediment problems have been identified. Recommend treatments to problem road segments where necessary. Use caution in designing new roads to minimize any sediment yield increases. Where new roads are proposed, design the roads to minimize amount of new roads. Use temporary roads where possible and decommission them following use.

Issue/ Key Question	Finding	Cause	Future Trend	Outcome/ Resources Affected	Recommendations
Where are the known populations of aquatic species of interest? Where is potential habitat for these species? How would pre-European aquatic habitat and fish populations be characterized?	Brook trout are the management indicator species for the PSI Forest. They are located above 7500 feet in elevation in all 6th level watersheds and have good populations in those areas.	Greenback cutthroat trout were eliminated from the assessment area through introduction of non-native trout species. Brook trout do not compete well with rainbow trout in warmer waters below 7500 feet in elevation.	Distribution will remain until habitat is altered, potentially by large catastrophic wildfires.	Large-scale fires will adversely effect habitat but natural or human recovery will occur and allow recolonization of habitat. If large areas of a subwatershed above 7500 feet burned brook trout could potentially be eliminated from that subwatershed.	Reduce fire risk and potential sediment increases from brook trout habitat areas.
What limiting factors, such as streamflows, reservoirs and areas of sediment deposition, control levels of sediment transport within the streams?	Cheesman Dam and Roberts Tunnel have changed the natural flow regimes.	Cheesman Dam reduces peak flows and increases low flows.	Effects will continue	Fish below Cheesman and Roberts Tunnel experience higher low flows than under reference conditions	N/A
How would pre-European sediment yield, transport and deposition be characterized?	Pre-European sediment yield and transport were characterized by more frequent, smaller sediment events.	Smaller more frequent fires.	N/A	N/A	N/A
What subwatersheds are currently characterized by hydrologic patterns and processes that are farthest from the historic patterns?	Waterton/Deckers, Horse Creek and Lower North Fork Subwatersheds are rated the highest for restoration projects.	They have the highest overall combination of water quality problems, sediment source zone, elevation below 7500 feet and sediment limited junctions.	Continued water quality problems related to roads.	Fish habitat and channel dynamic equilibrium adversely affected.	Target subwatersheds listed and locate in areas were road rehabilitation projects can be done with the vegetation restoration project.

APPENDIX C: TARGET AUDIENCES

Internal Communications

Regional Forester
Forest Supervisor
South Platte, South Park and Pikes Peak Ranger District Employees
Appropriate WO, Regional Office and Pike and San Isabel NF Staff
Rocky Mountain Research Station Director and staff
Colorado State Forest Service
Denver Water
US Environmental Protection Agency
USDA Natural Resources Conservation Service
USDI Geological Survey

Federal Agencies

Bureau of Land Management
Environmental Protection Agency
USDA Natural Resources Conservation Service
USDI Geological Survey
US Fish and Wildlife Service
Army Corps of Engineers

US Congress – Colorado

Senator Wayne Allard
Senator Ben Nighthorse Campbell

Congresswoman Diana DeGette – District 1 (Denver)
Congressman Mark Udall – District 2 (Boulder)
Congressman Scott McInnis – District 3 (Grand Junction)
Congressman Bob Schaffer – District 4 (Ft. Collins)
Congressman Joel Hefley – District 5 (Colorado Springs)
Congressman Thomas Tancredo – District 6 (Littleton)

State of Colorado

Governor Bill Owens

State Representative Fran Coleman (District 1)
State Representative Rob Fairbank (District 30)
State Representative Lynn Hefley (District 20)
State Representative Maryanne Keller (District 24)
State Representative Don Lee (District 28)
State Representative Scott McKay (District 26)
State Representative Joe Nunez (District 64)
State Representative Mark Paschall (District 29)
State Representative Penn Pfiffner (District 23)
State Representative Glenn Scott (District 62)
State Representative Joe Stengel (District 38)

State Representative Sue Windels (District 27)
State Representative John Witwer (District 25)

State Senator Norma Anderson (District 22)
State Senator Tom Blickensderfer (District 26)
State Senator Ken Chlouber (District 4)
State Senator Jim Congrove (District 19)
State Senator John Evans (District 30)
State Senator Michael Feeley (District 21)
State Senator Ed Perlmutter (District 20)
State Senator Maryanne Tebedo (District 12)

Colorado County Government

Douglas County Commissioners
Jefferson County Commissioners
Park County Commissioners
Teller County Commissioners
El Paso County Commissioners

Colorado Municipal Government

City of Aurora
City of Denver
City of Pine
City of Bailey
City of Woodland Park
Denver Water
Villages of Deckers/Trumbull/Nighthawk/Oxyoke
Town of Buffalo Creek

Colorado State Agencies

Colorado State Forest Service
Colorado State University
Colorado State Department of Water Quality
Colorado State Land Board
Colorado Department of Natural Resources, Division of Wildlife
Colorado Department of Natural Resources, Colorado Water Conservation Board
Colorado Commission of Indian Affairs

Tribal Governments

Northern Arapaho Business Council
Northern Arapaho Traditional Elders
Northern Cheyenne Tribal Council
Northern Cheyenne Cultural Commission
Cheyenne and Arapaho Tribes of Oklahoma
Comanche Tribal Business Committee
Southern Ute Tribal Council

Non-governmental Organizations

Upper South Platte Watershed Protection Program
Elk Creek Fire Protection District
North Fork Fire Protection District
Mountain Communities Fire Protection District
Platte Canyon Fire Protection District
Trumbull Fire Protection District
Center of Colorado Water Conservancy District
Upper South Platte Water Conservancy District
Soil Conservation Districts
The Suburban Metropolitan Water Providers

Organizations, Interest Groups and Businesses

Back Country Horsemen of America
Bighorn 4x4 Club
Colorado Association of 4 Wheel Drive Clubs, Inc.
Colorado Cattlemen's Association
Colorado Environmental Coalition
Colorado Mountain Club
Colorado Mountain Trail Riders Association
Colorado Rivers Alliance
Colorado State Farm Bureau
Colorado Timber Industry Association
Colorado Trout Unlimited
Colorado Wildlife Federation
Denver Audubon Society
Environmental Defense Fund
Evergreen Naturalists' Audubon Society
High Country Citizens Alliance
Mile High Jeep Club
National Audubon Society
Park County Preservation
Platte Canyon Outdoor Resource Council
Rocky Mountain Elk Foundation
Sierra Club, Rocky Mountain Chapter
United Sportsman Council of Colorado
University of the Wilderness
Wigwam Club
Wildlife Management Institute

APPENDIX D: FIVE-YEAR SUMMARY OF THE REVENUES AVAILABLE AND NEEDED TO FUND THE UPPER SOUTH PLATTE PROJECT

Upper South Platte Project Costs and Funds for FY2000 (x1,000).

Partners	Code	Project Costs	Funds Available	Funds Needed
CO Forest Service	CSFS	$100	$100	$0
Denver Water	DW	$150	$150	$0
EPA	EPA	$10	$10	$0
US Geological Survey	USGS	$25	$25	$0
Nat. Res. Conserv. Serv.	NRCS	$25	$25	$0
Colo. Div. Of Wildlife	CDOW	$109	$109	$0
Jefferson County	JEFCO	$0	$0	$0
Park County	PACO	$0	$0	$0
Douglas County	DOCO	$0	$0	$0
Up. S. Platte Prot. Assoc.	USPPA	$10	$10	$0
Mid. E. Regional Coop.	MERC	$0	$0	$0
Trout Unlimited	TU	$10	$10	$0
Fishing is Fun	FIF	$0	$0	$0
CO Trails Program	CSTP	$10	$10	$0
Vol. for CO Outdoors	VFCO	$5	$5	$0
RR Motor. Mgt. Comm.	RRMMC	$4	$4	$0
Donations	DO	$5	$5	$0
Future Partners	FP	$10	$10	$0
Partners Total		**$473**	**$473**	**$0**
USFS EBLI				
Forest/Range Research	FRRE	$175	$75	$100
Forest Steward. Prog.	SPST	$145	$0	$145
Forest Health Mgt. - Fed	SPFH	$0	$0	$0
Forest Health Mgt. Coop.	SPCH	$0	$0	$0
Wildlife Habitat Mgt.	NFWL	$10	$10	$0
Inland Fish Habitat Mgt.	NFIF	$41	$41	$0
TE&SS Habitat Mgt.	NFTE	$8	$8	$0
Grazing Mgt.	NFRG	$95	$16	$79
Range Veg. Mgt.	NFRV	$32	$32	$0
Forestland Veg. Mgt.	NFFV	$3	$3	$0
Soil, Water, and Air Ops.	NFSO	$567	$5	$562
Watershed Improve.	NFSI	$35	$8	$27
Hazardous Fuels	WFHF	$360	$246	$114
Road Construction	PARD	$0	$0	$0
Trail Construction	PATC	$43	$22	$21
Road Maintenance	PAMR	$110	$110	$0
Trail Maintenance	PAMT	$20	$20	$0
Road & Trail Maint.	TRTR	$180	$106	$0
Working Capital Fund	WCF	$5	$5	$0
USFS EBLI Total		**$1,829**	**$781**	**$1,048**

Grand Total	**$2,302**	**$1,254**	**$1,048**

Upper South Platte Project Costs and Funds for FY2001 (x1,000).

Partners	Code	Project Costs	Funds Available	Funds Needed
CO Forest Service	CSFS	$150	$150	$0
Denver Water	DW	$150	$150	$0
EPA	EPA	$10	$10	$0
US Geological Survey	USGS	$25	$25	$0
Nat. Res. Conserv. Serv.	NRCS	$25	$25	$0
Colo. Div. Of Wildlife	CDOW	$53	$53	$0
Jefferson County	JEFCO	$0	$0	$0
Park County	PACO	$0	$0	$0
Douglas County	DOCO	$0	$0	$0
Up. S. Platte Prot. Assoc.	USPPA	$10	$10	$0
Mid. E. Regional Coop.	MERC	$80	$0	$80
Trout Unlimited	TU	$34	$34	$0
Fishing is Fun	FIF	$20	$0	$20
CO Trails Program	CSTP	$22	$6	$16
Vol. for CO Outdoors	VFCO	$33	$33	$0
RR Motor. Mgt. Comm.	RRMMC	$4	$4	$0
Donations	DO	$5	$5	$0
Future Partners	FP	$30	$0	$30
Partners Total		**$651**	**$505**	**$146**
USFS EBLI				
Forest/Range Research	FRRE	$365	$115	$250
Forest Steward. Prog.	SPST	$145	$0	$145
Forest Health Mgt. - Fed	SPFH	$0	$0	$0
Forest Health Mgt. Coop.	SPCH	$0	$0	$0
Wildlife Habitat Mgt.	NFWL	$10	$10	$0
Inland Fish Habitat Mgt.	NFIF	$53	$41	$12
TE&SS Habitat Mgt.	NFTE	$8	$8	$0
Grazing Mgt.	NFRG	$60	$16	$44
Reange Veg. Mgt.	NFRV	$12	$12	$0
Forestland Veg. Mgt.	NFFV	$53	$3	$50
Soil, Water, and Air Ops.	NFSO	$302	$5	$297
Watershed Improve.	NFSI	$163	$8	$155
Hazardous Fuels	WFHF	$685	$276	$409
Road Construction	PARD	$0	$0	$0
Trail Construction	PATC	$176	$22	$154
Road Maintenance	PAMR	$110	$110	$0
Trail Maintenance	PAMT	$20	$20	$0
Road & Trail Maint.	TRTR	$131	$131	$0
Working Capital Fund	WCF	$5	$5	$0
USFS EBLI Total		**$2,298**	**$782**	**$1,516**
Grand Total		**$2,949**	**$1,287**	**$1,662**

Upper South Platte Project Costs and Funds for FY2002 (x1,000).

Partners	Code	Project Costs	Funds Available	Funds Needed
CO Forest Service	CSFS	$100	$100	$0
Denver Water	DW	$150	$150	$0
EPA	EPA	$10	$10	$0
US Geological Survey	USGS	$25	$25	$0
Nat. Res. Conserv. Serv.	NRCS	$25	$25	$0
Colo. Div. Of Wildlife	CDOW	$21	$21	$0
Jefferson County	JEFCO	$0	$0	$0
Park County	PACO	$0	$0	$0
Douglas County	DOCO	$0	$0	$0
Up. S. Platte Prot. Assoc.	USPPA	$10	$10	$0
Mid. E. Regional Coop.	MERC	$80	$0	$80
Trout Unlimited	TU	$1	$1	$0
Fishing is Fun	FIF	$0	$0	$0
CO Trails Program	CSTP	$6	$6	$0
Vol. for CO Outdoors	VFCO	$0	$0	$0
RR Motor. Mgt. Comm.	RRMMC	$4	$4	$0
Donations	DO	$5	$5	$0
Future Partners	FP	$30	$0	$30
Partners Total		**$467**	**$357**	**$110**

USFS EBLI

Forest/Range Research	FRRE	$384	$121	$263
Forest Steward. Prog.	SPST	$145	$0	$145
Forest Health Mgt. - Fed	SPFH	$0	$0	$0
Forest Health Mgt. Coop.	SPCH	$0	$0	$0
Wildlife Habitat Mgt.	NFWL	$10	$10	$0
Inland Fish Habitat Mgt.	NFIF	$55	$41	$14
TE&SS Habitat Mgt.	NFTE	$8	$8	$0
Grazing Mgt.	NFRG	$60	$16	$44
Reange Veg. Mgt.	NFRV	$12	$12	$0
Forestland Veg. Mgt.	NFFV	$153	$3	$150
Soil, Water, and Air Ops.	NFSO	$302	$5	$297
Watershed Improve.	NFSI	$162	$8	$154
Hazardous Fuels	WFHF	$685	$276	$409
Road Construction	PARD	$73	$0	$73
Trail Construction	PATC	$50	$22	$28
Road Maintenance	PAMR	$120	$110	$10
Trail Maintenance	PAMT	$20	$20	$0
Road & Trail Maint.	TRTR	$6	$6	$0
Working Capital Fund	WCF	$5	$5	$0

USFS EBLI Total	**$2,250**	**$663**	**$1,587**
Grand Total	**$2,717**	**$1020**	**$1,697**

Upper South Platte Project Costs and Funds for FY2003 (x1,000).

Partners	Code	Project Costs	Funds Available	Funds Needed
CO Forest Service	CSFS	$100	$100	$0
Denver Water	DW	$150	$150	$0
EPA	EPA	$10	$10	$0
US Geological Survey	USGS	$25	$25	$0
Nat. Res. Conserv. Serv.	NRCS	$25	$25	$0
Colo. Div. Of Wildlife	CDOW	$21	$21	$0
Jefferson County	JEFCO	$0	$0	$0
Park County	PACO	$0	$0	$0
Douglas County	DOCO	$0	$0	$0
Up. S. Platte Prot. Assoc.	USPPA	$10	$10	$0
Mid. E. Regional Coop.	MERC	$80	$0	$80
Trout Unlimited	TU	$1	$1	$0
Fishing is Fun	FIF	$0	$0	$0
CO Trails Program	CSTP	$6	$6	$0
Vol. for CO Outdoors	VFCO	$0	$0	$0
RR Motor. Mgt. Comm.	RRMMC	$4	$4	$0
Donations	DO	$5	$5	$0
Future Partners	FP	$20	$0	$20
Partners Total		**$457**	**$357**	**$100**
USFS EBLI				
Forest/Range Research	FRRE	$403	$127	$276
Forest Steward. Prog.	SPST	$145	$0	$145
Forest Health Mgt. - Fed	SPFH	$0	$0	$0
Forest Health Mgt. Coop.	SPCH	$0	$0	$0
Wildlife Habitat Mgt.	NFWL	$10	$10	$0
Inland Fish Habitat Mgt.	NFIF	$55	$41	$14
TE&SS Habitat Mgt.	NFTE	$8	$8	$0
Grazing Mgt.	NFRG	$60	$16	$44
Reange Veg. Mgt.	NFRV	$12	$12	$0
Forestland Veg. Mgt.	NFFV	$153	$3	$150
Soil, Water, and Air Ops.	NFSO	$302	$5	$297
Watershed Improve.	NFSI	$107	$8	$99
Hazardous Fuels	WFHF	$685	$276	$409
Road Construction	PARD	$73	$0	$73
Trail Construction	PATC	$38	$22	$16
Road Maintenance	PAMR	$120	$110	$10
Trail Maintenance	PAMT	$20	$20	$0

Road & Trail Maint.	TRTR	$6	$6	$0
Working Capital Fund	WCF	$0	$0	$0
USFS EBLI Total		**$2,197**	**$664**	**$1,533**
Grand Total		**$2,654**	**$1,021**	**$1,633**

Upper South Platte Project Costs and Funds for FY2004 (x1,000).

Partners	Code	Project Costs	Funds Available	Funds Needed
CO Forest Service	CSFS	$100	$100	$0
Denver Water	DW	$150	$150	$0
EPA	EPA	$10	$10	$0
US Geological Survey	USGS	$25	$25	$0
Nat. Res. Conserv. Serv.	NRCS	$25	$25	$0
Colo. Div. Of Wildlife	CDOW	$21	$21	$0
Jefferson County	JEFCO	$0	$0	$0
Park County	PACO	$0	$0	$0
Douglas County	DOCO	$0	$0	$0
Up. S. Platte Prot. Assoc.	USPPA	$10	$10	$0
Mid. E. Regional Coop.	MERC	$80	$0	$80
Trout Unlimited	TU	$1	$1	$0
Fishing is Fun	FIF	$0	$0	$0
CO Trails Program	CSTP	$6	$6	$0
Vol. for CO Outdoors	VFCO	$0	$0	$0
RR Motor. Mgt. Comm.	RRMMC	$4	$4	$0
Donations	DO	$5	$5	$0
Future Partners	FP	$20	$0	$20
Partners Total		**$457**	**$357**	**$100**
USFS EBLI				
Forest/Range Research	FRRE	$423	$134	$289
Forest Steward. Prog.	SPST	$145	$0	$145
Forest Health Mgt. - Fed	SPFH	$0	$0	$0
Forest Health Mgt. Coop.	SPCH	$0	$0	$0
Wildlife Habitat Mgt.	NFWL	$10	$10	$0
Inland Fish Habitat Mgt.	NFIF	$41	$41	$0
TE&SS Habitat Mgt.	NFTE	$8	$8	$0
Grazing Mgt.	NFRG	$60	$16	$44
Reange Veg. Mgt.	NFRV	$12	$12	$0
Forestland Veg. Mgt.	NFFV	$153	$3	$150
Soil, Water, and Air Ops.	NFSO	$302	$5	$297
Watershed Improve.	NFSI	$97	$8	$89
Hazardous Fuels	WFHF	$685	$101	$584
Road Construction	PARD	$73	$0	$73
Trail Construction	PATC	$38	$22	$16

Road Maintenance	PAMR	$120	$110	$10
Trail Maintenance	PAMT	$20	$20	$0
Road & Trail Maint.	TRTR	$6	$6	$0
Working Capital Fund	WCF	$0	$0	$0
USFS EBLI Total		**$2,193**	**$496**	**$1,697**
Grand Total		**$2,650**	**$853**	**$1,797**
5-year Total		**$13,272**	**$5,435**	**$7,837**

APPENDIX E: PROJECT FINANCING SUMMARY

Mechanical Vegetation Treatment
The Colorado Forest Service funding will be used on private lands and Denver Water lands. Denver Water funds will be used on Denver Water Lands. USDA Forest Service WFHF funds will be used on public lands and SPST funds will be used on private lands.

Prescribed Fire
USDA Forest Service NFWL and WFHF funds will be used in prescribed fires on public lands.

Reforestation
USDA Forest Service NFFV and WCF funds will be used to reforest a portion of the Buffalo Creek Fire area on public lands.

Noxious Weeds
The Colorado Division of Wildlife funding will be used on public and private lands. Denver Water funds will be used on Denver Water lands. USDA Forest Service NFRG funds will be used on public lands.

Roads
County and State funds will be used on County Roads. USDA Forest Service NFSI, PAMR, PARD, and TRTR funds will be used on Forest roads.

Trails
Colorado Division of Wildlife, Colorado Tails Program, Fishing Is Fun, Rampart Range Motorcycle Management Committee, Trout Unlimited, Volunteers for Colorado Outdoors, donations, and USDA Forest Service NFIF, NFTE, PAMT, and PATC funds will be used on public trails.

Stream and Fisheries
Colorado Division of Wildlife funds and USDA Forest Service NFIF, NFRG, and NFSI funds will be used to improve riparian areas and enhance fisheries.

Education
Colorado State Forest Service, Denver Water, Upper South Platte Watershed Protection Association, and USDA Forest Service NFSO and WFHF funds will be used for public education.

Monitoring
Denver Water, Colorado Division of Wildlife, USDI Geological Survey, USDA Natural Resources Conservation Service, Middle East Recovery Cooperative, and USDA Forest Service FRRE and NFIM funds will be used to monitor the overall Project.

NEPA
USDA Forest Service NFSO funds will be used to plan at the watershed level projects.

APPENDIX F: DENVER WATER VEGETATION MANAGEMENT PROGRAM

Integrated Noxious Weed Management Plan

Legal Description: Denver Water properties along the main stem of the South Platte River from Horse Creek to Scraggy View.
Common Names of Property or Parcels: Horse Creek, Deckers, Trumbull, Swayback Ranch, Oxyoke, Nighthawk, and Scraggy View
Parcel Number: Various
County: Jefferson Douglas
Prescription: Noxious Weed Management Plan
Estimated Duration: 4 - 5 months
Other Benefits: Control of noxious weeds has been identified as a major issue by Denver Water and the public. The plan will address this serious problem.
P**roject Narrative or Comments:** An integrated weed management plan will be prepared for Denver Water Lands along the main stem of the South Platte River from Horse Creek to Scraggy View. Properties will be intensively surveyed during the growing season to locate and identify weeds present. The plan will be developed with input from Jefferson and Douglas Counties and the USFS to help coordinate control efforts on adjacent lands.

Cheesman Fuelbreak

Legal Description: T9S R71 W Sec 36, 6th PM
Common Name of Property or Parcel: Cheesman Reservoir
Parcel Number: Unknown
County: Jefferson
Prescription: Fuelbreak thinning, dwarf mistletoe eradication, ponderosa pine restoration
Size of Practice: 91 acres
Species: Ponderosa pine, Douglas-fir
Product to be Harvested: Multi-Product Sale (Large and small sawtimber, waferwood & other POL)
Volume of Product: 483 cunits
Estimated Direct Costs: 0
Estimated Value (Gross): Sale is being sold at no stumpage as part of a harvesting feasability test being conducted with Lousiana-Pacific Corporation from Delta, Colorado.
Estimated Duration: One month

Cheesman Pile Prescribed Burn

Legal Description: T9 South R71 West Sec. 36 6th PM
Common Name of Property or Parcel: Cheesman
Parcel Number: Unknown
County: Jefferson
Prescription: Prescribed Burn Plan
Size of Practice: 45 acres
Species: Ponderosa Pine/Douglas-fir

Estimated Direct Costs: 0
Estimated Duration: To be completed by December 15, 2000
Other Benefits: Wildfire Hazard Reduction, improved aesthetics, visitor safety.
Project Narrative or Comments: Slash piles were created as part of the Forest Restoration Fuelbreak Project along roadways. A burn plan needs to be developed to facilitate disposal.

Cheesman Structure Wildfire Protection Plan

Legal Description: T9, 10 South R 70, 71 West 6th PM
Common Name of Property or Parcel: Cheesman
Parcel Number: Unknown
County: Jefferson
Prescription: Defensible Space Plan
Product to be Harvested: Ponderosa pine/Douglas-fir
Volume of Product: Unknown
Estimated Duration: Plan will be completed by September 15, 2000
Other Benefits: Defensible space helps protect structures from wildfire, and the surrounding forests from structure fires. Health of trees remaining following thinning will be improved. Denver Water has substantial investment in structures at Cheesman. Response by local FPD's is quite lengthy, so defensible space will improve survivability.
Project Narrative or Comments: Survey and evaluate wildfire hazards around structures at Cheesman Reservoir. Develop Defensible Space Plan.

Cheesman Reservoir Timber Inventory and Management Plan

Legal Description: T 10 South R 70,71 West, 6th PM
Cheesman Reservoir Parcel Number: Unknown
County: Jefferson and Douglas Counties
Prescription: Timber Inventory and management plan
Estimated Duration: Phase I will be completed December 31, 2000
Other Benefits: The purpose of this plan is to meet Denver's forest management objectives for this property, while blending the significant research findings developed at Cheesman with actual on-the-ground management.
Project Narrative or Comments: Develop a forest management plan for Cheesman Reservoir. The first phase will be conducted in the northeast portion of the property. It will require significant field time for the collection of data, close work with the research team and input from Denver Water on their specific management objectives for this property.

Deckers *FireWise* Landscape Plan

Legal Description: T9 South R70 West, NE 1/4 Sec 21, 6' PM
Common Name of Property or Parcel: Deckers
Parcel Number: 327
County: Jefferson/Douglas
Prescription: Landscape Plan
Size of Practice: < 5 acres
Estimated Direct Costs: $850.00

Estimated Duration: 3 months
Other Benefits: Landscaped areas around the structures will improve their aesthetic appeal, develop an image of permanence for Denver Water within the local community, help develop a sense of community pride, increase the quality of the experience for those renting cabins from Denver Water, and provide a passive demonstration area for *Fire Wise* landscaping techniques.
Project Narrative or Comments: Develop a landscape plan for the Deckers property that uses *Fire Wise* design techniques and plant materials.

Interpretive Trail Design and Construction Near Denver Water Cabins

Legal Description: T9 South R70 West, NEI /4 Sec 21, 6th PM
Common Name of Property or Parcel: Deckers
Parcel Number: 327
County: Jefferson
Prescription: Trail Design
Size of Practice: Estimated 0.25 miles
Estimated Direct Costs: 0
Estimated Duration: Trail design and construction to be completed by December 31, 2000
Other Benefits: Showcase Denver Water's efforts in forest management; provide a safe, structured method for guided tours; trails will help provide internal fire/prescribed fire control lines; training opportunity for local fire protection district personnel.
Project Narrative or Comments: The management plan for this parcel called for a new trail near Denver Water cabins at Deckers. The trail will provide opportunities for viewing and learning about forest restoration activities. A brochure will be developed for trail users. The trail will be designed by CSFS and built using volunteer fire department personnel and CSFS volunteers.

Trumbull Demonstration Area, Blocks 3&4

Legal Description: T9S R70W SWI /4 Sec 15, 6th PM
Common Name of Property or Parcel: Trumbull
Parcel Number: 328
County: Douglas
Prescription: Ponderosa Pine Restoration Thinning
Size of Practice: 17 acres (block 3), 24 acres (block4)
Species: Ponderosa pine
Product to be Harvested: Multi-Product Sale (Small sawtimber & POL)
Volume of Product: 115 cunits
Estimated Direct Costs: 0
Estimated Value (Gross): $650.00 (block 3), $400.00 (block 4)
Estimated Duration: 2 months, starting late 2000
Other Beneflts: Reduce threat of wildfires and mountain pine beetle attacks; improve aesthetics; restored ponderosa pine ecosystem.
Project Narrative or Comments: This will be a continuation of the Ponderosa Pine Restoration Demonstration Area. This area is a "living laboratory" for the Upper South Platte Watershed Restoration Project. Adaptive management is part of this thinning project - trying different techniques, reviewing results and making changes on the next unit.

Trumbull Demonstration Area, Blocks 5 & 6

Legal Description: T9S R70W NWI /4 Sec 15, 6th PM
Common Name of Property or Parcel: Trumbull
Parcel Number: 328, 329, 330
County: Douglas
Prescription: Ponderosa Pine Restoration Thinning
Size of Practice: 60 acres
Species: Ponderosa pine
Product to be Harvested: Multi-Product Sale (Large and small sawtimber, POL)
Volume of Product: Estimated 200 cunits
Estimated Direct Costs: 0
Estimated Value (Gross): This project is being sold at no stumpage as part of the feasibility study being conducted in conjunction with Louisiana-Pacific Corporation, Delta, Colorado.
Estimated Duration: 1.5 months
Other Benefits: Reduce threat of wildfires and mountain pine beetle attacks; improve aesthetics; restored ponderosa pine ecosystem. Provides leverage to encourage USFS to conduct similar activities on adjoining properties.
Project Narrative or Comments: This will extend the work on the southern portions of this parcel. While those units are considered a demonstration area to illustrate ponderosa pine restoration, this area will be the first fully "operational" area within the Upper South Platte Watershed Restoration Project Area. It will, however, be considered a test area in another sense. Louisiana-Pacific Corporation will log this area to test the economic feasibility of harvesting timber along the front range of Colorado and hauling it to their waferwood plant in Olathe, Colorado. The sale will use primarily mechanical harvesting techniques, as opposed to the hand felling done on the southern units.

Demo Area Pile Prescribed Burn

Legal Description: T9S R70W SW 1/4 Sec 15, 6th PM
Common Name of Property or Parcel: Trumbull
Parcel Number: 328
County: Douglas
Prescription: Prescribed Bum Plan
Size of Practice: 20 acres
Species: Ponderosa Pine
Estimated Direct Costs: 0
Estimated Duration: To be completed by December 15, 2000
Other Benefits: Wildfire Hazard Reduction, improved aesthetics, visitor safety
Project Narrative or Comments: Slash piles were created as part of the Forest Restoration. Demonstration Area along roadways. A burn plan needs to be developed to facilitate disposal.

Demo Area Broadcast Presribed Burn

Legal Description: T9S R70W SW 1/4 Sec 15, 6" PM
Common Name of Property or Parcel: Trumbull
Parcel Number: 328
County: Douglas
Prescription: Prescribed Burn Plan

Size of Practice: 75 acres
Species: Ponderosa Pine
Estimated Direct Costs: 0
Estimated Duration: To be completed by December 15, 2000.
Other Benefits: Wildfire hazard reduction, improved aesthetics, visitor safety, improved range conditions by stimulating grass growth.
Project Narrative or Comments: Slash resulting from the Forest Restoration Demonstration Area thinning. A burn plan needs to be developed to facilitate disposal. This bum will be conducted *after* the pile burn. This plan will be the basis for periodic broadcast burning of the site, and will have a long plan life.

Demo Area Interpretive Program

Common Name of Property or Parcel: Trumbull
County: Douglas
Prescription: PowerPoint Presentation
Estimated Direct Costs: 0
Estimated Duration: Project will be completed by 12/31/00.
Other Benefits: Showcase Denver Water's forest management efforts; Material developed may be used by Denver Water, CSFS, USFS and others to describe and illustrate restoration efforts; Document activities at Trumbull.
Project Narrative or Comments: An intensive monitoring program has been in place at the Trumbull area to document before/after conditions. Permanent photo points have been established and photos taken. A PowerPoint presentation will be developed to document and showcase Denver water's efforts.

Demo Area Interpretive Trail Design and Construction

Legal Description: T9S R70W SW 1/4 Sec 15, 6th PM
Common Name of Property or Parcel: Trumbull
Parcel Number: 328
County: Douglas
Prescription: Trail Design
Size of Practice: Estimated 0.75 miles
Estimated Direct Costs: 0
Estimated Duration: Trail Design and construction to be completed by December 15, 2000
Other Benefits: Showcase Denver Water's efforts in Forest Management; Provide a safe, structured method for guided tours; Trail win help provide internal fire/prescribed fire control lines; training opportunity for local fire protection district personnel.
Project Narrative or Comments: The original concept for the demonstration areas called for the development of trails and conducting guided tours of completed restoration activities. Signs have already been constructed and brochures developed. Trail will be designed by CSFS and built using volunteer fire department personnel and CSFS volunteers.

Camp Katami - Forest Restoration and Fuelbreak Thinning

Legal Description: Sec. 17, T.7S., R.70W.

Common Name of Property or Parcel: Camp Katami/Last Resort
Parcel Number: UNK
County: Jefferson
Prescription: Development of Defensible Space around structures.
Size of Practice: +/- 35 acres
Species: Ponderosa pine, Douglas-fir
Product to be Harvested: Large & small saw logs, firewood
Volume of Product: 8.95 cords/acre x 35 acres = 313 cords
Estimated Value (Gross): 313 cords x $8.00/cord = $2,504.00
Estimated Duration: 6 months
Other Benefits: Improved forest health, resistance to wildfire and insect and disease epidemics.Improved access for fire and emergency vehicles; improved visitor/lessee safety. Improved aesthetics.
Project Narrative or Comments: This project is one of several that begins implementation of the vegetation management treatments called for in the management plan prepared for Camp Katami. These include fuel breaks along the main entrance road as well as general forest thinnings using ponderosa pine restoration management techniques.

Camp Katami - Picnic Platform Thinning

Legal Description: Sec. 17, T.7S., R.70W.
Common Name of Property or Parcel: Camp Katami/Last Resort
Parcel Number: LTNK
County: Jefferson
Prescription: Development of Defensible Space around picnic platforms
Size of Practice: +/- 4 acres
Species: Ponderosa pine, Douglas-fir
Product to be Harvested: small saw logs, firewood
Estimated Direct Costs: $4,000.00
Estimated Value (Gross): Due to limited volume and extended costs associated with operating around improvements (picnic platforms), no value is present in this area.
Estimated Duration: 6 months
Other Benefits: Improved forest health, resistance to wildfire and insect and disease epidemics improved visitor and lessee safety. Improved aesthetics.
Project Narrative or Comments: This project is one of several that will implement the vegetation treatments called for in the management plan prepared for Camp Katami.

Camp Katami Fuels Reduction - Defensible Space (structures)

Legal Description: Sec. 17, T.7S., R.70W.
Common Name of Property or Parcel: Camp Katami/Last Resort
Parcel Number: Unknown
County: Jefferson
Prescription: Development of defensible space around structures.
Size of Practice: +/- 5 acres
Species: Ponderosa pine, Douglas-fir, Rocky Mountain Juniper
Product to be Harvested: small saw logs, firewood

Estimated Direct Costs: $5,500.00
Estimated Value (Gross): Due to small implementation area and increased time performing operations around structures, no product value is expected for this project.
Estimated Duration: one month
Other Benefits: Improved forest health and fire safety. Improved visitor/lessee safety. "Defensible Space" works both ways: they help protect structures from wildfire and they also help protect the forest from structure fires.
Project Narrative or Comments: This project will design, mark, contract with a commercial wildfire mitigation company and administer to the development of defensible space around the structures and camping platforms at Camp Katami. Salvage right to the material cut will be attempted to help reduce overall costs.